



anmore south

OCP Application Tech Appendix

May 2023

icona

+ placemark
DESIGN + DEVELOPMENT

anmore south

OCP Amendment Application

Technical Appendix

May 2023

Prepared for:



Submitted by:



Prepared by:



Technical Team:





Table of Contents



APPENDICES


- Appendix A: Alignment with Current OCP Residential Land Use Policies
- Appendix B: Preliminary Geotechnical Report
- Appendix C: Archaeological Overview Assessment Interim Report
- Appendix D: Provincial Archaeological Site Record Request
- Appendix E: Environmental Assessment Report
- Appendix F: Preliminary Habitat Compensation Report
- Appendix G: Recommended Leisure Amenities for Anmore South
- Appendix H: Village Retail Market Analysis
- Appendix I: Preliminary Transportation Demand Management Report
- Appendix J: Fiscal Impact Analysis
- Appendix K: Economic Impact Analysis
- Appendix L: Public Consultation Summary
- Appendix M: Site Profile, Title Search and Topographic Survey




APPENDIX A: OCP Residential Land Use Policy Table




OCP RESIDENTIAL LAND USE POLICIES


OCP Residential Policy	Policy Compliance	OCP Residential Policy
<p>Policy RLU-1 New Residential subdivisions will be directed to those areas designated Residential and Hillside Residential on Schedules B1 and B2 – Land Use Map.</p>		<p>Anmore South is currently designated as Hillside Residential within the OCP.</p>
<p>Policy RLU-2 The Village supports the subdivision of larger properties to accommodate anticipated levels of population growth in the Anmore. Residential subdivisions should be consistent with the established on-acre pattern of development in Anmore, except where development occurs on the hillside or in proximity to environmentally sensitive areas, in which case alternative and innovative development proposals shall be encouraged.</p>	<p>N/A</p>	<p>As the only lands within Anmore that have a regional Special Study Area designation, Anmore South provides the opportunity for alternative subdivision patterns to the established one-acre pattern.</p>
<p>Policy RLU-3 Subdividers/developers are encouraged to be mindful of the impact of development on environmental features and systems, employing strategies that design “with the land” and make use of best practices for ecological sensitivity, including:</p> <ul style="list-style-type: none"> • Integration of natural features and topography into site planning and design, ensuring that the building and structure faces do not dominate the landscape. Large cuts/fills and the extensive use of retaining walls are not to be utilized to create ‘build-able lots’ or flat yards. • Reduction of the development footprint, towards maximizing the amount of retained greenspace. • Incorporation of scenic natural features into the site design as natural open space(s) for the eventual residents of the development. • Protection of soil and vegetation during construction, to minimize slope erosion and siltation effects on nearby watercourses. • Consideration of view impacts, both in terms of implications to views of neighbouring properties and of the development itself from elsewhere in the Village. 		<p>Anmore South responds to the land with hillside-sensitive neighbourhood design. Anmore South’s Conservation + Recreation Framework protects steep slopes and environmentally sensitive areas, resulting in a more compact development footprint than could be achieved with the existing RS-1 zoning.</p>

OCP Residential Policy	Policy Compliance	OCP Residential Policy
<p>Policy RLU-4</p> <p>Incorporate landscape schemes, building design and exterior materials that are in keeping with the natural setting and semi-rural character of the Village, taking advantage of strategies such as:</p> <ul style="list-style-type: none"> • Use of native-species and water-conserving landscaping. • Minimizing impermeable surface areas. • Use of Dark-Sky lightning strategies that reduce light pollution from development. 		<p>Anmore South’s will use native species and water-conservation features in landscaping.</p> <p>Impermeable surfaces will be limited where feasible to allow infiltration of surface water.</p> <p>Dark Sky lightin strategies will be implemented to reduce light pollution and preserve the night sky.</p>
<p>Policy RLU-5</p> <p>Exceed BC Building Code energy efficiency standards, to support the Village’s greenhouse gas reduction targets, by including:</p> <ul style="list-style-type: none"> • Inclusion of building designs that maximize energy efficiency of the envelope as well as incorporate or prepare for solar hot water-systems or other alternative systems that reduce energy needs, to facilitate the future accommodation of such systems. • Consideration of water-efficient building systems that reduce water consumption and wastewater generation, such as the use of water conserving fixtures, rainwater collection systems, and the reuse of grey water (i.e. the use of treated grey water for irrigation purposes). 		<p>Anmore South supports Village greenhouse gas reduction by providing a walkable village-scale neighbourhood with shops, services and amenities - reducing Anmore’s reliance on private trips.</p> <p>The Anmore South Neighbourhood Plan will detail building energy efficiency and water conservation requirements to help meet Village of Anmore targets.</p>

OCP Residential Policy	Policy Compliance	OCP Residential Policy
<p>Policy RLU-6</p> <p>In order to enable the hillsides to be developed in a comprehensive and environmentally sensitive manner, use of the Village’s clustered housing zoning is strongly encouraged, with the intent that:</p> <ul style="list-style-type: none"> • Proposed development is sited in close proximity to existing infrastructure, services, and access points to maintain natural spaces and features, while ensuring adequate separation between developed units towards retaining semi-rural character. • Proposed development minimizes disruption to sloped and environmentally sensitive areas resulting from construction and access. • Proposed development does not encroach upon riparian or other environmentally sensitive areas. • Proposed upholds the intentions and strategies described in RLU-3, and may be subject to further regulatory and other restrictive instruments (i.e. covenants) at the time of application to ensure best practices are achieved. • Proposed development does not exceed a gross density of 1.5 lots per acre. 	<p>N/A</p>	<p>Anmore South responds to the land with hillside-sensitive neighbourhood design. Anmore South’s Conservation + Recreation Framework protects steep slopes and environmentally sensitive areas, resulting in a more compact development footprint than could be achieved with the existing RS-1 zoning.</p> <p>As the only lands within Anmore that have a regional Special Study Area designation, Anmore South provides the opportunity for higher densities than 1.5 lots per acre - without compromising the semi-rural character of the existing Village neighbourhoods.</p>
<p>Policy RLU-7</p> <p>The Village encourages subdivision-applicants considering developing along the Village’s hillside area to undertake coordinated planning efforts between landowners rather than developing each property separately, maximizing the protection of environmentally sensitive areas, promotion of contiguous parks and trails, and the establishment of complementary locations for housing and access points.</p>		<p>The current singular ownership and community master-planning process for Anmore South enables maximizing the protection of environmentally sensitive areas, promotion of contiguous parks and trails, and the establishment of complementary locations for housing and access points.</p>

OCP Residential Policy	Policy Compliance	OCP Residential Policy
<p>Policy RLU-8 Consideration of Comprehensive Development (CD) zoning proposals on a site-by-site basis, specifically in instances where it can be demonstrated to the Village’s satisfaction that:</p> <ul style="list-style-type: none"> • Proposed development evidences a level of innovation in site design and housing choice, that could not be otherwise accommodated by existing zoning; or • Proposed development delivers a demonstrable and overall benefit to the community, socially, environmentally or economically; and • Proposed development upholds the intentions and strategies described in RLU-3, and may be subject to further regulatory and other restrictive instruments (i.e. covenants) at the time of application to ensure such best practices are achieved. 		<p>Anmore South provides a range of housing choice not considered under the Village’s existing zoning. The neighbourhood delivers a demonstrable and overall benefit to the community, socially, environmentally or economically. It is anticipated that a Comprehensive Development zone will be prepared for rezoning of Anmore South from the current RS-1 zoning.</p>
<p>Policy RLU-9 Make extensive use of retained, mature landscaping, planted landscape buffers and building setbacks to best integrate and screen developments that propose different lot sizes, densities or forms of development compared to those of neighbouring properties.</p>		<p>Anmore South development plans to preserve the mature forest as a natural buffer between the new neighborhood and the existing neighborhoods as well as Sunnyside Road.</p>
<p>Policy RLU-10 Voluntary provision of a community amenity contribution by as part of any rezoning proposal, to help assist the Village in mitigating any community impacts and towards the meeting of community amenity needs that may stem from the proposed rezoning and eventual development.</p>		<p>Anmore South provides a new Community Centre to help meet Village amenity needs. More detailed planning on community amenities will be conducted during the Neighbourhood Planning process.</p>

OCP Residential Policy	Policy Compliance	OCP Residential Policy
<p>Policy RLU-11</p> <p>For the purposes of defining amenity priorities, the Village supports the consideration, and possible combination, of the following measures:</p> <ul style="list-style-type: none"> • Trails, pathways, open space or sensitive environmental areas; facilities such as a new Village hall, fire hall, museum, recreation facilities, community gathering spaces or other amenities considered appropriate by the Village; or a contribution of equivalent value, to the satisfaction of the Village. • For rezoning proposals seeking a Comprehensive Development rezoning, a voluntary amenity contribution equal to 30% of land or land value should be proposed, to the satisfaction of the Village. • A voluntary amenity contribution proposal should anticipate the financial implications to the Village related to the ongoing maintenance of any proposed amenity, and offer money-in-lieu or possible other amenities towards offsetting those anticipated future cost. 		<p>Anmore South dedicates ~47% of the land for public use through the Conservation + Recreation Framework, which includes Village Greenways, forest trails, and neighbourhood parks.</p>
<p>Policy RLU-12</p> <p>The Village supports development of strategies by subdividers/developers to prevent and reduce wild fires. This includes the integration of FireSmart principles for vegetation management, and the development of defensible space, firebreaks, and use of appropriate building and landscaping materials.</p>		<p>Anmore South proposes use of FireSmart or equivalent principles in community design and development. Further detail on wildfire prevention strategies will be included in the Anmore South Neighbourhood Plan.</p>
<p>Policy RLU-13</p> <p>The Village encourages the retention of existing mature landscaping, introduction of planted landscape consistent with Naturescape BC guidelines or fencing and building setbacks to buffer sensitive natural areas and Conservation and Recreation lands from new development.</p>		<p>Anmore South will retain existing forest vegetation as part of the Conservation + Recreation Framework. Landscaping will make use of native plant species. Development setbacks and fencing will be implemented as require by Detailed Riparian Area Protection Regulation Assessments.</p>
<p>Policy RLU-14</p> <p>The Village encourages subdividers/developers to consider adjoining properties and the future extension of certain roads anticipated by development (and as identified in Schedule C) when determining proposed means of access, ensuring that development does not restrict access to lands beyond. Such efforts</p>		<p>Anmore South completes existing Village neighbourhoods by providing new street connections to Fern and Crystal Creek Drives.</p>

OCP Residential Policy	Policy Compliance	OCP Residential Policy
<p>Policy RLU-15 Within the time frame of this Plan, the Village will not consider rezoning land for the expansion of existing or the creation of new manufactured home parks.</p>		<p>Anmore South will not include manufactured home parks.</p>

APPENDIX B:

Preliminary

Geotech Report

Icona Properties
#900 – 1111 West Hastings Street
Vancouver, BC
V6E 2J3

April 20, 2023
File: 21741
R1

Attention: Adelana Gilpin Jackson

**Re: Preliminary Geotechnical Report – Proposed Neighbourhood Development
Anmore South – Sunnyside Road and First Avenue, Anmore, BC**

1.0 INTRODUCTION

We understand that Icona Properties are considering the above referenced site for development. Early concept drawings provided to us indicate that the development could consist of single-family homes, duplexes, town homes, low rise apartment buildings, community centres and protected natural areas, all accessed by new paved roads and accessways. We further understand that the majority of the new buildings would be constructed at grade while some of the multi-family structures may include underground parking levels. We anticipate that some grading in the form of cut and fill would be required to achieve the desired grades for the proposed new roads and at grade homes. Excavation requirements for the contemplated underground parkade levels should be reviewed once the design has progressed.

This report presents the anticipated soil conditions at the site and makes preliminary recommendations for the design and construction of the new development based on soil logs provided to us and our experience in the area. This report has been prepared exclusively for our client, for their use, the use of others on their design team, and for submission to the Village of Anmore during the development and permitting process.

2.0 SITE DESCRIPTION

The site is located to the east of the intersection of Sunnyside Road and First Avenue in Anmore, BC. The site is bounded by First Avenue to the west, existing single-family homes to the north and east, the municipal boundary of Port Moody to the south and is roughly bisected by Sunnyside Road. The site slopes from approximately 135 m geodetic at the northeast side of the site to 35 m geodetic at the southwest site of the site, over a horizontal distance of approximately 1,000 m. (ViewPort, 2022). We also understand that some watercourse and tributaries exist within the development area.

The site location relative to the surrounding area is shown on our Drawing No. 21741-01 following the text of this report.

3.0 FIELD INVESTIGATION

GeoPacific have been provided with borehole logs from a geotechnical investigation completed by others on September 15, 2019, for the southern portion of the site. At that time, 5 boreholes were advanced to depths of up to 5.5 m below existing grades using a track mounted solid stem augur drill rig.

The referenced soil logs are presented in Appendix A. The approximate location of test hole is shown on our Drawing 21741-01, following the text of this report.

4.0 ANTICIPATED SUBSURFACE CONDITIONS

4.1 Anticipated Soil Conditions

Based on the Geological Survey of Canada Map 1484A – Surficial Geology New Westminster, we expect that the site is underlain by Capilano Sediments and Vashon Drift glacial till. We further expect that the post glacial soils will mostly be present at the southwestern portion of the site. The Capilano Sediments are described as raised marine beach, spit, bar and lag veneer, poorly sorted sand to gravel normally less than 1 m thick but up to 8 m thick. The Vashon Drift generally consists of lodgement and minor flow till, lenses and interbeds of glaciolacustrine laminated stony silt.

The soil conditions presented in the logs provided to us are generally in agreement with the published geology summarized above. The site is expected to be underlain by up to 0.6 m of topsoil, over 2 m of post glacial sand, all over very dense silty sand glacial till that extends down to the extent of the provided logs. Some fills can be expected in areas of previous development and prior land uses.

The borehole logs provided to us are included in Appendix A, following the text of this report. We expect that the soil conditions presented above would be confirmed our own site-specific drill investigation.

4.2 Anticipated Groundwater Conditions

According to the BC Water Resources Atlas, the southeast portion of the site is within the mapped extent of Aquifer #924. The Atlas states that the Aquifer #924 is comprised of confined glaciofluvial sand and gravel underneath glacial till.

The nearest registered well to the site, within the mapped extent of Aquifer #924 has Well Tag Number (WTN) 74082. It is located at 2130 Sunny Side Road, directly adjacent to the southeast corner of the subject site. There are no detailed soil logs presented on the Atlas, however, the static groundwater level is shown to be approximately 27.4 m below ground surface. The groundwater level reported at WTN 74082 is well below the likely founding elevation of any underground levels as well as below the depth of the cut and fill anticipated as part of the site preparation work. Thus, we expect that the proposed development will not encounter the static groundwater table.

Some perched groundwater may form at the contact with the upper weathered soils and the relatively impermeable glacial till or in sandier zones within the glacial till. We are of the opinion that the groundwater noted on the logs provided to us is perched. The main recharge mechanism for perched groundwater of this nature is the percolation of precipitation. As a result, we expect that perched groundwater levels would be highest during wetter periods of the year and the spring melt.

Temporary seepage from perched groundwater of this nature is typically relatively light and can likely be controlled using passive methods. Our drainage recommendations for are presented in Section 6.6 below.

5.0 DISCUSSION

5.1 General Comments

Information provided to us indicates that the proposed development could include single-family homes, duplexes, town homes, low rise apartment buildings, community centres and protected natural areas, all accessed by new paved roads and accessways. We further understand that the majority of the new buildings would be constructed at grade while some of the multi-family structures may include underground parking levels.

We anticipate wood framed construction above grade and reinforced concrete construction for any buried basement levels. Structural loads are expected to range from relatively light to moderately heavy.

Based on the likely footing elevations, the soils present at the underside of the proposed foundations are expected to be compact to dense post glacial soils or dense glacial till. We expect that these soils will provide adequate support to use conventional pad and strip foundations.

We anticipate that some re-grading of the property will be completed to accommodate the development. Some of the underlying natural soils may be re-used as fill subject to our drill investigation, lab testing and approval.

As noted above, the excavation requirements should be revisited once the design has progressed, and the location and depth of any underground parking levels is available for our review. At this time, we expect that sloped excavations would be used where possible, but some form of vertical support may be required depending on the finalized design.

The subsurface soils underneath the founding level are not expected to be prone to liquefaction or other forms of ground softening under the design earthquake defined under the 2018 British Columbia Building Code.

We expect that updated plans would be provided to GeoPacific for review well in advance of construction to provide further recommendations for the design and construction of the proposed development, if necessary.

We confirm, from a geotechnical point of view, that the proposed development is feasible, provided the preliminary recommendations outlined in Section 6.0 are incorporated into the overall design.

5.2 Slope Stability

The site slopes gently towards the south/south west, though locally steeper at road cuts and ditches installed in the past. Based on our preliminary review of the borehole and survey information provided, the underlying materials have a high shear strength and the slopes are gently to moderate (mainly 10 to 15 degrees, increasing locally to 25 degrees) and therefore the possibility of near surface or deep-seated global instability are considered extremely remote. Erosion and surface wash outs due to site disturbance present the most significant natural hazard risk at the site. This risk can be addressed with appropriate erosion and sediment control (ESC) measures included into the work plan.

We can provide specific commentary regarding the guidelines for landslide assessment in British Columbia, “*Guidelines for Legislated Landslide Assessments for Proposed Residential Developments in BC*”, Published March 1, 2023, once detailed design plans have been developed.

6.0 RECOMMENDATIONS

6.1 Site Preparation

Prior to construction of foundations, retaining walls, utilities, grade supported slabs, and pavement structures, all vegetation, topsoil, fills, soils containing organics and loose/soft or otherwise disturbed materials should be removed to expose a subgrade of compact to dense post glacial soils or dense glacial till.

Stripping should extend out beyond the building envelope and roads at a distance equal to the thickness of proposed engineered fill beneath the footings. For example, if 1 metre of engineered fill will underlie a footing then stripping should extend a minimum distance of 1 metre beyond the outer edge of that footing.

Stripping is not required in landscaped areas unless the criteria stated in the previous paragraph requires the

removal of that material.

Should grade reinstatement be required in locations not supporting foundations, we recommend the use of engineered fill. “Engineered Fill” is defined as clean sand to sand and gravel containing silt and clay less than 5% by weight, compacted in 300 mm loose lifts to a minimum of 95% Modified Proctor maximum dry density at a moisture content that is within 2% of optimum for compaction. During fill placement, benches should be cut into any sloping stripped subgrade surfaces to key the structural fill into the natural topography. Grade reinstatement below foundation locations may require the use of minimum 5MPa lean mix concrete.

Stripped subgrades and engineered fill materials and compaction must be reviewed by the geotechnical engineer.

6.2 Foundations and Bearing Capacity

Based on the borehole information provided to us, we expect that footings would be placed on compact to dense post glacial sand or dense to very dense glacial till. Conventional pad and strip foundations may be used to support the proposed structures. Footings can be designed on the basis of a serviceability limit state (SLS) bearing pressure of:

- 120 kPa based on support on compact to dense post glacial sand
- 300 kPa based on support on dense to very dense glacial soils

Factored ultimate limit state (ULS) bearing pressures, for transient loads such as those induced by wind and earthquakes, may be taken as 1.5 x the SLS bearing pressure provided above. We estimate for foundations designed as recommended, settlements will not exceed 25 mm total and 2 mm per metre differential.

Irrespective of the allowable bearing pressures given, pad footings should not be less than 600 mm by 600 mm and strip footings should not be less than 450 mm in width. Footings should also be buried a minimum of 460 mm below the surface for frost protection.

Adjacent footings should achieve a maximum elevation difference equal to half of their horizontal distance to avoid superimposing the upper foundation loading to the lower foundation. Any footings, either strip or column footings, constructed within a 3.0 m proximity to the crest of a fill or soil slope should maintain a horizontal distance of 3.0 m from the face of the slope. This may require that the elevation of the footings be lowered to achieve the 3.0 m requirement.

Foundation subgrades must be reviewed by the geotechnical engineer prior to footing construction.

6.3 Slab-on-Grade Floors

In order to provide suitable support and drainage for slab-on-grade floors, we recommend that floor slabs should be underlain by a minimum of 150 mm of a free draining granular material, such as 19 mm clear crushed gravel, and hydraulically connected to perimeter drainage. The crushed gravel fill should be compacted to a minimum of 95% Modified Proctor dry density (ASTM D1557), at a moisture content that is within 2% of its optimum for compaction. A moisture barrier should underlie the slab directly above the free draining granular material.

If required, general grade reinstatement or backfill should be completed with engineered fill, as discussed in the site preparation section.

The geotechnical engineer shall be contacted to review the slab-on-grade construction.

6.4 Seismic Design of Foundations

We have considered the 2018 BCBC design earthquake with a 2% probability of exceedance over a 50 year period which equates to a return period of 2,475 years. Accordingly, we have considered an earthquake having a peak horizontal ground acceleration of 0.323 g for this site (Ref. National Resources Canada, Site Coordinates: 49.309 deg. North, 122.870 deg. West).

This site qualifies as “Site Class C” as defined in Table 4.1.8.4.A of the 2018 British Columbia Building Code (BCBC)

6.5 Temporary Excavations

No grading plans or building sections have been provided to us at this time, however, we expect that the majority of temporary excavations would be sloped where possible since it is more economical to do so. We would expect that slopes cut to a 1H:1V (1 horizontal to 1 vertical) can be constructed in the existing natural post glacial soils while 3H:4V may be constructed in the underlying dense glacial till. Flatter cut slopes may be required in areas with soft soils, or soils with active seepage (should they be encountered).

Some form of vertical support may be required for the contemplated underground parking levels. However, the excavation and shoring requirements will depend on the existing topography as well as the final design layout and elevation for the proposed structures.

If perched groundwater is encountered, we expect that it can be controlled using gravity drainage or sumps and sump pumps.

Temporary cut slopes in excess of 1.2 m in height must be covered in poly sheeting and require inspection by a professional engineer in accordance with Work Safe B.C. guidelines, prior to worker-entry.

6.6 Site and Foundation Drainage

Given the existing slope of the site, we expect that the majority of drainage could be achieved by sloping stripped areas down gradient. In stripped or benched areas where perched groundwater or precipitation accumulates, it is anticipated that gravity drainage such as French drains, open channels or piping systems will be an effective means to convey any seepage from the construction area. Sumps and sump pumps may be required to convey perched inflows from relatively deep excavations in the location of underground parkade levels.

A perimeter drainage system, as described in the BCBC 2018, should be installed around any portion of a buried foundation wall to prevent the accumulation of water behind foundation walls and beneath slabs.

6.7 Utility Installation

For utilities bedded on compact to dense post glacial sand or dense glacial till, settlements are anticipated to be negligible. Groundwater seepage during utility installation may need to be controlled using sumps and sump pumps.

We recommend that any trenches be sloped or shored as per the latest Work Safe BC regulations. We recommend that all service trenches be backfilled with clean granular material, which conforms to municipal standards, compacted to 95% “Modified Proctor” dry density (ASTM D1557), with a moisture content within 2% of optimum for compaction.

6.8 Lateral Pressure of Foundation Walls

We understand that some underground levels may be included at the site. The earth pressure on these walls depends upon a number of factors including the backfill material, surcharge loads, backfill slope, drainage, rigidity of the basement or retaining wall, and method of construction including sequence and degree of compaction.

The method of construction of the excavation is expected to strongly influence design loads on the foundation walls. Lateral earth pressure theory suggests that cohesionless backfill soils placed in a sloped excavation are likely to provide higher earth pressure than fully shored excavation.

The following loads are provided based on the assumption of a sloped excavation of 3H:4V to 1H:1V backfilled with a free draining granular backfill with a unit weight of 18 kN/m³, friction angle of 32 degrees, level backfill, and no surcharges. Heavier backfills or backfills with a lower angle of friction would be expected to induce higher loads.

We have assumed that a free draining granular backfill will be used behind the basement walls and that a perimeter drainage system will also be employed to collect any water from behind the walls. Therefore, our wall loading scenarios presented below assume that no water pressure will be generated behind the walls.

For a partially restrained basement wall designed for static pressure a pressure distribution should be employed of 6H (kPa) triangular, where 'H' is the buried depth of the wall, in metres, below grade.

Dynamic loading induced by the 2020 National Building Code of Canada design earthquake should be added to the static loads and should be taken as 3H (kPa) inverted triangular based on a peak horizontal ground acceleration of 0.323 g (Natural Resources Canada).

6.9 New Pavement Structures

As indicated above, new asphaltic concrete pavements are anticipated throughout the development. Following the recommended site preparation in Section 6.1, we expect that the following pavement design structure, given in Table 1, is sufficient to carry the anticipated vehicle traffic loads for on-site local roads.

Table 2: Recommended Minimum Pavement Structure for Local Roads

Material	Thickness (mm)
Asphaltic Concrete	50
19 mm minus crushed gravel base course	100
75 mm minus crushed gravel sub-base course	250

All base and sub-base fills should be compacted to a minimum of 95% Modified Proctor dry density with a moisture content within 2% of optimum for compaction.

The stripped road subgrade should be proof rolled to locate any soft/loose spots. Where existing soils are soft/loose and cannot be re-compacted to a minimum of 95% Modified Proctor dry density, they must be excavated and replaced with engineered fill.

7.0 DESIGN REVIEWS AND CONSTRUCTION INSPECTIONS

The preceding sections make recommendations for the design and construction of the proposed improvements. The report is based on preliminary information received at the time of the report preparation. We expect that the report would be updated once final design plan drawings are available. We have recommended the review of certain aspects of the design and construction in this report.

In summary, geotechnical field reviews for the following aspects of this scheme are required:

1. Review of site stripping
2. Review of foundation subgrade prior to footing construction
3. Review of slab-on-grade fill compaction prior to slab construction
4. Review of the compaction of engineered fill
5. Review of any temporary cut slopes or excavation in excess of 1.2 meters in height prior to worker-entry
6. Review of pavement structure subgrade prior to sub-base placement
7. Review of base and sub-base fill materials and compaction

It is critical that these reviews are carried out to ensure that our intentions have been adequately communicated. It is also critical that contractors working on the site view this document in advance of any work being carried out so that they become familiarised with the sensitive aspects of the works proposed. It is the responsibility of the developer to notify GeoPacific Consultants Ltd. when conditions or situations not outlined within this document are encountered.

8.0 CLOSURE

We are pleased to assist you with this project and we trust this information is helpful and sufficient for your purposes at this time. However, please do not hesitate to call the undersigned if you should require any clarification or additional details.

For:

GeoPacific Consultants Ltd.

Reviewed by:



Adam Zywotkiewicz, B.Sc., GIT
Geologist



Matt Kokan, M.A.Sc., P.Eng.
Principal



SITE PLAN

SCALE = NTS

LEGEND :

-  AH##-## - REFERENCE BOREHOLES
-  WTN 74082 - WRBC REFERENCE WELL

THE SITE EXTENT IS APPROXIMATE

REFERENCE:

QtheMap, 2021

GEOPACIFIC
VANCOUVER KAMLOOPS CALGARY

1779 W. 75th Avenue
Vancouver, B.C. V6P 6P2
P 604 439.0922
F 604.439.9189

DATE:	August 29, 2021		
DRAWN BY:	APPROVED BY:	REVIEWED BY:	
AZ		MJK	
SCALE:	NTS		

GEOTECHNICAL INVESTIGATION
Anmore Lands, Anmore, BC
SITEPLAN

FILE NO.:	21741
DWG. NO.:	21741-01

REVISIONS:
A.
B.
C.

APPENDIX 'A'



Soil LOG AH2019-01

PROJECT NUMBER 2019-P27	DRILLING DATE Sep/05/2019	COORDINATES
PROJECT NAME Burrad Commons Project	TOTAL DEPTH 5m	COORD SYS
CLIENT IOCO AM Development LP	DIAMETER 6"	SURFACE ELEVATION
ADDRESS 1600-1700 Sunnyside Street Anmore	CASING uPVC	Water in WELL 1.2m below grade(Sep 5, 2019)
Borehole No. AH2019-01	SCREEN uPVC Factory Slotted	Water in WELL 0.1m below grade(Sep 13,2019)

COMMENTS Near the Parking lot-refer to Figure 1 in Appendix -A

LOGGED BY GZ
CHECKED BY ZY

Samples	Depth (m)	Graphic Log	DCPT N	Material Description	Liquid Limit	Moisture	Plastic Limit	Well Diagram
	0.2		0	Top Soil(OM),soft, damp, dark brown with rootlet				
S1@2ft	0.4		0	Sandy Silt(LM),soft to firm, damp,whitish grey, with trace organic	45%	20%	16%	
	0.6		12					
S2@3ft	0.8		56	Sand(SW), compact, grey,wet,medium grain, well graded				
S3@3ft	1.2		Refusal	Till-like(SW_GP), silt and sand with some to trace gravel,very dense,grey,wet				
	1.4							
	1.6							
	1.8							
	2.0							
	2.2							
	2.4							
	2.6							
	2.8							
S4@10ft	3.0							
	3.2							
	3.4							
	3.6							
	3.8							
	4.0							
	4.2							
S5@14ft	4.4							
	4.6							
	4.8							
	5.0			Termination Depth at:5 m				
	5.2							



Soil LOG AH2019-02

PROJECT NUMBER 2019-P27 PROJECT NAME Burrad Commons Project CLIENT IOCO AM Development LP ADDRESS 1600-1700 Sunnyside Street Anmore Borehole No. AH2019-02	DRILLING DATE Sep/05/2019 TOTAL DEPTH 5m DIAMETER 6" CASING uPVC SCREEN uPVC Factory Slotted	COORDINATES COORD SYS SURFACE ELEVATION Water in WELL 0.9m below grade(Sep 5, 2019) Water in WELL 0.2m below grade(Sep 13,2019)
---	---	--

COMMENTS Near Crest of Steep slope-refer to Figure 1 in Appendix -A

LOGGED BY GZ
CHECKED BY ZY

Samples	Depth (m)	Graphic Log	DCPT N	Material Description	Liquid Limit	Moisture	Plastic Limit	Well Diagram
	0.2		0	Organic Silt(OM),soft and weak, damp,dark brown with roots		35%		
S1@1ft	0.4		6	Sand(SW), loose to dense, yellowish,damp,medium grain, well graded				
S2@2ft	0.6		5					
	0.8		50					
S3@4ft	1.2		50@6" refusal	Till-like(SW_GP), sand and gravel with some to trace silt,very dense,grey,wet				
	1.4							
	1.6							
	1.8							
	2.0							
	2.2							
	2.4							
	2.6							
	2.8							
S4@10ft	3.0							
	3.2							
	3.4							
	3.6							
	3.8							
	4.0							
	4.2							
S5@14ft	4.4							
	4.6							
	4.8			Termination Depth at:5 m				

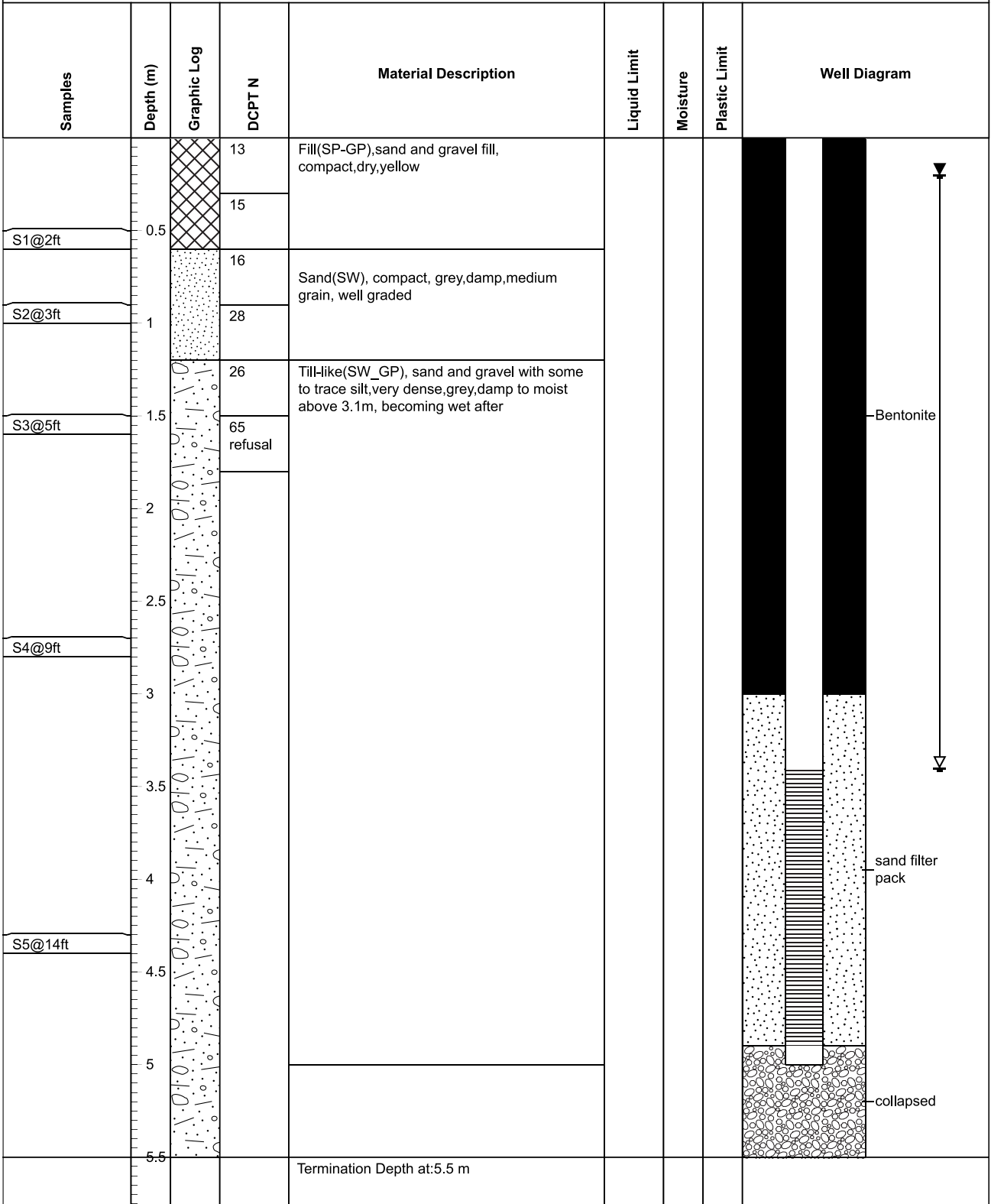


Soil LOG AH2019-03

PROJECT NUMBER 2019-P27 PROJECT NAME Burrad Commons Project CLIENT IOCO AM Development LP ADDRESS 1600-1700 Sunnyside Street Anmore Borehole No. AH2019-03	DRILLING DATE Sep/05/2019 TOTAL DEPTH 5.5m DIAMETER 6" CASING uPVC SCREEN uPVC Factory Slotted	COORDINATES COORD SYS SURFACE ELEVATION Water in WELL 3.4m below grade(Sep 5, 2019) Water in WELL 0.2m below grade(Sep 13,2019)
---	---	--

COMMENTS Near creek-refer to Figure 1 in Appendix -A

LOGGED BY GZ
CHECKED BY ZY





Soil LOG AH2019-04

PROJECT NUMBER 2019-P27 PROJECT NAME Burrad Commons Project CLIENT IOCO AM Development LP ADDRESS 1600-1700 Sunnyside Street Anmore Borehole No. AH2019-04	DRILLING DATE Sep/05/2019 TOTAL DEPTH 4.6m DIAMETER 6" CASING uPVC SCREEN uPVC Factory Slotted	COORDINATES COORD SYS SURFACE ELEVATION Water in WELL 3.7m below grade(Sep 5, 2019) Water in WELL 3.2m below grade(Sep 13,2019)
---	---	--

COMMENTS middle of trail near north end-refer to Figure 1 in Appendix -A

LOGGED BY GZ
CHECKED BY ZY

Samples	Depth (m)	Graphic Log	DCPT N	Material Description	Liquid Limit	Moisture	Plastic Limit	Well Diagram
	0.2		7	Sand(SW), sand with trace fine gravel, loose to dense, damp, yellowish, density increase with depth				
	0.4		6					
	0.6		15					
	0.8		31					
	1.0		52					
S1@4ft	1.2							
	1.4		refusal	Till-like(SW), sand with some to trace gravel, very dense, grey, damp above 2.0m and moist above 3.0m, becoming wet after, medium grain clean sand				
	1.6							
	1.8							
	2.0							
	2.2							
	2.4							
	2.6							
S2@9ft	2.8							
	3.0							
	3.2							
	3.4							
	3.6							
	3.8							
S3@13t	4.0							
	4.2							
	4.4							
	4.6							
	4.8							
	5.0			Termination Depth at:4.6 m				
	5.2							



Soil LOG AH2019-05

PROJECT NUMBER 2019-P27 PROJECT NAME Burrad Commons Project CLIENT IOCO AM Development LP ADDRESS 1600-1700 Sunnyside Street Anmore Borehole No. AH2019-05	DRILLING DATE Sep/05/2019 TOTAL DEPTH 5.5m DIAMETER 6 CASING uPVC SCREEN uPVC Factory Slotted	COORDINATES COORD SYS SURFACE ELEVATION Water in WELL dry on Sep 5, 2019 Water in WELL dry Sep 13,2019
---	--	---

COMMENTS middle of trail near south end-refer to Figure 1 in Appendix -A

LOGGED BY GZ
CHECKED BY ZY

Samples	Depth (m)	Graphic Log	DCPT N	Material Description	Liquid Limit	Moisture	Plastic Limit	Well Diagram
			4	Sand(SW), sand with trace fine gravel, loose to dense, damp, yellowish, density increase with depth				
	0.5		2					
S1@2ft			18					
	1		70					
			Refusal	Till-like(SW), sand with some to trace gravel, very dense, grey, damp above 2.0m and moist above 3.0m, becoming wet after, medium grain clean sand				
S2@4ft								
	1.5			gravel and cobbles and boulders seam from 3.0 to 4.0m,				
	2							
S3@9ft								
	2.5							
	3			Termination Depth at: 5.5m m/dry hole				
	3.5							
S4@14t								
	4							
	4.5							
	5							
	5.5							

7.0 DESIGN REVIEWS AND CONSTRUCTION INSPECTIONS

The preceding sections make recommendations for the design and construction of the proposed improvements. The report is based on preliminary information received at the time of the report preparation. We expect that the report would be updated once final design plan drawings are available. We have recommended the review of certain aspects of the design and construction in this report. In summary, geotechnical field reviews for the following aspects of this scheme are required:

1. Review of site stripping
2. Review of foundation subgrade prior to footing construction
3. Review of slab-on-grade fill compaction prior to slab construction
4. Review of the compaction of engineered fill
5. Review of any temporary cut slopes or excavation in excess of 1.2 meters in height prior to worker-entry
6. Review of pavement structure subgrade prior to sub-base placement
7. Review of base and sub-base fill materials and compaction

It is critical that these reviews are carried out to ensure that our intentions have been adequately communicated. It is also critical that contractors working on the site view this document in advance of any work being carried out so that they become familiarised with the sensitive aspects of the works proposed. It is the responsibility of the developer to notify GeoPacific Consultants Ltd. when conditions or situations not outlined within this document are encountered.

8.0 CLOSURE

We are pleased to assist you with this project and we trust this information is helpful and sufficient for your purposes at this time. However, please do not hesitate to call the undersigned if you should require any clarification or additional details.

For:

GeoPacific Consultants Ltd.

Reviewed by:

Adam Zywockiewicz, B.Sc., GIT
Geologist

Matt Kokan, M.A.Sc., P.Eng.
Principal

APPENDIX C:

Archaeology

Overview

Assessment

Interim Report



The Ioco Lands

Archaeological Overview Assessment Interim Report

Submitted to:
BCG Developments
200 - 1112 W Pender St
Vancouver, BC V6E 2S1

Submitted by:
Inlailawatash Limited Partnership
3075 Takaya Drive
North Vancouver, BC V7H 3A8

May 25, 2018

Inlailawatash File: 17-05-09

Musqueam Heritage Research/Investigation Permit MIB-2017-194-AOA
Squamish Archaeological Investigation Permit 17-0170
Tsleil-Waututh Nation Cultural Heritage Investigation Permit 2017-270

© 2018 Inlailawatash

inlailawatash.ca

RESTORING
OPPORTUNITY™

Important Notice

This study identifies potential impacts to archaeological resources by a proposed development project within the IOCO Lands in Anmore and Port Moody, British Columbia. It does not address potential impacts to traditional use activities and sites by this development. It is not the intent of this report to document First Nations' interests in the lands at this locality. The study was conducted without prejudice to First Nations' treaty negotiations, Aboriginal rights, or Aboriginal title.

Credits

Authors: Sean P. Connaughton, BA, MA, PhD¹

Walter Homewood, BA, CRM, SIS¹

Catherine Carlson, BA (Hons), MSc, PhD¹

GIS Analyst: Allison Hunt, BSc, MCPM¹

Editing and Review: Catherine Carlson

1. Inlailawatash Limited Partnership

inlailawatash.ca

Executive Summary

This Archaeological Overview Assessment (AOA) provides a review of baseline archaeological information related to heritage resources for the proposed developments by BCG Developments in the IOCO Lands of Anmore and Port Moody, British Columbia. The AOA was conducted by the Archaeology Unit of Inlailawatash Limited Partnership for Perkins & Will, Vancouver, and for BCG Developments, Vancouver. The review was conducted in accordance with the British Columbia Archaeological Standards and Guidelines (Archaeology Branch 1998, 2009). Archaeological sites are locations with material remains produced by human activities in the past. Archaeological sites older than 1846 are protected in British Columbia under the *Heritage Conservation Act* (Government of BC 1996). In British Columbia, archaeological sites are most frequently attributed to settlement and land use of Aboriginal peoples.

This AOA evaluates archaeological site distribution potential in the project development area. The assessment consists of a desk-based literature review and compilation of existing historical knowledge about recorded archaeological site locations, historical First Nations land use and place names, and environmental features. This information was used to develop a potential model of where archaeological sites are expected to be located.

A Preliminary Field Reconnaissance (PFR) was not conducted for this overview assessment because the client cancelled the AOA before completion.

There are no known archaeological sites recorded within the Project Area, however 16 archaeological sites have been recorded in and around the eastern end of Burrard Inlet. Additionally, the Project Area encompasses approximately half of the IOCO Townsite Heritage Conservation Area, which includes heritage properties (buildings) that have been registered with both the Province of BC and the City of Port Moody but are not within the scope of this AOA.

Based on the desktop assessment, an Archaeological Impact Assessment (AIA) should be conducted to identify the potential existence of any buried intact sub-surface archaeological deposits within the entire Project Area. Management recommendations are that:

1. An AIA survey of the entire Project Area should be conducted to identify areas of potential. The AIA should involve a Preliminary Field Reconnaissance;
2. Shovel-testing should be employed in areas of archaeological potential to identify if subsurface archaeological materials are present; and
3. The above recommendations be carried out prior to any ground-disturbing activities taking place within the Project Area.

Acknowledgements

We thank all those who contributed their time, energy, and experience throughout the duration of this project. We particularly acknowledge the First Nations communities – Musqueam, Squamish, and Tsleil-Waututh – within whose traditional territories this assessment occurred. All the Nations supported and acknowledged the work and issued heritage permits to Inlailawatash Archaeology.

We would like to thank Donald Luxton, Principal, at Donald Luxton & Associates Inc. who was very helpful in initiating this project. Christine Kanno of BCG Developments facilitated the project transition.

Abbreviations

AIA	Archaeological Impact Assessment
AOA	Archaeological Overview Assessment
BP	before present
HCA	<i>Heritage Conservation Act</i>
PARL	Provincial Archaeological Report Library
PFR	Preliminary Field Reconnaissance
RAAD	Remote Access to Archaeological Data

Table of Contents

Important Notice	ii
Executive Summary.....	iv
Acknowledgements.....	v
Table of Contents.....	vi
List of Figure	vii
List of Tables	vii
1 INTRODUCTION.....	1
1.1 AOA Objectives	1
1.2 Project Development Description.....	3
1.3 Archaeological Heritage Legislation.....	3
1.4 First Nations Heritage Policy and Permitting Processes.....	6
2 METHODS OF ARCHAEOLOGICAL OVERVIEW ASSESSMENT	7
2.1 Objectives and Tasks.....	7
2.2 Information Sources and Methods for Baseline Overview Assessment	7
2.3 Desktop Study and Document Review	8
2.4 Evaluation of Biophysical and Landform Potential.....	8
2.5 Archaeological Site Types	9
2.6 Evaluation of Archaeological Resource Potential.....	10
3 OVERVIEW ASSESSMENT RESULTS	10
3.1 Biophysical Review.....	11
3.2 Cultural Setting Review.....	13
4 RECOMMENDATIONS FOR RESOURCE MANAGEMENT.....	23
5 REFERENCES CITED.....	24

List of Figures

Figure 1. Location of proposed development in Port Moody. 2
Figure 2. Proposed development relative to previously recorded sites in Port Moody 4
Figure 3. Panorama of clear-cut logging for the Imperial Oil Refinery..... 20

List of Tables

Table 1. Recorded Archaeological Sites at the Eastern end of Burrard Inlet. 17
Table 2. Heritage Buildings in the Loco Townsite. 18

1 INTRODUCTION

This report describes the results of an Archaeological Overview Assessment (AOA) of cultural heritage resources for the developments proposed by BCG Developments in the IOCO Lands in Port Moody, British Columbia (Figure 1). This AOA was undertaken by Inlailawatash Limited Partnership (ILP) on behalf of Perkins & Will and BCG Developments. The project is located within the territories of interest for the Musqueam, Squamish, Stó:lō, and Tsleil-Waututh Nations.

The AOA was conducted under the standards and guidelines of the Archaeology Branch (1998, 2009). First Nations permits that were applied for and received include: Musqueam Heritage Research/Investigation Permit MIB-2017-194-AOA Squamish Archaeological Investigation Permit 17-0170, and Tsleil-Waututh Nation Cultural Heritage Investigation Permit 2017-270.

1.1 AOA Objectives

The primary objective of an Archaeological Overview Assessment (AOA) is to describe the distribution of known and potential archaeological sites within the local study area. The purpose is to assess whether the developments proposed by BCG Developments poses a risk to known or unidentified archaeological sites. The characteristics of archaeological sites that may be identified within the local study area, based on pertinent biophysical, ethnographic, and ethnohistoric data, are outlined to assess the potential risks that development poses to cultural resources. Based on this information, management recommendations for potential and known archaeological resources within the Project Area, and their risks associated with proposed developments, are provided.

The assessment described in this report conforms to an AOA as defined in the “British Columbia Archaeological Impact Assessment Guidelines” (Archaeology Branch 1998, 2009). The objectives of this AOA are to:

- Review cultural significance of the lands and archaeological resources of the Project Area in consultation with the local First Nations;
- Identify recorded archaeological sites that may conflict with the proposed project;
- Identify and describe archaeological resources through preliminary field reconnaissance that involves the local First Nations;
- Identify lands or landforms that have the potential to contain archaeological sites within the Project Area through preliminary field reconnaissance;
- Assess potential impacts to archaeological resources that might result from construction activities during development projects; and

inlailawatash.ca

RESTORING
OPPORTUNITY™

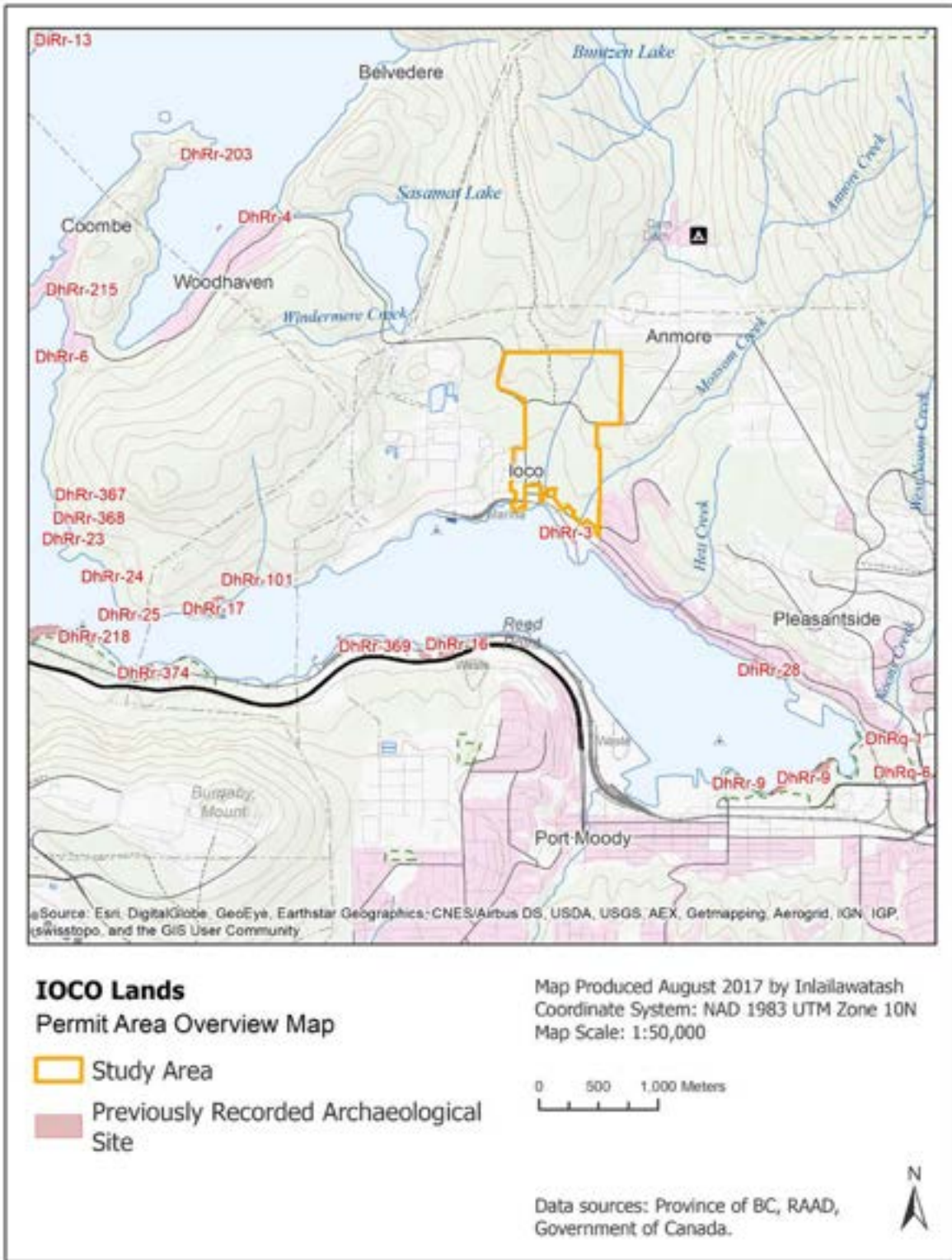


Figure 1. Location of proposed development in Port Moody, BC.

inlailawatash.ca

- Provide recommendations for measures to avoid, limit, protect or otherwise mitigate potential adverse effects of the proposed project to identified archaeological resources.

1.2 Project Development Description

BCG Developments proposes to develop a community that is in harmony with hillside trees, vegetation, and clear flowing salmon-bearing creeks while at the same time re-energizing the area's unique heritage and restoring a vibrant community heart where residents live, work, shop, play, and create. This new community will create shoreline and waterfront access for new and existing residents to enjoy from land and water, connecting the water to a trail system that leads to popular regional parks.

The proposed Project Area consists of approximately 106 ha (245 acres) of land in the City of Port Moody and Village of Anmore in southwestern BC (Figure 2). The land was owned previously by the Imperial Oil Corporation, and the developed lands in the Project Area include part of the IOCO Townsite Heritage Conservation Area, an early 20th century townsite purpose-built by Imperial Oil for refinery employees. Within the Project Area eight properties are included in the City of Port Moody Heritage Register, as well as also being recorded as historical archaeological sites in the Provincial RAAD database. The southwest corner of the Project Area extends to the shoreline, crossing a CP Rail right-of-way. Undeveloped lands within the Project Area are wooded and sloping with creeks and other small drainages.

1.3 Archaeological Heritage Legislation

Heritage resources as a general term are defined as “a human work or a place that gives evidence of human activity or has spiritual or cultural meaning and that has historic value.” The Canadian Environmental Assessment Act (Government of Canada 1992) outlines four categories of heritage resources: paleontology, archaeology, historic sites, and traditional land use (Canadian Environmental Assessment Agency 1996). One type of heritage resource, i.e., archaeological sites, are the subject of an AOA, and while other types of heritage resources are important sources of background information, only archaeological resources are assessed in this report.



Figure 2. Proposed development boundary relative to previously recorded archaeological sites in Port Moody, BC.

1.3.1 Heritage Conservation Act of British Columbia

This project is situated on lands that fall under British Columbia provincial heritage jurisdiction where archaeological sites are defined as locations that:

...consist of the physical remains of past human activity. The scientific study of these remains, through the methods and techniques employed in the discipline of archaeology, is essential to the understanding and appreciation of prehistoric and historic cultural development in British Columbia. These resources may be of regional, provincial, national or international significance (Archaeology Branch 1998).

In British Columbia, most archaeological sites are attributable to settlement and resource use by Aboriginal people. All archaeological sites that are located on Provincial Crown or private land that are assumed to pre-date AD 1846 are automatically protected from damage, desecration, alteration, or excavation under the *Heritage Conservation Act (HCA)* (RSBC 1996, Chap. 187). Some sites, including burials and rock art sites, are protected through designation regardless of their age, as “Provincial Heritage Sites” under Section 9 of the *HCA*, or through automatic protection under Section 13 due to their defined historic or archaeological value.

Inspection, investigation, or alterations to archaeological sites require a permit issued by the Archaeology Branch, Ministry of Forests, Lands, Natural Resource Operations, and Rural Development under Sections 12 or 14 of the *HCA*. Sites automatically protected under Section 13 include:

- Archaeological sites occupied or used before AD 1846
- Rock art with historical or archaeological value
- Burial places with historical or archaeological value
- Heritage shipwrecks or aircraft wrecks (after a 2-year abandonment), and
- Archaeological sites of unknown age, with a reasonable possibility of having been occupied or used before AD 1846.

Additionally, archaeological sites of Aboriginal origin may be subject to interpretations of the Supreme Court of Canada decision in *Delgamuukw v. British Columbia* (1997) regarding the fiduciary responsibility of provincial governments for protecting cultural heritage. Furthermore, heritage sites of Aboriginal origin not automatically protected by the *HCA* may still be of interest to First Nations who may wish to discuss their interest in any engagement process.

To assist with the management of archaeological sites the Archaeology Branch issued the *British Columbia Archaeological Impact Assessment Guidelines* (Archaeology Branch 1998), and an updated *AOA Standards and Guidelines* (Archaeology Branch 2009). These guidelines identify

inlailawatash.ca

several kinds of archaeological assessments that may be undertaken in response to proposed developments, with the kind of assessment dependent on the stage of development design and the types of archaeological information required. The assessment described in this report is an AOA, as described in the *Guidelines* (1998, 2009).

Archaeological sites are numbered according to the *Borden Site Designation Scheme* used throughout Canada (Borden 1952). This scheme is based on the maps of the National Topographic System and uses latitude and longitude to identify the location of a site. The four-alternating upper and lower-case letters in a site number (e.g., DiRt-) designate a unique block of 10 minutes of latitude and longitude, called a “Borden block.” Sites are then numbered sequentially within a “Borden block,” usually in the chronological order in which they were found and recorded at the provincial Archaeology Branch. The BC Archaeology Branch is responsible for assigning new Borden numbers for new sites found and recorded in British Columbia, and for maintaining all archaeological site inventory records and reports.

1.4 First Nations Heritage Policy and Permitting Processes

Several First Nations in British Columbia have developed their own heritage policies and permits to manage their archaeological and heritage concerns. These permits are separate from the Provincial *HCA* permits, and although they are not required to meet Provincial regulatory standards, Inlailawatash respects the important First Nation oversight that these permits provide for the archaeology that is conducted within the traditional territories. The First Nations permits are generally issued with a set of cultural protocols or policies around the treatment of heritage resources, for which ancestral remains and spiritual places are particularly sensitive. The permits allow for First Nations’ comment and input into the study and its methods, and for engagement in any field reconnaissance work if applicable.

Inlailawatash applied for heritage permits from Musqueam, Squamish, and Tsleil-Waututh Nations. Musqueam Heritage Research/Investigation Permit MIB-2017-194-AOA Squamish Archaeological Investigation Permit 17-0170, and Tsleil-Waututh Nation Cultural Heritage Investigation Permit 2017-270 were issued to Inlailawatash Limited Partnership for an Archaeological Overview Assessment in the Project Area.

2 METHODS OF ARCHAEOLOGICAL OVERVIEW ASSESSMENT

2.1 Objectives and Tasks

The Archaeological Overview Assessment involved the following tasks:

- Applications for a Musqueam Indian Band Heritage Research/Investigation Permit, a Squamish Nation Archaeological Investigation Permit, and a Tsleil-Waututh Nation Cultural Heritage Investigation Permit;
- Desk-based review of background ethnographic and archaeological literature for the Project Area;
- Review of previous AOA and AIA reports in the background study area;
- Search for documented archaeological sites in the Provincial Heritage Register maintained by the Archaeology Branch, accessed via the Remote Access to Archaeological Data (RAAD) system;
- Review of paleoenvironmental, biophysical, and topographic information for landforms within the Project Area;
- Evaluation of archaeological resource potential within the Project Area;
- Preparation of a written report describing the AOA findings and recommendations; and
- Distribution of the report to the First Nations.

Because no archaeological sites are being altered during this study, a provincial Section 14 Heritage Inspection Permit (HIP) was not required for the overview assessment.

2.2 Information Sources and Methods for Baseline Overview Assessment

An Archaeological Overview Assessment consists of a desk-based literature review and compilation of existing knowledge about recorded archaeological site locations within 1000 m of the Project Area, historical First Nations land use, and cultural and environmental characteristics and changes in the area likely to effect site location and preservation. This information is synthesized to develop a potential model of where archaeological sites are expected to be located. A Preliminary Field Reconnaissance (PFR) was initially proposed and budgeted for this project but was not conducted at the request of the client due to project cancellation. Typically, when a PFR is combined with the other datasets, this allows for the assessment of probable site types and their potential to exist within the Project Area. The overview assessment is then used to make recommendations for management, including the need for additional studies such as an Archaeological Impact Assessment (AIA).

2.3 Desktop Study and Document Review

Review of archaeological and ethnographic sources, along with biophysical characteristics and landform typology, provides information for presenting a baseline heritage context for understanding the archaeological potential for the Project Area. Documents required to undertake this study were available from the Inlailawatash Archaeology library, the Simon Fraser University library, and from unpublished reports obtained from the electronic library of the Archaeology Branch. The document review searched for general information on pre-Contact archaeology, settlement, and land use patterns, and historic land use patterns along the northern shore of Burrard Inlet.

Several sources of data were reviewed to evaluate the Project Area for archaeological site potential:

- Relevant archaeological records and reports from the study area and surrounding areas;
- Ethnographic, ethnohistoric, and traditional use data pertaining to the study area;
- Historic maps; and
- Biophysical and geomorphological landform data pertinent to pre-Contact and post-Contact land use activities.

Recorded archaeological sites with their geo-referenced location can be downloaded from the Provincial Heritage Register Inventory via the Remote Access to Archaeological Resources (RAAD) system, an electronic database maintained by the Archaeology Branch. This system enables access to information about recorded sites within the local and regional study area. Topographic information was gathered from 1:20,000 scale TRIM maps, as well as scalable orthophotos from Google Earth™. Access to previous archaeological overview and impact assessment reports within the study area is provided through the Provincial Archaeological Report Library (PARL).

2.4 Evaluation of Biophysical and Landform Potential

Information on past and present biophysical characteristics of the Project Area is important to provide a context for predicting the potential for locating archaeological resources as they pertain to past human occupation and land use. Past hydrology, landforms, and ecological resources are used to inform archaeological potential models. For example, access in the past to food resources, fresh water, and level terrain made an area more suitable for human habitation, therefore increasing the potential of cultural materials being deposited to become part of the archaeological record.

Land use, settlement patterns, and subsistence practices of all people are generally adaptations to specific environments. Environmental conditions influence the availability of natural resources and the suitability of the natural landscape for human habitation, subsistence, technology, and other cultural factors. The location, accessibility, and quantity of culturally-valued minerals, plant, animal, and fish species can influence the type and location of heritage and modern sites. Physical factors such as climate, terrain, proximity to water, and vegetation cover can also determine the location, preservation, and visibility of archaeological sites. Environmental factors may also be instrumental in spiritual and ceremonial aspects associated with special places or landscapes, but unless there are material correlates, an evaluation of this is not within the scope of an archaeological study.

The biophysical evaluation considers the major physiographic processes and climate changes that have created the topography and the primary attributes of the physical landscape, i.e., the landforms, hydrology, and surficial sediments. The ecological environments and geological histories of the region, both past and present, have implications for understanding long-term land-use activities and cultural historical practices.

Geological processes such as erosion and soil conditions can influence the preservation of archaeological evidence. Certain conditions, particularly very dry or wet soils, may enhance preservation of organic (perishable) archaeological materials, while other processes such as flooding, or erosion can destroy archaeological evidence. Over the past 200 years human activities (industrialization and urbanization) have generally had a greater influence on the biophysical setting than natural ones, and these have also likely had the greatest effect on the destruction of archaeological evidence in the Project Area.

2.5 Archaeological Site Types

Locations on the land with material remains that were produced by human activities in the past are called archaeological sites. In British Columbia, most archaeological sites are attributed to the past activities of Aboriginal peoples before European contact and are referred to as pre-Contact archaeological sites. There are also post-Contact sites, often called historic archaeological sites, that may have structural remains and material culture associated with both European and Aboriginal technology. Known archaeological sites are recorded in the Provincial Heritage Register and maintained by the Archaeology Branch (Site Inventory Section), the government agency responsible for the management of archaeological resources under the *Heritage Conservation Act*.

Archaeological sites are recorded in the Heritage Register according to site type, which usually specifies the type of features and artifacts known, the size and of the site, its stratigraphy and sediments, and the kinds of traditional activities inferred to have taken place at the site. Examples of site types on the coast include shell middens, house depressions, lithic/artifact scatters, cache pits, hearth features, rock art, burial sites, canoe runs, fishweirs and traps, clam gardens, and culturally modified trees (CMTs). A review of known information near the Project Area will suggest the expected age and types of archaeological sites in areas of potential.

2.6 Evaluation of Archaeological Resource Potential

Archaeological resource potential can be defined as the capacity of a landscape, or parts of a landscape, to have supported types of Aboriginal cultural activities that would have produced the formation and preservation of archaeological material cultural remains. Certain types of activities, for example, plant collecting, would probably not result in physical remains, and therefore cannot be archaeologically assessed. Plant processing activities however, such as the use of roasting pits or hearths, would potentially leave subsurface archaeological features or preserved plant remains. Likewise, various places of cultural or spiritual significance may not have any type of material evidence that would identify it as such, but Aboriginal place name information can be used as context for assessing landscape potential for archaeological resources.

Archaeological and landscape potential are assessed on a case-by-case basis, but in general areas of well-drained level terrain immediately adjacent to existing or relic bodies of water, or places near known archaeological or traditional use sites, are considered to have highest archaeological potential. In urban places archaeological potential may be obscured due to development, or deeply buried under modern fill deposits.

Archaeological potential is not the same as probability of site occurrence. Potential simply rates the suitability of lands for possessing archaeological remains, and therefore whether they should be examined in detail in advance of land-altering development activities.

3 OVERVIEW ASSESSMENT RESULTS

A desktop assessment prior to fieldwork sought to predict archaeological potential within the Project Area. The assessment was both inductively and deductively based on generalized principles of human behavior, environmental variables considered favourable to human activity, and reference to previously recorded sites and ethnographic data within the background study area. Typically, this would be followed up by a Preliminary Field

inlailawatash.ca

Reconnaissance of the Project Area. At the request of the client no Preliminary Field Reconnaissance was conducted for this Archaeological Overview Assessment. In this section the information from the desktop assessment is presented.

3.1 Biophysical Review

3.1.1 Physiographic Setting

Southern British Columbia lies in the Western Cordillera region of North America, a region characterized by a complex system of mountains, plateaus, fjords, lakes, and alluvial valleys. Burrard Inlet is the major coastal physiographic feature of the British Columbia Lower Mainland, and home to the City of Vancouver's primary port. Burrard Inlet, a shallow-sided coastal fjord is part of the Georgia Depression that borders on the Coast Mountain and Cascade Mountain physiographic regions that was formed during the last ice age (Church and Ryder 2010).

The topography, landforms, and geology within and adjacent to the Project Area provide insights into the possibility of how ancestral Coast Salish peoples used the physical environment. Southern British Columbia lies in the Western Cordillera region of North America, a region characterized by a complex system of mountains, plateaus, fjords, lakes, and alluvial valleys. The Port Moody area lies at the head of Burrard Inlet, also known as the Port Moody Arm. Burrard Inlet is part of the Georgia Depression that borders on the Coast Mountain and Cascade Mountain physiographic regions. The major lithostratigraphic units are classified as flat-lying sedimentary with a surficial geology comprised of marine shoreline and fluvial sand (Church and Ryder 2010).

Eagle Mountain is a prominent geographical feature that rises 1,272 m above sea level overlooking Buntzen and Sasamat Lakes to the west, and the Port Moody Arm to the south. The bedrock in the area immediately surrounding Buntzen Lake and Sasamat Lake is mid-cretaceous quartz diorite and Mississippian undifferentiated metamorphic. No toolstone outcrops are known in these areas specifically, although there are several ochres, dacite, basalt, and obsidian sources within Squamish, Tseil-Waututh, and Kwikwetlem territory (see Reimer 2014). Bedrock in the area generally consists of coarse crystalline intrusive rocks such as granite, granodiorite, quartz diorite, and migmatite (Roddick 1965).

3.1.2 Glaciation and Sea-level History

While tectonic activity has formed the underlying geology of British Columbia, it is the effects of Pleistocene glaciation that have determined the topographic landscape detail and their surficial

inlailawatash.ca

sediments. The scouring of the land by both glacial ice and glacial meltwater determined the type of sediments and landscape features present in the Lower Mainland. The sedimentary evidence of the last glaciation provides explanation for the character of the contemporary landscape, a principle concern for understanding human occupation. The timing of deglaciation is around 13,000 - 11,000 years ago, after which the development of habitable environments for human occupation occurred, placing the earliest approximal age for the oldest potential archaeological sites in the Lower Mainland (Clague 1989).

At the peak of the last glaciation in North America, called the Late Wisconsin, the Lower Mainland was covered by ice up to two km in thickness. The weight of glacial ice and its subsequent melting determined relative sea-levels which rose and fell between the periods of glaciation and deglaciation. Coastal areas up to about 200 m above sea level were inundated during periods of deglaciation. Relative sea levels stabilized near modern levels by approximately 5,500 years ago (Church and Ryder 2010; Clague 1989; Clague et al. 1982; Demarchi 2011; Fulton et al. 2004). The changes in sea level have influenced the location of archaeological sites such that some sites will now be submerged, others close to the shoreline are being eroded due to sea level rise, or other sites may be found far inland from current shorelines when sea levels were higher than today. Any sites found within the Project Area are most likely the result of cultural activities associated with sea levels of the past 5,500 years. The Project Area is currently between 5 and 62 m above sea level.

3.1.3 Ecological Resources

The Project Area is within the Coastal Western Hemlock Very Dry Maritime (CWHxm1) biogeoclimatic zone, one of the most productive zones in British Columbia for overall biomass (Jones and Annas 1978). The climate is typically mild and rainy with annual precipitation averaging around 1500 mm. Western hemlock is the dominant forest cover for this zone, and is typically accompanied by western red cedar, Douglas fir, and Sitka spruce. Amabilis fir, grand fir, western white pine, and bigleaf maple are sometimes present in the southern portions of the zone. Ferns make up most of the understory and several moss species make up the ground cover (Pojar et al. 1991: 96-98). The Project Area has been partially deforested. The current flora of the area is a mix of native and non-native species.

Economically important animal species that would have been found in the Project Area in the past include large mammals such as black bear and mule deer. Birds including various water fowl and eagle species would have been present. Within the Port Moody Arm of Burrard Inlet, many ecological niches exist such as tidal marsh, mudflats, fresh water lagoons, and fresh water creeks that flow into the inlet and support an array of littoral resources. Two freshwater creeks

are relevant to the Project Area — Mossom Creek, which crosses into the southeast corner of the Project Area, and an unnamed drainage that bisects the Project Area from the north flowing south into Burrard Inlet. These streams would have supported salmon populations as well as provided a source of fresh water to ancestral Coast Salish peoples living in the area. The pre-industrial shoreline and intertidal area would have been suitable habitat for a range of economically important shellfish (e.g., butter clam, horse clam, native Pacific oyster), resident fish, eelgrass and kelp beds, and a variety of waterfowl.

3.1.4 Summary of Biophysical Setting

The pre-industrial landforms, hydrology, and ecological resources of the past suggest that the Project Area has a high potential for archaeological sites. Pre-Contact Aboriginal peoples occupied villages and camps along the shores of Burrard Inlet where a variety of fish, shellfish, plant, and animal and sea mammal resources could have been easily harvested from the marine and freshwater creek environments. The Project Area has a highly favourable environmental setting for the location of Aboriginal settlements that may be reflected archaeologically. However, urbanization has altered the hydrology and landscape, and may have also destroyed archaeological sites associated with resource collection activities and other cultural activities.

3.2 Cultural Setting Review

3.2.1 Regional Archaeological Background

The Project Area is situated within the Northwest Coast Culture Area as defined by anthropologists, which is an immense coastal culture area that encompasses the west coast of North America from southern Alaska to Cape Mendocino in northern California. Archaeologists have defined a chronological sequence of pre-Contact cultural periods within this culture area for the south British Columbia coast based on site investigations in the Salish Sea and Lower Fraser River delta. Summaries of the south coast regional prehistory sequences have been prepared by Ames and Maschner (1999), Matson and Coupland (1995), and Mitchell (1990).

Researchers have noted continuities through time in the reliance on marine and riverine resources particularly salmon and other fishing, woodworking technology, food storage, ceremonialism, and the acquisition of wealth and status. Based on diagnostic artifact types and technologies, as well as inferred economic, social and other cultural traits, six distinct cultural chronological periods, variably referred to as 'Phases' or 'Cultures' are identified with associated time frames expressed in years before present (BP):

- Pebble Tool/Old Cordilleran (ca. 10,000 - 5,500/4,500 years BP)
- Charles (ca. 5,500/4,500 - 3,500 BP)
- Locarno Beach (ca. 3,500- 2,500 BP)
- Marpole (ca. 2,500- 1,200 BP)
- Gulf of Georgia (ca. 1,200 - 200 BP), and
- Historic or Ethnographic Period (ca. 200 BP to Present)

A summary of the cultural traditions and their site types and artifact assemblages is presented below to provide background context for the possible archaeological materials and their associated age that may be recovered within the Project Area.

Pebble Tool/Old Cordilleran Tradition (12,000 - 5,500/4,500 BP)

The earliest culture tradition identified for the coast is called by various names including the Pebble Tool Tradition (Carlson 1990, 1996), the Old Cordilleran Tradition (Matson 1976), the Lithic Culture Type (Mitchell 1990), or the Protowestern Tradition (Ham 1982). This early tradition, which dates from approximately 12,000 to 5,500 BP is associated with a period of lower and/or fluctuating sea levels in the early Holocene. The artifact assemblages are dominated by flaked stone artifacts, including cobble/pebble tools and leaf-shaped bifaces, along with rare bone and antler tools (Carlson 1990).

In the Fraser River delta, the subsistence pattern is diversified towards deer and wapiti hunting, sea mammals (seals), fish (salmon, stickleback, sturgeon, eulachon, flatfish), and shellfish (Matson 1976). One of the important Pebble Tool Tradition sites for the Fraser delta is the Glenrose Cannery site (DgRr-006) (Matson 1976) where faunal remains have been found indicating this subsistence pattern.

Charles/St. Mungo Culture Type (5,500 to 3,300 BP)

This culture type has been defined based on three sites in the Fraser River delta: St. Mungo (DgRr-002), Glenrose Cannery (DgRr-006), and Crescent Beach (DgRr-001) (Matson and Coupland 1995). There is a continuation of some tool types from the previous period, but new types, including chipped stone scrapers, drills, stemmed bifaces, as well as ground slate, bone, and antler implements are introduced (Ham et al. 1986). The presence of adzes and wedges suggest a well-developed woodworking technology. Wet sites containing fishweirs, basketry, cordage, carved wood, and cedar bark clothing have been found dating to this period in the Fraser River delta (Eldridge 1991).

Locarno Beach Culture Type (3,500/3,300 to 2,500 BP)

Chipped stone tools predominate with a small proportion of large ground stone tools. Flaked tool types include shouldered and lanceolate points, microblades and cores, bilaterally and unilaterally barbed points, one-piece and composite toggling harpoon heads, woodworking tools including abraders, grinding slabs, and wedges, and large faceted ground slate points and thick ground slate knives. Cordage, basketry, and other wood items have been recovered from wet sites in the Lower Mainland (Bernick 1998; Borden 1976). Faunal remains show a diversified resource utilization.

Marpole Culture Type (2,500 to 1,200 BP)

Many artifact types from the Locarno period continue into Marpole, however there is a decrease in the proportion of chipped stone tools and an increase in the refinement of ground stone tools. The non-toggling, barbed harpoon point is exclusive to the Marpole period. Native copper ornaments are present, along with midden burials containing grave inclusions such as shell or slate disc beads. Large-scale woodworking technology and large house outlines and post moulds suggest that the ethnographic pattern of heavy timber frame houses with cedar planks was well developed by this time. The artistic traditions were well-developed including the presence of seated human figurine bowls, decorated stone bowls, incised siltstone objects, and carved bone and antler objects with zoomorphic designs. The ability to harvest and preserve large quantities of salmon for winter storage most likely supported the development of large ranked societies during this time (Mitchell 1990; Burley 1980).

Developed Coast Salish Culture Type (1,200 to 200 BP)

This culture is directly ancestral to the ethnographic Coast Salish culture. Artifacts that define this culture archaeologically include small triangular flaked basalt points, thin ground slate points and knives, unilaterally barbed bone points, composite toggling harpoon heads, large well-made ground stone adzes, and net weights and anchor stones for netting technology. Salmon was a dietary staple, along with a varied use of many land mammal, sea mammal, bird, fish, and plant resources. The resource economy was based on a seasonal round with the presence of large winter villages with heavy timber frame houses, large summer gathering settlements, and smaller seasonal harvesting camps (Mitchell 1990).

3.2.2 History of Archaeological Studies

Archaeological studies have been conducted within Burrard Inlet (Apland and Beattie 1972; Charlton 1972; Ham and Yip 1992; Lepofsky et al. 2007; Smith 1907; Stantec 2010; Struthers 1973; Yip and Gose 1979), illustrate a variety of site types. These include: habitation sites

inlailawatash.ca

(village sites and seasonal camps), midden (refuse) sites, defensive sites (i.e., trenches/embankments), wetsites (water-logged), fish weirs, artifact scatters, rock art, burial places and mounds, petroforms, culturally modified trees (CMTs), trails, and historic features and artifacts. Human occupation within Burrard Inlet extends back to at least 3,000 years ago with continuous occupation into the Contact period (Morin 2015: 223). Further archaeological investigations and dating of sites in the Inlet will eventually provide additional evidence illustrating a potentially broader temporal range of occupation in this area than is currently known.

Relative to the proposed Project Area (the loco townsite), no archaeological assessments have been undertaken. The only pre-Contact archaeological site recorded near the Project Area is DhRr-3 which is located approximately 130 m south of the proposed community development between Sunnyside and Mossom Creeks. Professor Charles Borden from the University of British Columbia first recorded DhRr-3 in 1946, noting that the upper deposits were levelled for the Sunnyside Creek Lodge, but that a large portion of the shell midden remained (Borden 1950). In 1978, Stephanie Yip and Peter Gose (1979) conducted a survey of Burrard Inlet and estimated that DhRr-3 originally occupied an area approximately 14,250 m², of which 94% was intact. However, it is impossible to know if there is any intact deposit left without subsurface testing. Yip and Gose (1979) suggested that DhRr-12 was part of DhRr-3, and that these two sites should be combined to form a single massive site along the shoreline at the outflow of Mossom Creek. They were unable to observe any midden east of the mouth of Mossom Creek because of the construction of seawalls and lawns. Current information on the Provincial Archaeological Inventory Database via the Remote Access to Archaeological Resources (RAAD) reflects that DhRr-12 was eventually encapsulated within DhRr-3, and thus the Borden number DhRr-12 is no longer used to identify this location.

3.2.3 Previously recorded sites

According to the available data through RAAD, there are no previously recorded archaeological sites within the proposed development area. At the east end of Burrard Inlet (east of Admiralty Point and the Barnet Marine Park), 16 archaeological sites have been recorded and are listed in Table 1. The closest site to the Project Area is DhRr-3, which is approximately 130 m to the south (see Figure 1). The number and variety of site types known for the eastern portions of Burrard Inlet illustrates a landscape and marine inlet that has been intensely utilized over thousands of years. Many of these sites have been impacted through historic industrial activities and the urbanization of the lands surrounding Burrard Inlet.

Table 1. Recorded Archaeological Sites at the Eastern End of Burrard Inlet.

Borden No.	Description	Reference
DhRq-1	Noons creek site. Village site consisting of shell midden, burial, and habitation features.	Charlton 1971a, 1971b, 1972; Hamm et al. 2011; Morin 2015
DhRq-6	Pocket shell midden possibly destroyed by sewer line construction.	Ham et al. 1979
DhRr-3	Shell midden, most likely a campsite.	Ham et al. 1979
DhRr-9	Pidgeon Cove Site. Shell midden and burial site.	Ham et al. 1979
DhRr-10	Small lithic site most likely destroyed.	Ham et al. 1979
DhRr-16	Village site, part of Reed Point complex. Shell midden adjacent to the Reed Point Marina.	Ham et al. 1979; Morin 2015
DhRr-17	Carraholly Site. Village site consisting of shell midden and lithics.	Struthers 1973; Ham et al. 1979; Spafford et al. 1999; Ritchie et al. 2016; Morin 2015
DhRr-22	Noons creek site (at mouth of creek). Shell midden and burial site, lithics and bone.	Morin et al. 2016; Ham et al 1979; Cranny and Bunyan 1975
DhRr-24	Shell midden site.	Ham et al. 1979
DhRr-25	Shell midden site.	Ham et al. 1979
DhRr-28	Shell midden disturbed by residential developments.	Ham et al. 1979
DhRr-101	Shell midden site.	Spafford et al. 1999
DhR-218	Surface lithics on beach.	N/A
DhRr-369	Village site with defensive features consisting of built trenches, embankments, and hearths. Part of Reed Point complex.	Morin 2015; Morin et al 2016; Connaughton and Homewood 2017
DhRr-373	Village site part of Reed Point complex.	Morin 2015
DhRr-374	Moderate-sized village site with occupation into the post-Contact period.	Ritchie et al. 2016

The loco townsite is protected as a Heritage Conservation Area within the City of Port Moody. Additionally, the heritage buildings have been recorded as historical archaeological sites with a Borden site designation number. Each historic site has been given a Borden number and is protected under the *Heritage Conservation Act*. Assessment of these sites is beyond the scope of this AOA. A list of properties and their Borden numbers is provided in Table 2.

Table 2. Heritage Buildings in the loco Townsite.

Borden No.	Name	Address	Built
DhRr-199	loco School	loco Road and First Avenue	1921
DhRr-219	St. Andrew's Presbyterian Church	1790 loco Road	1924
DhRr-220	Medley Residence	200 Third Avenue	1924
DhRr-221	Horne Residence	307 Third Avenue	1921
DhRr-238	Chivers Residence	306 First Avenue	1921
DhRr-239	Belton Residence	300 Second Avenue	1923
DhRr-241	Clarke Residence	207 Second Street	1921
DhRr-242	Potter Residence	316 Second Avenue	1922
DhRr-243	McFarlane Residence	206 Third Avenue	1922
DhRr-244	loco Community Hall	100 block of Third Avenue at the west end of First Street	1921
DhRr-245	MacDonald and Betterton Residence	304 Second Avenue	1921
DhRr-246	loco Groceteria	Northwest corner of the intersection of loco Road and Third Avenue	1922
DhRr-247	Reynolds Residence	207 Third Avenue	1922
DhRr-249	Davis Residence	306 Second Avenue	1914
DhRr-250	Runnels Residence	303 Third Avenue	1922
DhRr-251	Kilvert Residence	203 Fourth Avenue	1923

3.2.4 Post-Contact Period Regional History and Ethnographic Overview

3.2.4.1 Ethnographic Background

Coast Salish use of the lands and waterways around Burrard Inlet have been documented in ethnographies compiled by Barnet (1944, 1955), Suttles (1987, 1990), and Morin (2015). Both before and immediately after contact with Europeans, rivers, lakes, and the inlet served as the primary corridors between these groups, though overland trails were also extensively utilized (Carlson 2001; Tsleil-Waututh and Alexander 2001:175). One such trail has been documented to exist within the Project Area (Morin 2015:228-230). The trail connects Burrard Inlet with Buntzen Lake to the north.

A wide-range of activities brought groups and individuals to the Project Area and surrounding landscape. These activities included settlement, hunting, fishing, plant gathering and horticulture, stone quarrying, ceremonial activities, and trade and travel, that occurred from sea-level to mountain top. There is considerable information about ceremonial use of Buntzen Lake. Its place in the oral narratives suggest this was a very sacred place (Tsleil-Waututh Nation and Alexander 2001:112-114).

A first-hand account of travelling up Indian Arm near the shores of “Temenwos Lake” was recorded by W.W. Walkem (1914). Upon drawing near the lake, Walkem and his guide Big George heard a person howling to their guardian spirit. Temenwos is Chinook (Tamanous) for spirit power (Walkem 1914). There are also numerous narratives of how a Tsleil-Waututh hero killed the giant two-headed serpent in Indian Arm and watched it slither off to die in Buntzen Lake (Morin 2015). Sacred sites may not be observable through archaeological survey as they may not have left any tangible trace. Ethnography and traditional knowledge provide additional perspective to more fully understand how landscapes are imbued with meaning and serve to illuminate places where material culture is minimal.

3.2.4.2 The Contact Period

The advent of logging, residential, and industrial development in the lower elevations of the Coast Mountains in the late nineteenth and early twentieth centuries had a profound impact on forest resources and local First Nations communities. Clear-cut logging took place within and adjacent to the Project Area in the early twentieth century for the Imperial Oil Company (IOCO) refinery (Figure 3).



Figure 3. Panorama of clear cut logging for the Imperial Oil Refinery [adapted from Major J.S. Matthews' photos July 1914] (City of Vancouver Archives AM54-S4-: Out P449.3, Out P449.2, Out P449.1)

Prior to logging for the loco refinery, the Project Area was relatively undisturbed. As early as 1859 the eastern portion of the Project Area was for many years set aside as government (naval) reserve lands (Drew 2017: 70). In 1882 a shingle mill operation was started within the reserve lands at the outflow of Mossom Creek, and in 1884 a larger sawmill, operating under the name Pioneer Lumber, was constructed adjacent to the shingle mill (Drew 2017: 109). The land was also the homestead of Joseph Dockrill and his family. Homes for the family and mill workers were built near the mill site. Logging within the naval reserve lands was minimal, and consisted mostly of clearing land where the mill and homes were built, but also included clearing along Mossom Creek for a skid road that led to the mill (Drew 2017:152). The comparatively limited development that occurred within the Project Area suggests that archaeological materials, if present, will be intact and undisturbed.

3.2.4.3 First Nations Place Names

One of the most persuasive links between ethnographic information and the physical landscape are place names. Indigenous place names have long been recognized by anthropologists as having inherent cultural value (Basso 1996; Bierwert 1999; Carlson 2007). This cultural value can arise in many ways. For example, 1) the place names identify locations or events that were of specific importance to the culture in question; 2) the place names reflect aspects of the Indigenous ways of understanding and organizing local geography; and 3) place names are associated with 'supernatural' events in the deep past (i.e., the time of Transformers).

Place names reference places of historical or cultural events, topographical features such as mountains, islands, streams, and oceans, as well as settlement, procurement, or ceremonial places. These places, for example, might be camps, villages, seasonal resources harvesting areas, locations of battles, defensive sites, burials, and transformations. In short, place names provide information about the history of the landscape and how people interacted with their natural surroundings.

Unlike other Coast Salish communities, no anthropological or ethnographic studies were conducted in the early 20th century for the Tsleil-Waututh people to record their place names before modern land-use changes occurred (Morin 2015: 75). The body of knowledge regarding place names is held entirely by the Tsleil-Waututh Nation (Morin 2015:74-84). There are four place name sites located near the Project Area:

- i. Say-mah-mit (DhRq-1/Noons Creek)
- ii. Saymopit (DhRr-17/Carraholly Point)
- iii. Əiqsen (Admiralty Point)
- iv. Tum-tumay-whueton/təmtəmix^wtən (DhRr-6/Belcarra Park site)

The four place names are *hənqəminəmə* – the language spoken within the lower mainland by the Coast Salish – and throughout Tsleil-Waututh territory. Say-mah-mit refers to Noons Creek at the head of Port Moody Arm and references the ancestral Tsleil-Waututh village located there. The meaning is currently unknown. Saymopit is the name for the Tsleil-Waututh village at Carraholly Point but the meaning is currently unknown. Əiqsen refers to Admiralty Point and is interpreted to mean “big nose” or “long nose” in reference to the point of land along the north shore of the Port Moody Arm at the narrow (Morin 2015: 81). Tum-tumay-whueton/ təmtəmix^wtən is the place name of the ancestral Tsleil-Waututh village at Belcarra Peninsula, and literally means “land/earth,” “much land/earth,” “lots of land,” and “the biggest place for all the people” (Morin 2015:82). Tum-tumay-whueton was occupied for nearly 3,000 years.

3.2.5 Expected Site Types Based on Cultural Overview

Activities that the First Nations living in the area surrounding Burrard Inlet engaged in that may be reflected in the archaeological record of the Project Area include: habitation (e.g., middens, house depressions, and burials), resource procurement (e.g., hunting, fishing, and shellfish and plant gathering), transportation and trade (e.g., trails), and ceremonial activities (e.g., rock art).

Historic Tsleil-Waututh trails have been recorded in the Project Area. Trails connected the shoreline to inland areas such as Sasamat and Buntzen Lake where freshwater and sub-alpine resources not available along the shoreline could be procured. A trail connecting Burrard Inlet to Buntzen Lake following Sunnyside Creek west of Mossom Creek has been identified within the project area (Morin 2015:229). Temporary encampments and rock shelters are often associated with trails (Ritchie and Sellers 2015).

Based on the background overview of ethnographic activities, known archaeological sites, place name sites, and the environmental context of the Project Area, these types of archaeological sites might be expected to exist in the Project Area:

1. Habitation sites/shell middens/lithic scatters/hearths/house depressions
2. Hunting camps/lithic scatters/hearths/cultural depressions
3. Plant gathering camps/lithic scatters/hearths/cultural depressions
4. Culturally Modified Trees (CMTs)
5. Rock art on boulders or rock outcrops
6. Burial mounds/burials
7. Trails

3.2.6 Evaluation of Site Potential

Results of the desktop study indicate a high potential for archaeological sites to be present in the Project Area. This is supported by the presence and abundance of known archaeological sites nearby. An extensive ethnographic record describes the intensive land use that was carried out by Aboriginal peoples in and around the Project Area and Burrard Inlet. The historic record indicates that the Project Area at least partially escaped the major effects of industrialization and urbanization for the region and that this would have prevented substantial site destruction. From the results of this desktop analysis it can be concluded that there is no part of the study area which can be considered to have no potential for archaeological materials.

3.2.7 Information Gaps

Results of the desktop analysis portion of an Archaeological Overview Assessment are typically further defined and evaluated through a Preliminary Field Reconnaissance which was not undertaken for this study. Areas considered to have archaeological potential can be further refined through a PFR. For example, areas that appear to warrant subsurface testing through an Archaeological Impact Assessment can be better delineated and distinguished from areas that are either untestable or require no further assessment due to geographic features such as bedrock outcroppings. Without a PFR the results of a desk-based Archaeological Overview Assessment are often very general in providing specific management recommendations.

4 RECOMMENDATIONS FOR RESOURCE MANAGEMENT

A desktop assessment prior to fieldwork sought to predict archaeological potential within the Project Area. The assessment was both inductively and deductively based, utilizing the 1:20,000 topographic map (092G036), surficial geology map (1484A), together with generalized principles of human behavior and the environmental variables considered favourable to human occupation. Environmental variables such as access to freshwater, slope, and type of terrestrial and aquatic resources all play a role in human choice of location for habitation and other activities. Reference to previously recorded sites and ethnographic data within Burrard Inlet near the Project Area is also important. Overall archaeological potential was considered high for the Project Area given the desktop review of all cultural and environmental variables for the proposed loco development.

Based on the desktop AOA assessment, an Archaeological Impact Assessment (AIA) should be conducted to identify the potential existence of any buried intact sub-surface archaeological deposits within the entire Project Area. Management recommendations are that:

1. An AIA survey of the entire Project Area be conducted to identify areas of potential. The AIA should involve a Preliminary Field Reconnaissance.
2. Shovel-testing should be employed in areas of archaeological potential to identify if subsurface archaeological materials are present.
3. The above recommendations be carried out prior to any ground-disturbing activities taking place within the Project Area.

5 REFERENCES CITED

- Ames, Kenneth M., and Herbert D. G. Maschner
1999 *Peoples of the Northwest Coast: Their Archaeology and Prehistory*. Thames and Hudson, New York.
- Apland, B. and O. Beattie
1972 Salvage Archaeology at the Barnet Site, DhRr-16. Report on file at the Archaeology Branch, Victoria. HCA permit 1972-17.
- Archaeology Branch
1998 *British Columbia Archaeological Impact Assessment Guidelines*. Archaeology Planning and Assessment Section, Ministry of Sustainable Resource Management, Victoria.
- 2009 Archaeological Overview Assessment as General Land Use Planning Tools – Provincial Standards and Guidelines.
https://www.for.gov.bc.ca/ftp/archaeology/external/!publish/web/professionals/FIA_AOA_Standards_2009.pdf
- Bernick, Kathryn (editor)
1998 *Hidden Dimensions. The Cultural Significance of Wetland Archaeology*. UBC Press, Vancouver.
- Borden, Charles
1950 Preliminary Report on Archaeological Investigations in the Fraser Delta Region. *Anthropology in British Columbia* (1):13-27.
- 1952 A Uniform Site Designation Scheme for Canada. *Anthropology in British Columbia*, no 3: 44-48.
- 1976 A Water-Saturated Site on the Southern Mainland Coast of British Columbia. In *The Excavation of Waterlogged Sites (Wet Sites) on the Northwest Coast of North America*, edited by Dale Croes, pp. 233-260. National Museum of Canada, Ottawa.
- Burley, Dave
1980 *Marpole: Anthropological Reconstructions of a Prehistoric Northwest Coast Culture Type*. Archaeology Press, Simon Fraser University, Burnaby.
- Canadian Environmental Assessment Agency
1996 Reference Guide on Physical and Cultural Heritage Resources. Ministry of Supply and Services Canada, Ottawa.

Carlson, R.L.

1990 Cultural Antecedents. In *Handbook of North American Indians, Volume 7, Northwest Coast*, edited by W. Suttles, pp. 60-69. Smithsonian Institution Press, Washington, DC.

1996 Early Human Occupation in British Columbia, edited by R.L. Carlson and L. Della Bona. UBC Press, Vancouver.

Carlson, K. (editor)

2001 *A Stó:lō Coast Salish Historical Atlas*. Stó:lō Heritage Trust, Douglas & McIntyre, Vancouver.

Charlton, A.S.

1971a Noons Creek and Belcarra: A Preliminary Report on Excavations near Port Moody. Report on file Archaeology Branch, Victoria. HCA permit 1971-22.

1971b Preliminary Report on the Excavations at Noons Creek, DhRq 1. Report on file Archaeology Branch, Victoria. HCA permit 1971-22.

1972 Noons Creek and Belcarra: A Preliminary Report on Excavations Near Port Moody. In *Salvage '71: Reports on Salvage Archaeology Undertaken in British Columbia in 1971*, edited by R.L. Carlson. Department of Archaeology Publication No. 1, Simon Fraser University, Burnaby.

Church, M. and J. M. Ryder

2010 The Physiography of British Columbia, Chapter 2. In *Compendium of Forest Hydrology and Geomorphology in British Columbia*, edited by Pike, R.G., Redding, T.E., Moore, R.D., Winkler, R.D. and Bladon, K.D. British Columbia Ministry of Forests and Range, Land Management Handbook 66: 17-45.

Clague, J. J.

1989 The Quaternary Geology of the Canadian Cordillera. In, *Quaternary Geology of Canada and Greenland*, edited by R.J. Fulton. Geological Survey of Canada, Vol 1: 17-96, Ottawa.

Clague, J., J. Harper, R. Hebda and D. Howes

1982 Late Quaternary Sea Levels and Crustal Movements, Coastal British Columbia. *Canadian Journal of Earth Sciences* 19: 597-618.

Connaughton S. P. and W. Homewood

2017 Suncor White Willow: Archaeological Impact Assessment Final Report. Report on file at Inlailawatash Limited Partnership, North Vancouver.

inlailawatash.ca

Cranny, M.W. and D.E. Bunyan

1975 *Report on the Archaeological Survey of the North Side of the Fraser River 1975*. Report on file Archaeology Branch, Victoria.

Demarchi, D.A.

2011 *The British Columbia Ecoregion Classification, third edition*. Ministry of Environment, Victoria. Available at <http://www.env.gov.bc.ca/ecology/ecoregions/>

Drew, R.

2017 *Townsite Tales: The History of Ioco, Anmore Valley, & North Shore of Port Moody Arm*. Ralph Drew, Belcarra.

Eldridge, M.

1991 *The Glenrose Cannery Wet Component: A Significance Assessment*. Report on file Archaeology Branch, Victoria.

Fulton, R.J., J.M. Ryder, and S. Tsang

2004 *The Quaternary Glacial Record of British Columbia, Canada*. In, *Quaternary Glaciation: Extent and Chronology, Part II: North America, Developments in Quaternary Science*, pp. 39-50, edited by J. Ehlers and P.L. Gibbard. Elsevier, Amsterdam.

Government of BC

1996 *Heritage Conservation Act*. RSBC 1996, Chapter 187.

Government of Canada

1992 *Canadian Environmental Assessment Act (CEA Act)*. S.C. 1992, c37.

Ham, L.

1982 *Seasonality, Shell Midden Layers, and Coast Salish Subsistence Activities at the Crescent Beach Site, DgRr-1*. PhD dissertation, University of British Columbia, Vancouver.

Ham, L. C., and S. Yip

1992 *The 1991 Archaeological Excavations at the Barnett Highway Sites, Port Moody, British Columbia, HCA Permit 1991-106*. Report on file with the Archaeology Branch, Victoria.

Ham, L., S. Yip, P. Gose, and D. Rozen

1979 *The Evaluation of Archaeological Sites in the Greater Vancouver Regional District: Proposals for Management*. Report in file Archaeology Branch, Victoria.

inlailawatash.ca

- Ham, L., S. Yip, and L. V. Kullar
1986 The 1982/83 Archaeological Excavations at the St. Mungo Site (DgRr-2), North Delta, British Columbia. A Charles Culture Fishing Village, Vol 1. Report on file Archaeology Branch, Victoria.
- Hamm, S., J. Hall, S. Kaltenrieder, B. Wigen, and A. Hickock
2011 2010-0280: Noons Creek Bridge Replacement Archaeological Monitoring and Data Recovery at DhRq-1, the Noons Creek Site. Report on File Archaeology Branch, Victoria.
- Jones, R. K. and R. Annas
1978 Vegetation. In *The Soil Landscapes of British Columbia*, edited by K. Valentine, P.N. Sproat, T.D. Baker and L.M. Lavkulich, pp. 35-45. Ministry of Environment, Victoria.
- Lepofsky, D., T. Trost and J. Morin
2007 Coast Salish Interaction: A View from the Inlets. *Canadian Journal of Archaeology* 31:190-223.
- Matson, R.G.
1976 *The Glenrose Cannery Site*. National Museum of Man Mercury Series, Paper No. 52. Archaeological Survey of Canada, Ottawa.
- Matson, R. G. and G. Coupland
1995 *The Prehistory of the Northwest Coast*. Academic Press, New York.
- Mitchell, D.
1990 Prehistory of the Coasts of Southern British Columbia and Northern Washington. In *Handbook of North American Indians, Volume 7, Northwest Coast*, edited by Wayne Suttles, pp. 340-358. Smithsonian Institution, Washington, DC.
- Morin, J.
2015 Tsleil-Waututh Nation's History, Culture and Aboriginal Interests in Eastern Burrard Inlet. Prepared for Gowlings, Lafleur, Henderson LLP. Submitted to the National Energy Board. <http://twnsacredtrust.ca/trans-mountain-assessment-report/>
- Morin, J., R. Muir and M. Ritchie
2016 Archaeological Investigations at Port Moody (Reed Point, Shoreline Park, Old Orchard Park, and Slaughterhouse Creek). HCA Permit 2014-344. Report on file Archaeology Branch, Victoria.

Pojar, J., K. Klinka and D. Demarchi

1991 Coastal Western Hemlock Zone. In *Ecosystems of British Columbia*, edited by D. Meidinger and J. Pojar, pp. 95-112. Research Branch, Ministry of Forests, Victoria.

Reimer, R.

2014 The Nch'kay (Mount Garibaldi) Obsidian Source and its Local to Regional Archaeological Distribution. *International Obsidian Studies Bulletin* 50:10-17.

Ritchie, M. and I. Sellers

2015 *Eagle Mountain Pipeline Project: Archaeological Impact Assessment Final Report*. HCA Permit 2014-0188. Report on file Archaeology Branch, Victoria.

Ritchie, M., I. Sellers, and J. Morin

2016 *Carraholly Point and Barnet Sites Summary of Research for DhRr-17 and DhRr-374*. Draft Report on file Inlailawatash Limited Partnership, North Vancouver.

Roddick, J.A.

1965 *Vancouver North, Coquitlam and Pitt Lake Map Areas, British Columbia*. Geological Survey of Canada, Memoir 335.

Smith, H. I.

1907 Archaeology of the Gulf of Georgia and Puget Sound. In *Memoirs of the American Museum of Natural History Volume II, Part VI: The Jesup North Pacific Expedition*, pp. 303-441, edited by F. Boas. Leiden E.J. Brill Ltd., New York.

Spafford, J., P. Merchant, M. Rousseau, R. Reimer and M. Will

1999 An Archaeological Impact Assessment for Lots B, C and D of District Lot 225, Plan 18341 NWD, Near Carraholly on Burrard Inlet, B.C. Report on file Archaeology Branch, Victoria.

Stantec Consulting Ltd.

2010 Noons Creek Bridge Replacement Archaeological Monitoring and Data Recovery at DhRq-1, the Noons Creek Project. HCA Permit 2010-0280. Report on file with the Archaeology Branch, Victoria.

Struthers, A.

1973 Preliminary Report DhRr-17. HCA Permit 1973-20. Report on file Archaeology Branch, Victoria.

inlailawatash.ca

Suttles, W.

1987 *Coast Salish Essays*. Talonbooks, Vancouver.

1990 The Central Coast Salish. In *Handbook of North American Indians Volume 7: The Northwest Coast*. Edited by Wayne Suttles, pp. 453-475. Smithsonian Institution, Washington D.C.

Tsleil-Waututh Nation and Alexander Heritage Consulting

2001 Tsleil-Waututh First Nation Eco-Cultural Resource Guide for Burrard Inlet and Indian Arm. Report on file with Tsleil-Waututh Nation, North Vancouver.

Walkem, W. W.

1914 *Stories of Early British Columbia*. News-Advertiser, Vancouver.

Yip, S. K., and P. Gose

1979 The Evaluation of Archaeological Resources of the Greater Vancouver Regional District (Fraser Valley Planning Study): Proposals for Management, Part II. Report on file with Ministry of Forests, Lands, and Natural Resource Operations, Victoria, BC. HCA Permit 1978-0006.

inlailawatash.ca

APPENDIX D: Archaeology Site Record Request

Anmore South Archaeology Site Record Request

From: Partridge, Erin FOR:EX <Erin.Partridge@gov.bc.ca>
Date: Friday, February 3, 2023 at 3:14 PM
To: Laurie Schmidt <lschmidt@iconaproperties.com>
Subject: RE: Data Request: Laurie Schmidt - Icona Properties Ltd.

Good afternoon Laurie,

Thank you for your archaeological information request regarding

1600 Sunnyside Road, Anmore BC, PID 031060447, LOT 1 DISTRICT LOT 269 GROUP 1 NEW WESTMINSTER DISTRICT PLAN EPP99431;
1605 Sunnyside Road, Anmore, BC, PID 031060455, LOT 2 DISTRICT LOT 269 GROUP 1 NEW WESTMINSTER DISTRICT PLAN EPP99431;
And
1755 Sunnyside Road, Anmore BC, PID 031060463, LOT 3 DISTRICT LOT 269 GROUP 1 NEW WESTMINSTER DISTRICT PLAN EPP99431.

Please review the screenshot of the properties below (outlined in yellow) and notify me immediately if it does not represent the properties listed in your information request.

Results of Provincial Archaeological Inventory Search

According to Provincial records, there are no known archaeological sites recorded on the subject properties.

However, given the underdeveloped nature of the subject properties and lack of inland surveying in the area, there is high potential for previously unidentified archaeological sites to exist.

Archaeology Branch Advice

If land-altering activities (e.g., home renovations, property redevelopment, landscaping, service installation) are planned on the subject properties, a Provincial heritage permit is not required prior to commencement of those activities.

However, a Provincial heritage permit will be required if archaeological materials are exposed and/or impacted during land-altering activities. Unpermitted damage or alteration of a protected archaeological site is a contravention of the *Heritage Conservation Act* and requires that land-altering activities be halted until the contravention has been investigated and permit requirements have been established. This can result in significant project delays.

Therefore, the Archaeology Branch strongly recommends engaging an eligible consulting archaeologist prior to any land-altering activities. The archaeologist will review the proposed activities, verify archaeological records, and possibly conduct a walk-over and/or an archaeological impact assessment (AIA) of the project area to determine whether the proposed activities are likely to damage or alter any previously unidentified archaeological sites.

Please notify all individuals involved in land-altering activities (e.g., owners, developers, equipment operators) that if archaeological material is encountered during development, they **must stop all activities immediately** and contact the Archaeology Branch for direction at 250-953-3334.

If there are no plans for land-altering activities on the properties, no action needs to be taken at this time.

Rationale and Supplemental Information

- There is high potential for previously unidentified archaeological deposits to exist on the properties.
- Archaeological sites are protected under the *Heritage Conservation Act* and must not be damaged or altered without a Provincial heritage permit issued by the Archaeology Branch. This protection applies even when archaeological sites are previously unidentified or disturbed.
- If a permit is required, be advised that the permit application and issuance process takes approximately 15 to 35 weeks; the permit application process includes referral to First Nations and subsequent engagement.
- The Archaeology Branch must consider numerous factors (e.g., proposed activities and potential impacts to the archaeological site[s]) when determining whether to issue a permit and under what terms and conditions.
- The Archaeology Branch has the authority to require a person to obtain an archaeological impact assessment, at the person's expense, in certain circumstances, as set out in the *Heritage Conservation Act*.
- Occupying an existing dwelling or building without any land alteration does not require a Provincial heritage permit.

How to Find an Eligible Consulting Archaeologist

An eligible consulting archaeologist is one who can hold a Provincial heritage permit to conduct archaeological studies. To verify an archaeologist's eligibility, ask an archaeologist if he or she can hold a permit in your area, or contact the Archaeology Branch (250-953-3334) to verify an archaeologist's eligibility. Consulting archaeologists are listed on the BC Association of Professional Archaeologists website (www.bcapa.ca) and in local directories. Please note, the Archaeology Branch cannot provide specific recommendations for consultants or cost estimates for archaeological assessments. Please contact an eligible consulting archaeologist to obtain a quote.

Questions?

For questions about the archaeological permitting and assessment process, please contact the Archaeology Branch at 250-953-3334 or archaeology@gov.bc.ca.

For more general information, visit the Archaeology Branch website at www.gov.bc.ca/archaeology.

Best wishes,
Erin



Please note that subject lot boundaries (yellow) indicated on the enclosed screenshot are based on information obtained by the Archaeology Branch on the date of this communication and may be subject to error or change. Archaeological site boundaries may not be identical to actual site extent.

Erin Partridge (They/Them/She/Her)
Archaeological Information Administrator
Archaeology Branch | Ministry of Forests
Email: Erin.Partridge@gov.bc.ca
Phone: 250-312-7301
441 Columbia Street, Tk'emlúps(Kamloops) BC, V2C 6K4

From: lschmidt@iconaproperties.com <lschmidt@iconaproperties.com> **On Behalf Of** ArchDataRequest@gov.bc.ca
Sent: Tuesday, January 10, 2023 3:33 PM
To: Arch Data Request FOR:EX <ArchDataRequest@gov.bc.ca>
Subject: Data Request: Laurie Schmidt - Icona Properties Ltd.

Terms and Conditions Accepted	Yes
Name	Laurie Schmidt
Email	lschmidt@iconaproperties.com

I am a Private Property Owner
Affiliation Icona Properties Ltd.
Address 900-1111 W. Hastings St
City Vancouver
Province British Columbia
Postal Code V6E 2J3
Phone Number 778-900-1323

Information Requested I request information and advice about archaeological sites on the properties described below (In the text box below, include the Parcel Identifier (PID), street address, and the legal description if available. If you have maps, please upload them to the File Attachments section near the end of the form.):

1600 Sunnyside Road - 031-060-447 LOT 1 DISTRICT LOT 269 GROUP 1 NEW WESTMINSTER DISTRICT PLAN EPP99431 1605 Sunnyside Road - 031-060-455 LOT 2 DISTRICT LOT 269 GROUP 1 NEW WESTMINSTER DISTRICT PLAN EPP99431 1755 Sunnyside Road - 031-060-463 LOT 3 DISTRICT LOT 269 GROUP 1 NEW WESTMINSTER DISTRICT PLAN EPP99431

Why Site Information is Required I am the property owner of the properties described above. I require the information because (describe below):

We wish to redevelop the existing sites outlined above with a mixed-use development. Please note this submission includes 3 parcels of land under the same ownership and development proposal in the Village of Anmore.

Third Party Access The following person(s) may have access to this information (Include the person's full name and relationship to you below. If you would like them to be copied on our email reply containing property information, please also include their email address):

Greg Moore - CEO - icona Properties

Format Required PDF

Who Prompted I am a regular business user of this information request service

File Attachment#1 Anmore South Properties.png

File Attachment#2

File Attachment#3

File Attachment#4

File Attachment#5

APPENDIX E: Environmental Assessment Report

ENVIRONMENTAL ASSESSMENT

ICONA PROPERTIES – ANMORE LANDS

ANMORE BRITISH COLUMBIA



Prepared for:
ICONA PROPERTIES
#900, 1111 W HASTINGS ST
VANCOUVER BC,
V6E 2J3

Prepared by:



AquaTerra Project No. 20221035
April 2023

TABLE OF CONTENTS

1	PROJECT BACKGROUND	1
2	OBJECTIVES	2
3	REPORT LIMITATIONS	2
4	SITE OVERVIEW	2
5	MUNICIPAL DEVELOPMENT FRAMEWORK	3
5.1.1	<i>Natural Environment</i>	3
6	BACKGROUND REVIEW RESULTS	5
6.1	Biogeoclimatic Zone	5
6.2	Local Ecology	6
6.3	Federal and Provincial Databases and Mapping Utilities	6
6.3.1	<i>BC Species & Ecosystems Explorer – Species-at-risk overview</i> (https://a100.gov.bc.ca/pub/eswp/)	6
6.3.2	<i>Conservation Data Center</i> (http://www.env.gov.bc.ca/atrisk/ims.htm)	8
6.3.3	<i>BC iMAP</i> (http://maps.gov.bc.ca/ess/sv/imapbc/)	9
6.3.4	<i>Community Mapping Network</i> (http://www.cmnbc.ca)	9
6.3.5	<i>Habitat Wizard</i> (http://maps.gov.bc.ca/ess/hm/habwiz/)	10
6.3.6	<i>Fisheries Information Summary System (FISS)</i> (http://www.env.gov.bc.ca/fish/fiss/index.html)	10
7	FIELD ASSESSMENT METHODOLOGY	11
7.1	Aquatic and Riparian Habitats	11
7.2	Fish and Amphibian Presence	12
7.3	Terrestrial Habitat	13
7.4	Wildlife and Wildlife Habitats	13
8	FIELD ASSESSMENT RESULTS	14
8.1	Aquatic Habitats	14
8.1.1	<i>Amphibians and Reptiles</i>	18
8.1.2	<i>Fish</i>	19
8.2	Terrestrial Habitats	22
8.2.1	<i>Invasive Species</i>	25
8.3	Wildlife	25
8.3.1	<i>Mammals</i>	25
8.3.2	<i>Birds</i>	27
8.3.3	<i>Species-at-Risk</i>	28
9	POTENTIAL DEVELOPMENT CONSTRAINTS	32
10	NEXT STEPS	32
11	GUIDING DEVELOPMENT PRINCIPLES	33
12	CLOSURE	35
13	REFERENCES	36

LIST OF FIGURES

Figure 1. Icona Properties – Anmore Lands, approximate site boundary (Red Polygon) and surrounding areas.	1
Figure 2. Biogeoclimatic Zone (CWHdm) for the Site and Surrounding Area.	5
Figure 3. Map view of GBHE Management Team and Wildlife Tree Stewardship database results.	10
Figure 4. Watercourse mapping, culvert details and anticipated setback requirements. Data collected from 2014 – 2023.	16
Figure 5. Amphibian Observations within Site Boundaries.	19
Figure 6. Fish Sampling Results and Watercourse Classification 2015.	20
Figure 7. Mapped Habitat Types and Vegetation Plots (Terrestrial Assessment 2022).	23
Figure 8. Mapped Locations of Unique Habitat Features (Terrestrial Assessment 2022).	24
Figure 9. Mammal Observations Including Direct and Indirect Observations.	26

LIST OF TABLES

Table 1. BC Conservation Centre Results – Organized by Distance from Site	8
Table 2. GBHE Management Team and Wildlife Tree Stewardship database results.	9
Table 3. Identified Watercourses within Site Boundaries with associated Anticipated Watercourse Setbacks from 2014 – 2023.	14
Table 4. Watercourse Evaluation Framework Parameter Rankings.	17
Table 5. Watercourse Consolidation Potential Summary.	17
Table 6. Fish Capture Results from 2014 and 2015 Studies.	20
Table 7. Ranking Potential for Federally-listed Rare and Endangered Species.	29

LIST OF APPENDICES

APPENDIX A – Conservation Data Center Mapping Results	
APPENDIX B – SHIM Mapping Results	
APPENDIX C – Field Survey Site Photographs	
APPENDIX D – Terrestrial Vegetation Plot Data	

1 PROJECT BACKGROUND

The site, as illustrated in **Figure 1**, encompasses lands situated within the Village of Anmore on both the north and south sides of Sunnyside Road and is owned by Icona Properties ('Icona'; the 'client'). Icona personnel initially retained AquaTerra Environmental Ltd. ('AquaTerra') in 2014 to evaluate aquatic and terrestrial environmentally sensitive areas and potential development opportunities and constraints associated with potential future development of the site. A preliminary development feasibility study for the site was completed by AquaTerra in 2014 focusing on terrestrial and aquatic habitats and their respective inhabitants. The area to the south of Sunnyside Road was further assessed by AquaTerra in 2015 and re-assessed again in 2019 providing supplementary fish, fish habitat and species at risk data. In 2018 (updated in 2019), a detailed watercourse assessment was conducted for watercourses north and south of Sunnyside Road, followed by a detailed Riparian Areas Protection Regulation Assessment (RAPR) assessment focusing on Sunnyside Creek North and the main stem of Doctors Creek. From 2020 – 2022, a total of eleven (11) groundwater monitoring wells were installed and monitored by Aplin Martin and AquaTerra, respectively, in select locations south of Sunnyside Road to assess for changes in groundwater elevations. Most recently, in 2022 / 2023, AquaTerra conducted a detailed terrestrial environmental assessment with a focus on the area north of Sunnyside Road to supplement the preliminary data collected in 2014.

Figure 1. Icona Properties – Anmore Lands, approximate site boundary (Red Polygon) and surrounding areas.



2 OBJECTIVES

This Environmental Assessment provides a comprehensive summary of environmental assessment work completed for the site, to date. The primary objectives of this assessment report are to:

1. Report relevant background environmental information and data applicable to the site;
2. Summarize field observations from aquatic, riparian and terrestrial field studies to identify potential development opportunities and constraints;
3. Develop a series of detailed figures and tables summarizing field study findings and outlining potential development opportunities and constraints; and
4. Provide recommendations and guidance for next steps.

3 REPORT LIMITATIONS

Information provided in this Environmental Assessment includes data collected from AquaTerra from 2014 – 2023; therefore, certain site conditions are anticipated to have changed over time. Updated aquatic and terrestrial ground-truthing studies are recommended prior to development to ensure accurate and precise data are represented. Consequently, while findings and conclusions documented in this Environmental Assessment has been prepared in a manner consistent with the level of care and skill normally exercised by members of the environmental science profession practicing under similar circumstances, this report is not intended, nor is it able, to provide a totally inclusive review of past or present environmental conditions within the site area. This report is intended to provide information to reduce, but not necessarily eliminate, uncertainty regarding the potential for constraints associated with site development.

4 SITE OVERVIEW

The site consists primarily of undeveloped, forested stands, which have been logged historically. A gun range was also historically present within the southern portion of the site. Dominant stands consist of second- and third-growth, mature coniferous stands dominated by Coastal Western Hemlock (*Tsuga heterophylla*), with lesser amounts of Western Red Cedar (*Thuja plicata*), Douglas Fir (*Pseudotsuga menziesii var. menziesii*) and Bigleaf Maple (*Acer macrophyllum*). Boundary areas consist of mixed forest dominated by Western Hemlock (*Tsuga heterophylla*) and Red Alder (*Alnus rubra*). Sub-canopy / shrub layer consisted of pockets of dense Salmonberry (*Rubus spectabilis*), Vine Maple (*Acer circinatum*), and Red Huckleberry (*Vaccinium parvifolium*), and sub-dominant Salal (*Gaultheria shallon*) and Trailing Blackberry (*Rubus ursinus*). The forest

floor (herbaceous layer) consisted of dominant fern species such as Sword Fern (*Polystichum munitum*) and Deer Fern (*Blechnum spicant*), with select areas covered by dominant moss species including Step Moss (*Hylocomium splendens*) and Wavy-leaved Cotton Moss (*Buckiella undulata*). Invasive species presence was minimal, although species including Himalayan Blackberry (*Rubus armeniacus*), English Ivy (*Hedera helix*), and English Holly (*Ilex aquifolium*) were observed on roadside edges along the site boundaries. English Ivy, and English Holly were also observed in small patches throughout the assessed portion of the site. Various watercourses and tributaries associated with Schoolhouse Creek and Doctors Creek bisect the site as well as a pocket wetland near the western site boundary near 1st Avenue on the north side of Sunnyside Road.

5 MUNICIPAL DEVELOPMENT FRAMEWORK

This section outlines the applicable municipal environmental requirements with the Village of Anmore relating to development (OCP Bylaw No. 532,2014)¹.

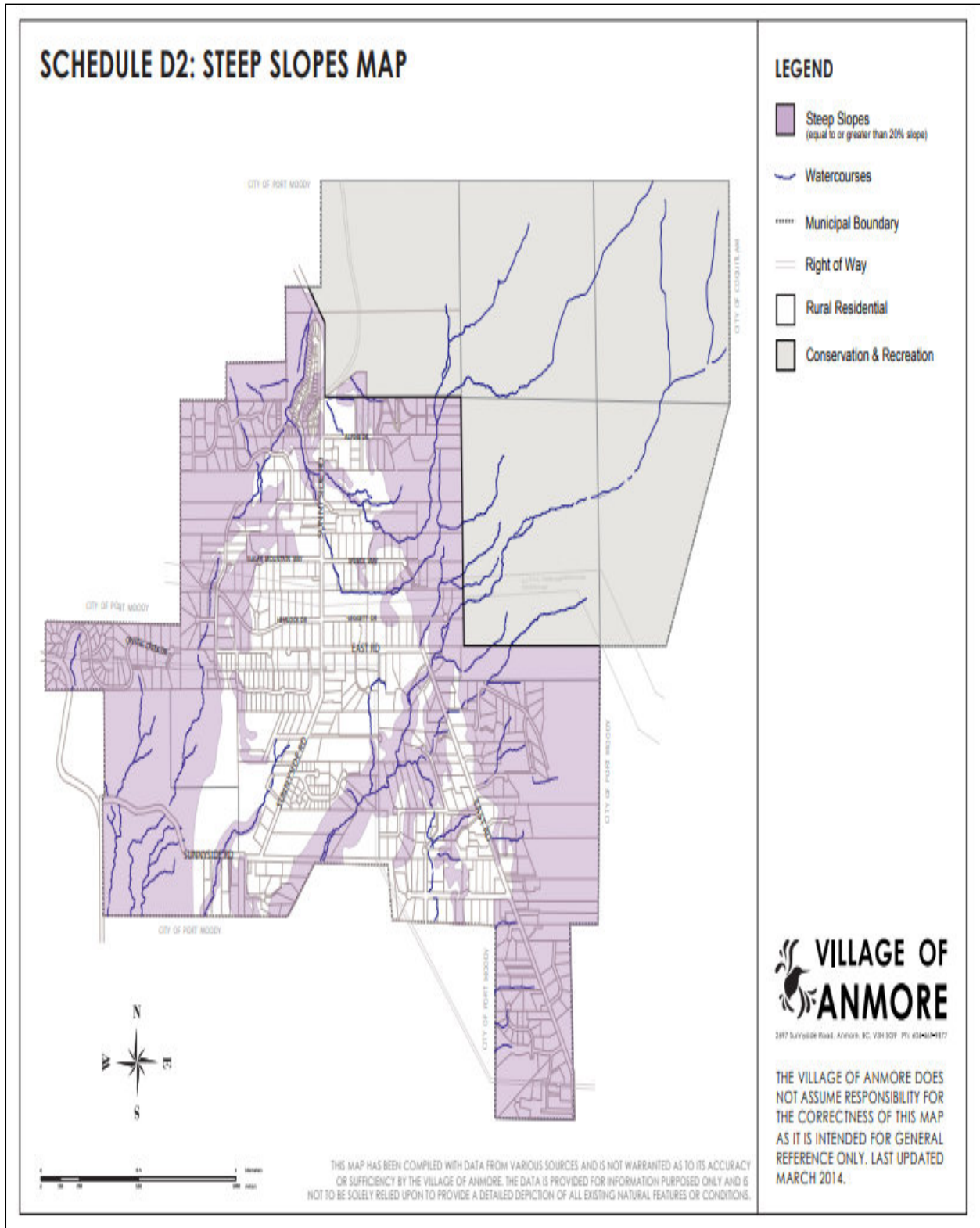
5.1.1 Natural Environment

The current Village of Anmore's Official Community Plan (OCP)¹ from 2014 includes a section (Chapter 7 - Environment), which identifies those areas of the municipality that may contain environmental attributes that are worthy of retention or special care. The Village strongly supports the promotion and preservation of the long-term health of surrounding terrestrial, aquatic and riparian ecosystems, species of concern and sensitive environmental areas.

Environmental impacts of future development include several policies including development permit guideline and bylaws to ensure appropriate measures be taken when development occurs in areas with steep slopes to prevent erosion and limit the visual and environmental impacts to these areas. Based on the OCP Schedule D2 - Steep Slopes Map (**Insert 1**), the site has been mapped and identified as an area containing steep slopes. Other measures include the encouraged retention of existing trees and additional tree / planting materials, inclusion of integrated stormwater management plans, and cooperation with regional, provincial, and federal environmental agencies to ensure effective management of environmentally sensitive areas. The Village of Anmore encourages the retention and enhancement of wildlife corridors and the use of the Dark Sky principles to reduce light pollution as part of the wildlife protection policies.

¹ Available online here: <https://anmore.com/wp-content/uploads/2019/04/Bylaw-532-2014-OCP-Full-Consolidated-April-2019.pdf>

Insert 1: Official Community Plan (OCP) – Schedule D2 – Steep Slopes Map



6 BACKGROUND REVIEW RESULTS

6.1 Biogeoclimatic Zone

The site is situated within the Coastal Western Hemlock (CWH) biogeoclimatic zone (**Figure 2**), which occurs at low to middle elevations mostly to the west of the coastal mountains, along the entire British Columbia Coast and on into both Alaska and Washington/Oregon. The CWH consists of 10 subcategories of continentality (hypermaritime, maritime, and submaritime subzones) and precipitation (very dry, dry, moist, wet, and very wet). Applicable to the site is the Coastal Western Hemlock Dry Maritime Subzone (CWHdm), occurring at low elevations on the mainland and immediately adjacent islands. Elevational limits range from sea level to approximately 650 m. The CWHdm has warm, relatively dry summers and moist, mild winters with little snowfall. Growing seasons are long and feature only minor water deficits on zonal sites. Mean annual temperature is approximately 8°C and ranges from 5.2 °C to 10.5 °C among the CWH subzones. The mean annual precipitation for the zone is 2228 mm (ranging from 1000 to 4400 mm) (MOF, 1991).

Figure 2. Biogeoclimatic Zone (CWHdm) for the Site and Surrounding Area.



The following climate information is based on data collected by Environment Canada at the Port Moody Glenayre STP weather station (49° 16'45.000 N, 122° 52'53.000 W; 129.5 meters [m] elevation) between 1981 and 2010, located approximately 4.2 kilometers (km) northeast of the site.

Daily Mean Temperature	Not listed
Precipitation	1969 mm/year
Highest Monthly Avg.	October, 138.6 mm
Lowest Monthly Avg.	April, 59.0 mm

6.2 Local Ecology

Dominant forest species of the drier maritime subzones (including the CWHdm subzone) typically have a substantial component of Douglas-fir (*Pseudotsuga menziesii*), along with Western Hemlock and Western Redcedar (*Thuja plicata*). Salal (*Gaultheria shallon*), Dull-Oregon Grape (*Mahonia nervosa*) and Red Elderberry (*Vaccinium parvifolium*) typify the poor-to-moderately developed shrub layer. Oregon Beaked Moss (*Kindbergia oregana*), Step Moss (*Hylocomium splendens*), Lanky Moss (*Rhytidiadelphus loreus*) and Flat Moss (*Plagiothecium undulatum*) dominate the well-developed moss layer.

6.3 Federal and Provincial Databases and Mapping Utilities

Accessible federal, provincial and public databases as well as mapping utilities were queried to collect pertinent biophysical information associated with the site. Results are provided in the following sections.

6.3.1 BC Species & Ecosystems Explorer – Species-at-risk overview

(<https://a100.gov.bc.ca/pub/eswp/>)

Species listed on the BC Species & Ecosystems Explorer for the Village of Anmore and surroundings was queried on 03 April 2023 to evaluate which species may be present within or adjacent to the site. The list was evaluated based on available local area habitats and known habitat requisites for each species. The result is the following comprehensive list of provincially and federally ranked species-at-risk potentially occurring on-site along with their respective rankings:

Mammals

- Pacific Water Shrew (*Sorex bendirii*) – Red; Endangered
- Snowshoe Hare (*Lepus americanus washingtonii*) – Red; no federal status
- Townsend’s Big-eared Bat (*Corynorhinus townsendii*) – Blue; no federal status

- Townsend's Mole (*Scapanus townsendii*) – Red; Endangered
- Trowbridge's Shrew (*Sorex trowbridgii*) – Blue; no federal status

Birds

- Band-tailed Pigeon (*Patagioenas fasciata*) – Blue; Special Concern
- Barn Swallow (*Hirundo rustica*) – Blue; Special Concern
- Common Nighthawk (*Chordeiles minor*) – Yellow; Special Concern
- Great Blue Heron (*Ardea herodias fannini*) – Blue; Special Concern
- Green Heron (*Butorides virescenes*) – Blue; no federal status
- Olive-sided Flycatcher (*Contopus cooperi*) – Blue; Special Concern
- Western Screech-Owl (*Megascops kennicottii kennicottii*) – Blue; Threatened

Reptiles and Amphibians

- Coastal Tailed Frog (*Ascaphus truei*) – Yellow; Special Concern
- Northern Red-legged Frog (*Rana aurora*) – Blue; Special Concern
- Northern Rubber Boa (*Charina bottae*) – Yellow; Special Concern
- Western Toad (*Anaxyrus boreas*) – Yellow; Special Concern

Invertebrates

- Dun Skipper (*Euphyes vestris*) – Blue; Threatened
- Monarch (*Danaus plexippus*) – Red; Endangered
- Oregon Forestsnail (*Allogona townsendiana*) – Red; Endangered
- Threaded Vertigo (*Nearctula* sp.) – Blue; Special Concern

Vascular Plants

- American Sweet-flag (*Acorus americanus*) – Blue; no federal status
- Streambank Lupine (*Lupinus rivularis*) – Red; Endangered
- Vancouver Island Beggarticks (*Bidens amplissima*) – Blue; Special Concern
- Washington Springbeauty (*Claytonia washingtoniana*) – Red; no federal status

Mosses

- Poor Pocket Moss (*Fissidens pauperculus*) – Red; Endangered
- Roell's Botherella (*Brotherella roellii*) – Red; Endangered

A detailed discussion of those federally listed sensitive species that may utilize the site to an appreciable degree is included in Section 8.3.3.

6.3.2 Conservation Data Center (<http://www.env.gov.bc.ca/atrisk/ims.htm>)

The BC Conservation Data Center (CDC) database was queried on 03 April 2023 to obtain details on known occurrences of rare animal species or plant communities for the site and surrounding areas. The CDC is part of the Wildlife Inventory Section of the Resource Inventory Branch of the BC Ministry of Environment² (MOE) that uses a listing process to identify species that are candidates for legal designation as extirpated, endangered, or threatened (**Red-listed**), as well those species that are of special concern (**Blue-listed**).

The results of the CDC query indicated no records of rare species or plant community's occurrence in the CDC database mapped specifically for the site. Four (4) non-sensitive elemental occurrences were recorded within approximately five (5) kilometers of the site, which are summarized in **Table 1**. One masked occurrence was recorded approximately two (2) kilometers from the site boundary. The potential for these species to occur within or adjacent to the site is discussed in Section 8.3.3. A summary of the CDC mapping results is provided in **Appendix A**. No listed plant communities of concern were queried or identified within the site or adjacent to the site boundaries.

Table 1. BC Conservation Centre Results – Organized by Distance from Site

Shape ID	Common Name	Scientific Name	Provincial ; Federal Ranking*	Observed Location	Distance from Site	Last Observed
72700	Pacific Water Shrew	<i>Sorex bendirii</i>	Red; EN	Terrestrial; Mixed Forest	235 m	1897
122033	Roell's Brotherella	<i>Brotherella roellii</i>	Red; EN	Mossom Creek	350 m	2017
137927	Snowshoe Hare	<i>Lupus americanus washingtonii</i>	Red	Village of Belcarra	2.9 km	2017
81215	Washington Springbeauty	<i>Claytonia washingtoniana</i>	Blue	Admiralty Point	4.0 km	2005

*EN: Endangered (federal ranking).

² Presently referenced as the Ministry of Forests (MoF); formerly Ministry of Forests, Lands and Natural Resource Operations (MFLNRO).

6.3.3 BC iMAP (<http://maps.gov.bc.ca/ess/sv/imapbc/>)

The BC iMAP database and mapping utility was queried on 03 April 2023. Query results confirm that the site and surrounding area are not part of a designated or proposed Wildlife Habitat Area (WHA) nor is the site situated within a Wildlife Management Area (WMA). Similarly, no reported amphibians, reptiles, birds, or mammals have been mapped within the site area boundaries.

6.3.4 Community Mapping Network (<http://www.cmnbc.ca>)

The Sensitive Habitat Inventory Mapping (SHIM) database, the Great Blue Heron (GBHE) Management Team database, and the Wildlife Tree Stewardship (WiTs) database were queried on 03 April 2023 to evaluate watercourse features and the potential for raptor or heron nests within or adjacent to the site boundaries. One (1) watercourse, known as Schoolhouse Creek, and several tributaries are mapped in the SHIM database. Schoolhouse Creek is identified as “fish bearing”, and the tributaries are mapped as “Unknown” as illustrated in **Appendix B**. The watercourse originates from Buntzen Lake and eventually confluences with the Port Moody inlet, draining into the Pacific Ocean.

The review of the Great Blue Heron (GBHE) Management Team database and Wildlife Trees Stewardship (WiTs) database did not identify any existing or historic raptor or heron nests within the site boundaries. Two (2) Bald Eagle (*Haliaeetus leucocephalus*) nests and one (1) Great Blue Heron (*Ardea herodias fannini*) nesting locations were mapped within approximately seven (7) km from the site as illustrated in **Figure 3** and **Table 2**. The status of the identified colony is unknown.

Table 2. GBHE Management Team and Wildlife Tree Stewardship database results.

Identification	Common/Scientific Name	Distance to site (km)
GBHE-208-004	Great Blue Heron (<i>Ardea herodias fannini</i>)	2.3
BAEA-204-044	Bald Eagle (<i>Haliaeetus leucocephalus</i>)	6.1
BAEA-204-045	Bald Eagle (<i>Haliaeetus leucocephalus</i>)	6.6

Figure 3. Map view of GBHE Management Team and Wildlife Tree Stewardship database results.



6.3.5 Habitat Wizard (<http://maps.gov.bc.ca/ess/hm/habwiz/>)

The province of British Columbia’s “Habitat Wizard” mapping utility was queried on 03 April 2023 to evaluate the presence of watercourses and fish within or adjacent to the site boundaries. Habitat Wizard indicated one (1) watercourse bisecting the site known as Schoolhouse Creek. The database shows the historical presence of provincially blue-listed Coastal Cutthroat Trout (*Oncorhynchus clarkii clarkii*) within Schoolhouse Creek approximately 750 m south of the site boundary.

6.3.6 Fisheries Information Summary System (FISS) (<http://www.env.gov.bc.ca/fish/fiss/index.html>)

The BC Fisheries Information Summary System (FISS) was queried on 03 April 2023 to evaluate the presence of watercourses and fish presence within or adjacent to the site boundaries. FISS results did not illustrate watercourses or any indication of fish presence within the site boundaries at the time of the query.

7 FIELD ASSESSMENT METHODOLOGY

Since 2014, AquaTerra personnel conducted a variety of studies and assessments on-site using various field survey methods to document existing watercourse characteristics, aquatic and terrestrial habitat attributes, and unique natural features within the site area north and south of Sunnyside Road. The field assessment methodologies are discussed in detail in the following sections. Associated results are provided in Section 8.

7.1 Aquatic and Riparian Habitats

In November 2014, AquaTerra Environmental conducted a preliminary baseline study identifying aquatic habitats and their inhabitants north and south of Sunnyside Road. A detailed field survey was conducted by AquaTerra personnel in November 2014, to document existing watercourse characteristics, aquatic habitat attributes, and unique natural features. A high accuracy Trimble GeoXH GPS unit with GeoBeacon received, as well as handheld Garmin GPS units were utilized to collect watercourse and riparian habitat data in the field, including the location of culverts, the orientation of watercourses, watercourse substrate details, and other significant observations.

In 2015 AquaTerra conducted a supplementary fish, fish habitat and species at risk assessment to further support the preliminary 2014 Development Feasibility report. AquaTerra personnel utilized comparable sampling methods and assessed the same attributes as in the 2014 preliminary study. Additionally, the watercourse High Water Mark (HWM) was flagged with pink 'creek' flagging tape. In February 2019, AquaTerra personnel provided an updated fish, fish habitat and species at risk assessment focusing on the Village of Anmore.

In 2018, AquaTerra Environmental conducted a Detailed Watercourse Assessment for select watercourses within the site boundaries north of Sunnyside Road, which summarized the watercourse assessment observations from January 2017 – September 2017. A total of four (4) tributaries; two (2) within Doctors Creek (D-Trib 2, and D-Trib 4), and two (2) within Schoolhouse Creek North (S-Trib 5-4, and S-Trib 6) within the site boundaries, were routinely assessed (typically twice per month) from 25 January 2017 – 06 September 2017. Assessed tributaries were sampled at two (2) separate locations (upper reach and lower reach). At select assessment locations, the watercourses of interest were evaluated for Flow Velocity, Wetted Width, and Water Depth during each event. Data was then compiled, analyzed, and a summary of watercourse consolidation potential was developed, as a component of facilitating prospective development

and qualifying those watercourses with high, moderate, and low habitat value based on the parameters summarized in Section 8.1.

A detailed Riparian Areas Assessment was conducted by AquaTerra personnel in March 2019, encompassing the main stem of Doctors Creek and Schoolhouse Creek North, south of Sunnyside Road in Anmore. The site was thoroughly traversed and identified watercourses were tracked to the site boundary or the source, such as a groundwater seepage. Watercourse wetted width measurements were taken and recorded using a collapsible meter stick. Watercourse gradient, streambed composition and riparian vegetative assemblage were also recorded at each assessed watercourse.

Between January 2020 and October 2022, five (5) wells installed by Aplin Martin, and six (6) wells installed by AquaTerra Environmental were monitored by AquaTerra personnel twice per month. These well locations were installed at select locations south of Sunnyside Road. Results collected during monitoring events included:

- Depth below the top of the well;
- Top of well to the ground; and
- Water depth below ground.

Based on survey files shared with AquaTerra, an unknown watercourse was observed which had not been identified in previous studies. In April 2023, AquaTerra personnel returned to the site to map and identify the source of the 'unknown tributary' using a handheld Garmin GPS Unit, which was confirmed to the north of Sunnyside Road as a localized, confined drainage.

7.2 Fish and Amphibian Presence

In November 2014, AquaTerra personnel set ten (10) baited gee (minnow) traps throughout identified watercourses north and south of Sunnyside Road in the main stem of Schoolhouse Creek North, Doctors Creek, and various tributaries. Incidental observations of amphibians and reptiles were documented.

Supplementary data was collected in December 2015 where additional baited gee (minnow) traps were set within upper reaches of Schoolhouse Creek and Doctors Creek, where feasible, to provide additional data for the watercourses in Anmore, within, and adjacent to the site

boundaries. Presence / Not detected surveys were conducted for amphibians during this supplementary assessment.

7.3 Terrestrial Habitat

During the 2014 preliminary assessment, AquaTerra personnel collected terrestrial vegetation data and conducted a high-quality aerial imagery assessment. Information collected during the assessment included canopy cover, tree species, shrub species, and herbaceous species along with percent cover. Unique habitat features, such as rocky outcrops and areas of high biodiversity were also assessed and documented. Using data from the field survey and aerial interpretation, the site was categorized into various habitat types with approximate boundaries.

To validate the accuracy of previous preliminary reports, provide additional resolution and detail relative to the preliminary reports, and evaluate the interpretation of the high-resolution 2018 aerial photograph, AquaTerra conducted a detailed terrestrial environmental assessment in June 2022. Transect lines were traversed and terrestrial vegetation information from 165 plots (approximately 20 m x 20 m grid) was collected within the site area. Collected vegetation plot data included tree species, shrub species, and herbaceous species. Unique habitat features, such as rocky outcrops, wildlife trees, and areas of high biodiversity were also assessed and recorded.

7.4 Wildlife and Wildlife Habitats

In the 2014 and 2022 studies, wildlife observations, including direct and indirect signs (scat, pellets, feathers, plucking stations, bedding areas, tracks, and potential den sites) were recorded incidentally during the terrestrial habitat assessments. Additionally, raptor nest sites, high value wildlife trees, and areas potentially utilized by species-at-risk were also assessed.

In April 2023, AquaTerra personnel returned to site to determine the status of a raptors nest previously identified in 2014 on the northeast corner of the site. Transect lines were traversed in the vicinity of the nest and AquaTerra personnel inspected the area for any indication of raptor nests.

8 FIELD ASSESSMENT RESULTS

8.1 Aquatic Habitats

A total of sixteen (16) watercourses were identified within the Anmore Lands site boundaries, north and south of Sunnyside Road between 2014 and 2023. The most recent assessment was completed in early 2023 following completion of a detailed topographical survey north of Sunnyside Road. The survey identified a potentially unmapped localized watercourse, which was assessed by AquaTerra personnel and identified as a localized drainage conveying seepage / drainage discharge from a saturated area extending approximately 50 m north of Sunnyside Road (refer to **Figure 4** for details). Anticipated setbacks were identified based on the municipal framework parameters for the Village of Anmore and are illustrated in **Table 3** and **Figure 4**.

Table 3. Identified Watercourses within Site Boundaries with Associated Anticipated Watercourse Setbacks from 2014 – 2023.

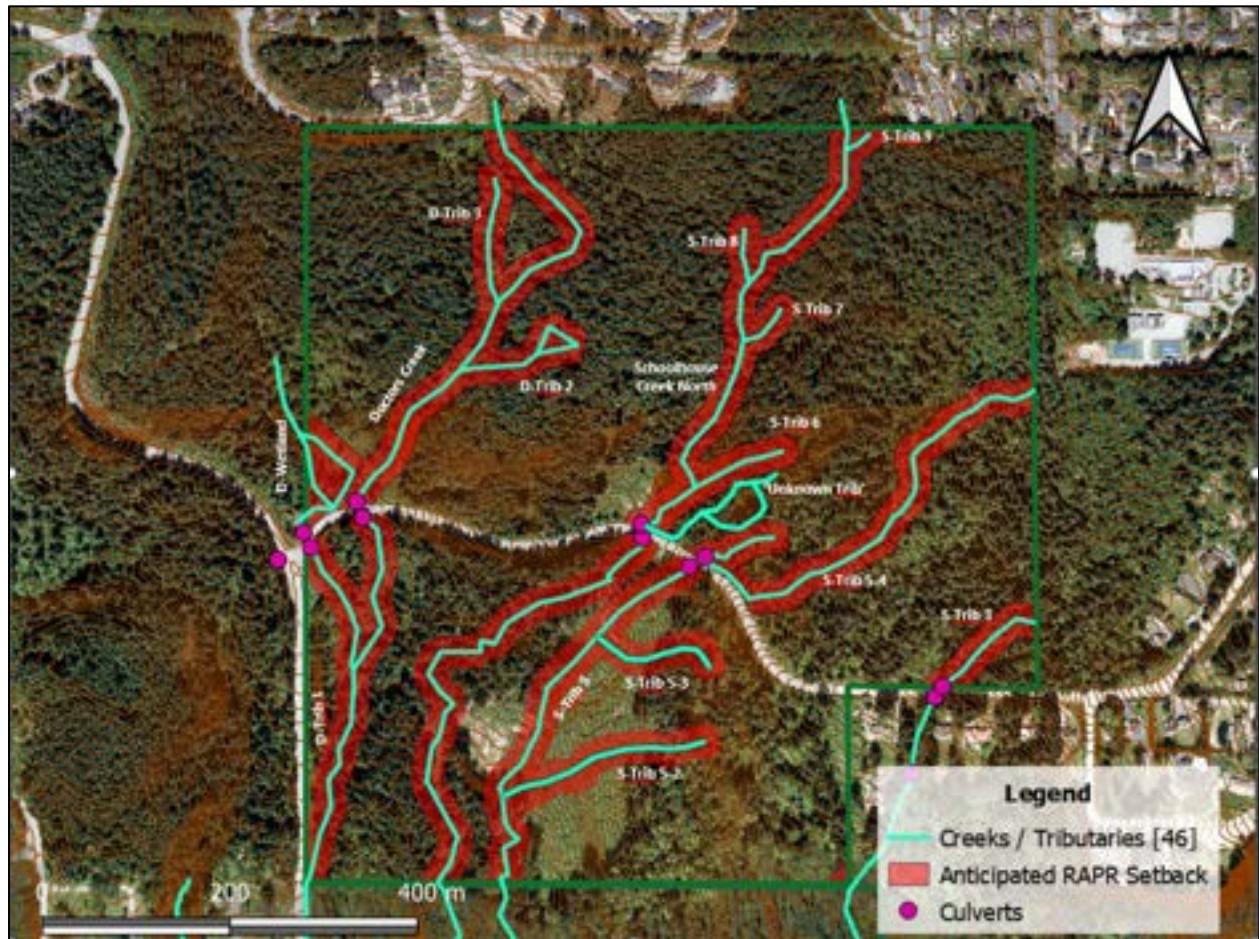
Watercourse ID	Fish-bearing (Y)es, (N)o, (U)known	Municipality	Anticipated Setback
Doctor's Creek main stem	Y	Anmore	10 m from High Water Mark
Doctor's Creek Tributary 1	U	Anmore	10 m from High Water Mark
Doctor's Creek Tributary 2	N	Anmore	10 m from High Water Mark
Doctor's Creek Tributary 3	N	Anmore	10 m from High Water Mark
Doctor's Creek Wetland	N	Anmore	15 m from High Water Mark
Schoolhouse Creek North main stem	Y	Anmore	10-15 m from Top-of-Bank ¹
Schoolhouse Creek Tributary 3	U	Anmore	10-15 m from Top-of-Bank ¹
Schoolhouse Creek Tributary 5	Y	Anmore	10-15 m from Top-of-Bank ¹

Table 4. Con't.

Watercourse ID	Fish-bearing (Y)es, (N)o, (U)known	Municipality	Anticipated Setback
Schoolhouse Creek Tributary 5-2	N	Anmore	10 m from High Water Mark
Schoolhouse Creek Tributary 5-3	N	Anmore	10 m from High Water Mark
Schoolhouse Creek Tributary 5-4	N	Anmore	10 m from High Water Mark
Schoolhouse Creek Tributary 6	N	Anmore	10 m from High Water Mark
Schoolhouse Creek Tributary 7	N	Anmore	10 m from High Water Mark
Schoolhouse Creek Tributary 8	N	Anmore	10 m from High Water Mark
Schoolhouse Creek Tributary 9	N	Anmore	10 m from High Water Mark
Schoolhouse Creek 'Unknown Tributary'; Tributary 10 – assessed in 2023	U	Anmore	10 m from High Water Mark

¹ – watercourse width varied significantly along the creek. Under RAPR, the setback is based on average watercourse widths in 100 m intervals.

Figure 4. Watercourse mapping, culvert details and anticipated setback requirements. Data collected from 2014 – 2023.



Field data from the 2018 / 2019 Detailed Watercourse Assessment study was consolidated and analyzed to provide a general summary of attributes including:

- 1) Permanence;
- 2) Length;
- 3) Hydraulic Inputs;
- 4) Habitat Condition;
- 5) Food / Nutrient Inputs;
- 6) Impacted Areas;
- 7) Flow Dynamics; and
- 8) Flow Contribution.

Results of this analysis for the watercourses of interest are provided in **Table 4**.

Table 5. Watercourse Evaluation Framework Parameter Rankings.

ID	Permanence	Length	Hydraulic Inputs	Habitat Condition	Food / Nutrient Inputs	Impacted Areas	Flow Dynamics	Flow Contribution
S-Trib 5-4	Permanent	Short	Low-to-Moderate	Intact	Minor	None	Low - Moderate	Low - Moderate
S-Trib 6	Permanent	Moderate	Low-to-Moderate	Intact	Moderate	None	Low - Moderate	Low - Moderate
D-Trib 2	Non-permanent	Moderate	Low	Intact	Minor	None	Low	Low
D-Trib 4	Non-permanent	Short	Low	Intact	Minor	None	Low	Low

A summary of watercourse consolidation potential for the assessed watercourses within the site boundaries is provided in **Table 5**. The upper and lower reaches of S-Trib 5-4 and S-Trib 6 were deemed to be permanent watercourses based on data collection and analysis. S-Trib 5-4 had moderate potential for consolidation, whereas S-Trib 6 had low potential for consolidation. The upper reach of D-Trib 2 was considered permanent and the lower reach was considered ephemeral, although both reaches of the tributary had low potential for consolidation. Both reaches of D-Trib 4 were ephemeral and had high potential for consolidation.

Table 6. Watercourse Consolidation Potential Summary.

Watercourse	Last Date of Observed Flow	Permanent or Ephemeral	Potential for Consolidation
S-Trib 5-4 Lower	-	PERMANENT	MODERATE
S-Trib 5-4 Upper	-	PERMANENT	MODERATE
S-Trib 6 Lower	-	PERMANENT	LOW
S-Trib 6 Upper	-	PERMANENT	LOW
D-Trib 2 Lower	NO FLOW	EPHEMERAL	LOW
D-Trib 2 Upper	17-Jun-17	PERMANENT	LOW
D-Trib 4 Lower	17-Jun-17	EPHEMERAL	HIGH
D-Trib 4 Upper	18-May-17	EPHEMERAL	HIGH

Based on the preliminary RAPR complete in 2019 for the southern portion of the site including Doctors Creek, Schoolhouse Creek North, and S-Trib 5, the results for the SPEAs were

anticipated to be 10 m from the High Water Mark (HWM) for identified watercourses noting that it excluded arborist and geotechnical considerations, which could result in modulations in the default setbacks. Retaining a geotechnical engineer and a registered arborist were recommended to provide input during the design and construction periods and to verify the SPEA setbacks.

Well water monitoring data has been analysed and documented internally by AquaTerra and was issued to Icona Properties on a regular basis in an updated Excel file with the intent on evaluating changing groundwater conditions on a seasonal and annual basis, to facilitate development, design parameters, and stormwater management.

8.1.1 Amphibians and Reptiles

Amphibians observed during the 2014 field surveys was limited to a Northwestern Salamander (*Ambystoma gracile*), located in the Schoolhouse Creek North, south of Sunnyside Road.

AquaTerra personnel identified several Northern Red-legged Frogs (*Rana aurora*) within Schoolhouse Creek, and Doctor's Creek corridors during the 2015 field surveys. Northern Red-legged Frogs are provincially blue-listed (Special Concern) and are designated as a species of 'Special Concern' federally. Reptile observations were limited to the yellow-listed (Not-at-Risk) Northern Alligator Lizard (*Elgaria coerulea*) on the eastern site boundaries north of Sunnyside Road. The Coastal Tailed Frog (SARA Schedule 1) has been historically recorded within the Schoolhouse Creek North watershed south of Sunnyside Road. Amphibian and Species at Risk observations are illustrated in **Figure 5**. Limited observations locally are likely associated with the inconspicuous nature of these species. Habitats within the site area may be utilized by a variety of common amphibian and reptile species including Pacific Tree Frog (*Pseudacris regilla*), Long-toed Salamander (*Ambystoma macrodactylum*), Ensatina (*Ensatina eschscholtzii*), Common Garter Snake (*Thamnophis sirtalis*), and Northwestern Garter Snake (*Thamnophis ordinoides*).

Figure 5. Amphibian Observations within Site Boundaries.



8.1.2 Fish

Minnow trapping results from the 2014 preliminary study included the capture of one (1) juvenile Coho Salmon (*Oncorhynchus kisutch*) (fry) within the Schoolhouse Creek North main stem and one (1) Coastal Cutthroat Trout (*Oncorhynchus clarkii clarkii*) within Schoolhouse Creek – Tributary 3 (south of Sunnyside Rd.). A spawning Coho Salmon pair were observed within Tributary 5 (south of Sunnyside Rd.) near the confluence with the main stem.

The 2015 fish presence survey resulted in numerous fish captures limited to the resident Coastal Cutthroat Trout (*Oncorhynchus clarkii clarkii*), which is a provincially blue-listed (Special Concern) species. No fish were captured in the surveyed watercourses north of Sunnyside Road, although several Coastal Cutthroat Trout were captured immediately south of Sunnyside Road inhabiting the connected watercourses. The 2014 and 2015 fish presence survey results are illustrated in **Table 6**.

Table 7. Fish Capture Results from 2014 and 2015 Studies.

Watercourse ID	Year	Fish Capture Results	Comments
Schoolhouse Creek North	2014	1 Coho Salmon	-
Schoolhouse Creek Tributary 3	2014	1 Cutthroat Trout	-
Doctor's Creek main stem	2015	5 Cutthroat Trout	-
Doctor's Creek Tributary 1	2015	No Captures	Gradient barrier near Sunnyside Rd; otherwise, no other barriers observed
Doctor's Creek Tributary 2	2015	No Trapping Conducted	Insufficient Water
Doctor's Creek Tributary 3	2015	No Trapping Conducted	Insufficient Water
Doctor's Creek Wetland	2015	No Trapping Conducted	Insufficient Water
Schoolhouse Creek North main stem	2015	2 Cutthroat Trout	-
Schoolhouse Creek Tributary 3	2015	4 Cutthroat Trout	-
Schoolhouse Creek Tributary 5	2015	2 Coho (adult spawning pair)	-
Schoolhouse Creek Tributary 5-2	2015	No Trapping Conducted	Insufficient Water
Schoolhouse Creek Tributary 5-3	2015	No Trapping Conducted	Insufficient Water
Schoolhouse Creek Tributary 5-4	2015	No Captures	Perched culvert and potential gradient barrier at Sunnyside Road
Schoolhouse Creek Tributary 6	2015	No Trapping Conducted	Insufficient Water
Schoolhouse Creek Tributary 7	2015	No Trapping Conducted	Insufficient Water
Schoolhouse Creek Tributary 8	2015	No Trapping Conducted	Insufficient Water

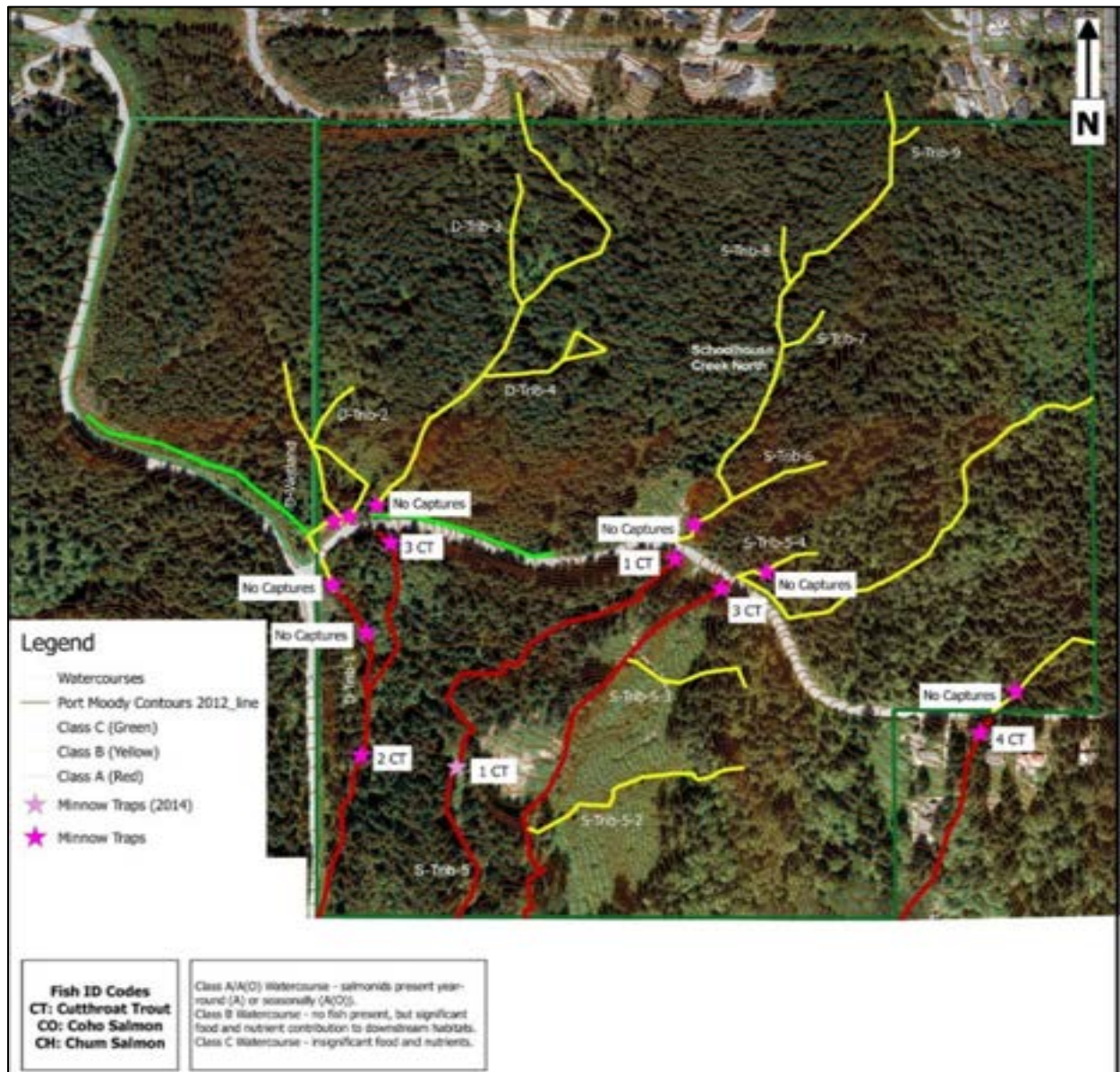
Based on the 2014 and 2015 fish capture results, the watercourses within the project area were classified as either:

- 1) fish-bearing (red-coded);

- 2) non fish-bearing, but providing significant food and nutrient value to downstream fish populations (yellow-coded); or
- 3) non fish-bearing and insignificant food and nutrient value (green coded).

The watercourses within the site of interest north of Sunnyside Road were classified as non-fish bearing, although providing significant food and nutrient value to downstream fish population (yellow-coded). Immediately south of Sunnyside Road, connecting watercourses have been classified as fish bearing (red-coded). Watercourse classification is illustrated in **Figure 6**.

Figure 6. Fish Sampling Results and Watercourse Classification 2015.



8.2 Terrestrial Habitats

Based on the 2014 preliminary assessment and the updated 2022 detailed terrestrial assessment, the site was dominated by mature second-growth / tertiary-growth coniferous forest with pockets of mature mixed forest, rocky outcroppings and riparian areas. The summary of terrestrial vegetation plot results is provided in **Appendix D**. Four (4) different habitat types were identified including:

- 1) Mature second-growth / tertiary-growth coniferous forest;
- 2) Mixed forest;
- 3) Regenerating forest; and
- 4) Wetland.

Vegetation plots and various habitat types based on vegetation assessment details are illustrated in **Figure 7**, which is in general agreement with the preliminary habitat mapping completed by AquaTerra in 2014. An abundance of wildlife trees being actively utilized by wildlife and other potential wildlife trees were also documented. Unique terrestrial habitat features including wildlife trees, rocky outcroppings and encountered tributaries are provided in **Figure 8**.

Figure 7. Mapped Habitat Types and Vegetation Plots (Terrestrial Assessment 2022).

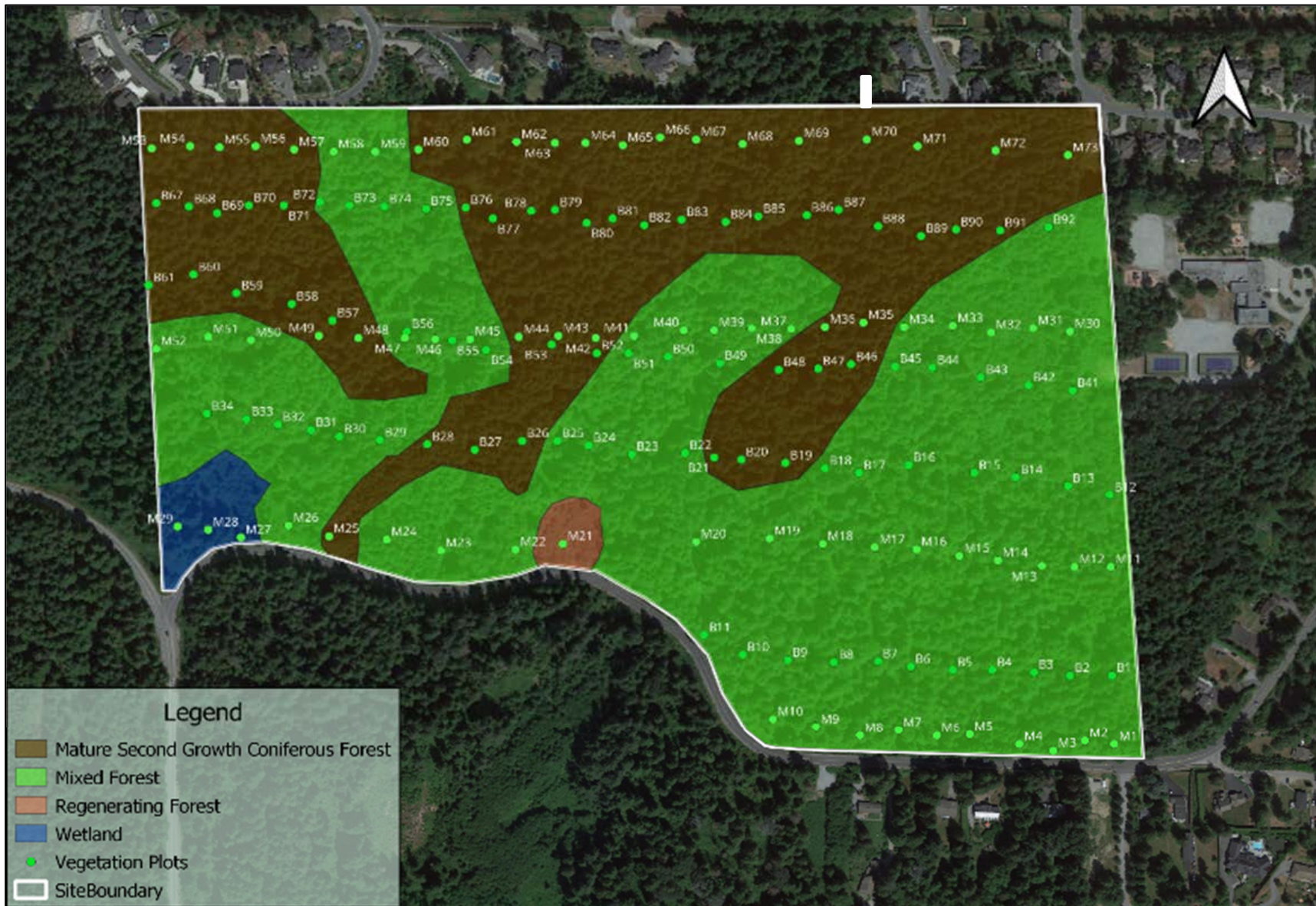
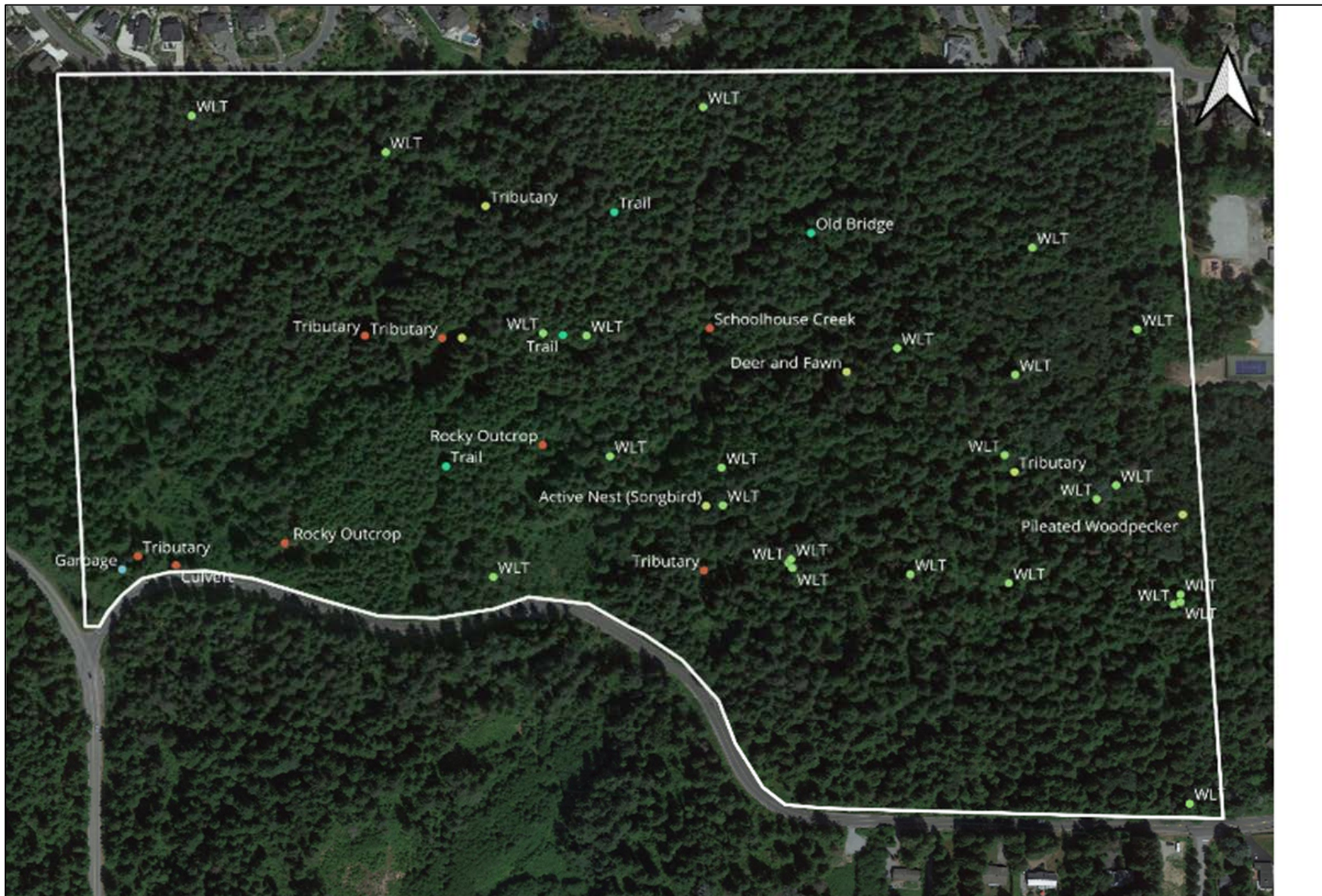


Figure 8. Mapped Locations of Unique Habitat Features (Terrestrial Assessment 2022).



8.2.1 Invasive Species

Several invasive species were observed throughout the site during the 2014 and 2022 site assessments including Himalayan Blackberry (*Rubus discolor*), English Ivy (*Hedera helix*), English Holly (*Ilex aquifolium*) and Spotted Touch-me-not (*Impatiens glandulifera*). Areas with the highest densities of invasive species included the edges of roadways, and adjacent to the development on the northern edge of the assessed portion of the site. Small pockets of English Ivy, English Holly, and Spotted Touch-me-not were observed throughout the assessed portion of the site, although minimal observation of invasive species was observed through the mid-section of the site.

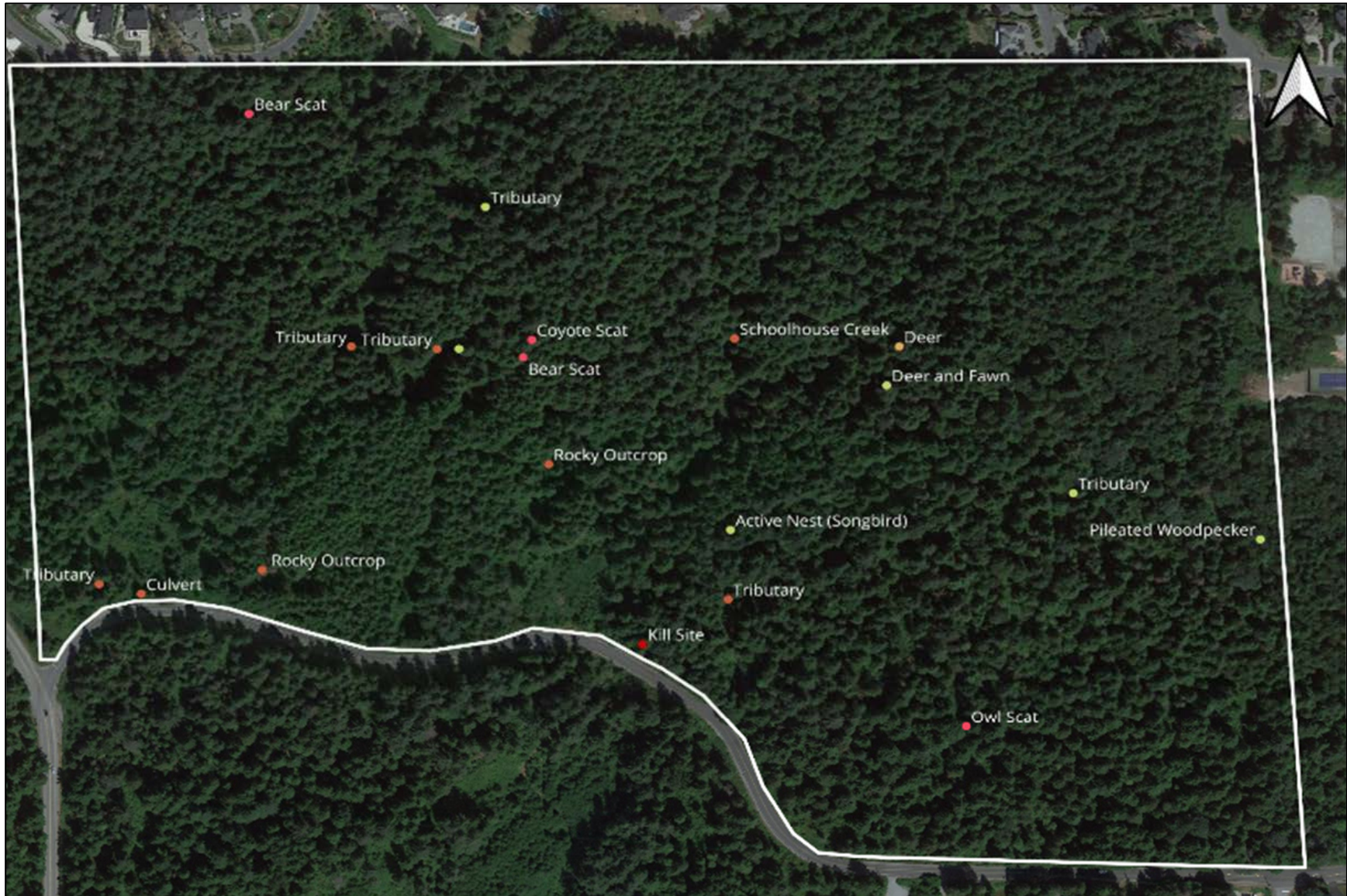
8.3 Wildlife

A summary of common and sensitive terrestrial wildlife or terrestrial wildlife sign (pellets, scat, tracks, etc.), if any, observed during the field surveys are outlined in the following sections.

8.3.1 Mammals

From 2014 to 2023, direct mammal observations were limited to the Douglas Squirrel (*Tamiasciurus douglasii*) and Blacktailed Deer (*Odocoileus hemionus* ssp. *columbianus*). Indirect mammal observations included Raccoon (*Procyon lotor*) scat and tracks, Coyote (*Canis latrans*) scat, Black-tailed Deer pellets, and tracks, and Black-bear (*Ursus americanus*) scat and tracks. A potential kill site with feathers and bones was observed indicating the presence of a carnivorous mammal(s). Observations are illustrated in **Figure 9**.

Figure 9. Mammal Observations Including Direct and Indirect Observations.



8.3.2 Birds

Bird observations were documented over the course of the field assessments in 2014 and 2022 included the following species:

- Northwestern Crow (*Corvus caurinus*);
- American Robin (*Turdus migratorius*);
- Bald Eagle (*Haliaeetus leucocephalus*);
- Black-capped Chickadee (*Poecile atricapillus*);
- Brown Creeper (*Certhia americana*);
- Cedar Waxwing (*Bombycilla cedrorum*);
- Chestnut-backed Chickadee (*Poecile rufescens*);
- Common Raven (*Corvus corax*);
- Dark-eyed Junco (*Junco hyemalis*);
- Downy Woodpecker (*Picoides pubescens*);
- Golden-crowned Kinglet (*Regulus satrapa*);
- Hairy Woodpecker (*Picoides villosus*);
- Northern Flicker (*Colaptes auratus*);
- Pacific-slope Flycatcher (*Empidonax difficilis*);
- Pacific Wren (*Troglodytes pacificus*);
- Pileated Woodpecker (*Dryocopus pileatus*);
- Purple Finch (*Haemorhous purpureus*);
- Red-breasted Nuthatch (*Sitta canadensis*);
- Red Crossbill (*Loxia curvirostra*);
- Rufous Hummingbird (*Selasphorus rufus*);
- Song Sparrow (*Melospiza melodia*);
- Spotted Towhee (*Pipilo maculatus*);
- Swainson's Thrush (*Catharus ustulatus*);
- Townsends Warbler (*Setophaga townsendi*);
- Warbling Vireo (*Vireo gilvus*); and
- Wilson's Warbler (*Cardellina pusilla*).

Bird observations were collected during the months of November 2014 and June 2022. The early – mid-summer timing of the June assessment, inside of the active nesting season, is anticipated to be the primary reason for the abundant bird activity observed during the field assessment. AquaTerra notes that Pileated Woodpecker individuals and nests are now protected year-round under the updated (2022) *Migratory Birds Convention Act*, which will necessitate nest assessments and up to 3 years of monitoring prior to being eligible for removal (if inactive during this period)³. Owl pellets were observed near the southern site boundary. Based on the large, undisturbed, second growth and mixed forest with abundant snags, this site is anticipated to be regularly utilized by numerous bird species for nesting and foraging. One (1) raptor nest was observed in the northeastern site boundary during the 2014 site assessment. No raptor nests were identified during 2022 field assessments. A follow up assessment focusing on the status of the raptors nest identified in 2014 was conducted on 14 February 2023. No raptors nests were observed or confirmed during the follow up assessment, noting that the nest may have been abandoned and/or blown down due to a weather event(s).

8.3.3 Species-at-Risk

Observed species-at-risk during the field assessments between 2014 and 2023 included Coastal Cutthroat Trout (*Oncorhynchus clarkii clarkii*; provincially blue-listed) and the Red-legged Frog (*Rana aurora*; provincially blue-listed). The Coastal Tailed Frog (*Ascaphus truei*), and the Pacific Water Shrew (*Sorex bendirii*) have been historically documented in connecting and nearby watercourses. A ranking of potential for provincially and federally listed rare and endangered species is provided in **Table 7**.

³ <https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/fact-sheet-nest-protection-under-mbr-2022.html>

Table 8. Ranking potential for Federally-listed Rare and Endangered Species.

Common and Scientific Names	Status ²	Potential Occurrence Ranking	Rationale
MAMMALS			
Pacific Water Shrew <i>Sorex bendirii</i>	Red; EN	HIGH	The Pacific Water Shrew requires riparian habitat including but not limited to dense wet forests, marshes, streams, or bogs. Due to the excess of water resources and riparian habitat on site, there is potential for suitable habitat for this species.
Snowshoe Hare <i>Lepus americanus washingtonii</i>	Red	LOW - MODERATE	The Snowshoe Hare is often associated with coniferous and mixed forest stands with a dense understory. Given the coniferous and mixed forest stands, and patches of dense understory, some suitable habitat lies within site boundaries. Unconfirmed observations of this subspecies near the Burrard inlet have been documented, although there have been minimal observations over the years in the Lower Mainland.
Trowbridge's Shrew <i>Sorex trowbridgii</i>	Blue	HIGH	This shrew species is more terrestrial relative to the Pacific Water Shrew, although it does frequent water. Due to the prevalence of coniferous and mixed forest, there is a potential for this species to occur.
Townsend's Mole <i>Scapanus townsendii</i>	Red; EN	LOW	The Townsends's Mole generally inhabits more open canopy habitats with riparian areas nearby. Suitable habitat may be present within the site in specific areas although minimal open canopy habitat was observed throughout the site. Records for this species are limited to areas in the Fraser Valley, south of the Fraser River.
BIRDS			
Band-tailed Pigeon <i>Patagioenas fasciata</i>	Blue	MODERATE - HIGH	Prevalence of suitable berries present on-site and some coniferous forests provide favorable nesting potential.
Barn Swallow <i>Hirundo rustica</i>	Blue, TH	LOW	Generally, forages and nests in open areas. Minimal open areas suitable for nesting results in low probability of encountering this species.
Common Nighthawk <i>Chordeiles minor</i>	TH	MODERATE	Utilizes a wide range of habitats including mountains and plains in open and semi-open habitats. Specific habitats include open forests, savannah, grasslands, fields, and areas around cities and towns. Given the variable habitat conditions, there is a potential for this species to occur.
Great Blue Heron <i>Ardea herodias</i> ssp. <i>Fannini</i>	Blue; SC	LOW - MODERATE	Although watercourse and riparian areas are present on-site, the predominantly closed canopy will limit use by this species.
Olive-Sided Flycatcher <i>Contopus cooperi</i>	Blue; TH	HIGH	Suitable foraging and nesting habitat exist within the site, likely transitory en-route to more suitable breeding habitat.

Western Screech-Owl <i>Megascops kennicottii</i> ssp. <i>Kennicottii</i>	Blue; SC	MODERATE	May occasionally roost and forage in forested areas. Site of a sufficient size to support this species. Preference given to larger tracts of contiguous, undisturbed areas away from developed areas.
AMPHIBIANS AND REPTILES			
Northern Red-legged Frog <i>Rana aurora</i>	Blue; SC	HIGH	This species is directly associated with streams, ponds and marshes although have been identified away from water sources in moist forests. Suitable habitat exists within the site area. Historical AquaTerra records nearby.
Western Toad <i>Anaxyrus boreas</i>	SC	MODERATE	Suitable foraging, dispersal and breeding habitat exists within the site area.
Coastal Tailed Frog <i>Ascaphus truei</i>	Yellow; SC	HIGH	Permanent watercourse on-site, but may convey insufficient flows year-round and average temperature / substrate may preclude this species.
Northern Rubber Boa <i>Charina bottae</i>	SC	LOW	Generally utilize rocky outcrop areas which are not prevalent within the site boundaries.
INVERTEBRATES			
Dun Skipper <i>Euphyes vestries</i>	Blue; TH	LOW	Utilizes a wide variety of habitats including wetlands, fields, meadows, right-of-ways, etc.
Monarch <i>Danaus plexippus</i>	Blue; SC	LOW - MODERATE	Has been observed in low moist spots in fields, meadows, right of ways, etc., but typically prefers large tracts of undisturbed, natural habitat. Anthropogenic activities (habitat degradation, fragmentation and introduction of invasive species) are thought to be the primary reason for this species decline.
Oregon Forestsnail <i>Allogona townsendiana</i>	Red; EN	LOW	Some suitable habitat (Big-leaf Maple) within the site area. Did not identify Stinging Nettle during the field survey, which is commonly found alongside forestsnails. This species is generally found in the Fraser Valley to the south of the Fraser River.
Threaded Vertigo <i>Nearctula</i> sp.	Red, SC	MODERATE	Often found in moist deciduous and mixed wood forests at low elevations in areas dominated by Bigleaf Maple and ferns. Due to the lack of Bigleaf maple dominant forests, habitat is generally unsuitable.
PLANTS			
Streambank Lupine <i>Lupinus rivularis</i>	Red, EN	LOW	Often found along riverbanks and within open woods including natural riverbank habitats and gravelly railway beds and dykes. Aquatic habitats are generally unsuitable.
Vancouver Island Beggarticks <i>Bidens amplissima</i>	Red; EN	LOW - MODERATE	Often found in wetland and shoreline areas including ditches, wet fields and marshes as well as old riverbeds, pond margins, streamside and river edges. Marginally suitable habitat on-site.

Washington Springbeauty <i>Claytonia washingtoniana</i>	Red	LOW - MODERATE	Moist to mesic mossy rock outcrops and forests in the lowland and montane zones. Minimal rocky outcrop areas are present on site.
MOSSES			
Poor Pocket Moss <i>Fissidens pauperculus</i>	Red, EN	LOW - MODERATE	Found on bare, moist soil banks often growing with <i>Fissidens bryoides</i> . Observed on silty damp slopes or outcrops that are wet in winter and dry in summer shaded by Douglas-fir and Western Hemlock. Some suitable areas on-site.
Roell's Botherella <i>Brotherella roellii</i>	Red	LOW – MODERATE	Forms mats on rotten logs, stumps and bases of trees in cool-to-moist mixed deciduous and conifer forests at low elevations along valley margins. Some suitable areas on-site.

² Federal status is SC = Special Concern; TH = Threatened; EN = Endangered

9 POTENTIAL DEVELOPMENT CONSTRAINTS

Potential development constraints consist of the following:

1. Setback requirements from mapped wetland areas will require adherence to the Village of Anmore's Bylaws, the adopted provincial Riparian Areas Protection Regulation (RAPR) setbacks and potentially modulated via geotechnical and arborist considerations, if any;
2. Maximize retention of mature second growth / tertiary growth forest, where possible;
3. Potential setback requirements and tree preservation for high-value wildlife trees. This may include the presence of new or existing raptor nests or Pileated Woodpecker cavities per the updated *Migratory Birds Convention Act* (discussed below in additional detail);
4. Avoid development in the vicinity of the wetland;
5. Maintain and enhance wildlife corridors including both north-south and east-west orientations through the site;
6. Maximize contiguous, undeveloped areas and limit incursion including passive recreational areas and trails;
7. Limit trail crossings and trails paralleling sensitive areas; and
8. Constraints developing near rocky outcropping due to the "Steep Slopes" policy in the Village of Anmore's OCP. Additional investigation by a qualified geotechnical engineer is required to determine feasibility and potential setbacks.

10 NEXT STEPS

As the project design advances, AquaTerra recommends the following next steps in support of a comprehensive Environmental Impact Assessment, which will be required to facilitate approvals at the municipal and provincial levels:

1. Complete an updated detailed Riparian Areas Protection Regulation (RAPR) once a site development plan has been completed to establish the wetland and watercourse setbacks for the site;
2. Complete a detailed arborist assessment for the site, identifying significant trees as well as danger trees and windthrow boundaries that could modulate the watercourse / wetland setbacks under the detailed RAPR methodology;
3. Conduct supplementary and updated ground-truthing field studies during appropriate times of the year (i.e., May – August and October - December) with a focus on sensitive

terrestrial and aquatic species, noting that some mapping and inventory data was collected in 2014;

4. Set-up remote wildlife cameras to monitor wildlife use and evaluate suitable wildlife corridor locations;
5. Conduct an invasive species survey during the late spring-early summer and identify high risk areas to be addressed during development;
6. Collect baseline (pre-development) water quality data and flow data to determine variability in water quality seasonally and to assist in post-construction stormwater modelling efforts;
7. Engage stakeholders and municipalities early on to provide input and facilitate approvals;
8. Develop a preliminary development plan based on the information provided by the project team and stakeholders, with consideration for the Village of Anmore environmental policies and the guiding development principles outlined in Section 10; and
9. Prepare and issue Environmental Impact Assessment (EIA) once the development concept has been prepared, which identifies Valued Ecosystem Component (VECs) within the site limits and details potential impacts to VECs associated with the proposed development of the site, the significance of each impact, and recommends site-specific mitigation measures for identified impacts to VECs.

11 GUIDING DEVELOPMENT PRINCIPLES

AquaTerra recommends the incorporation of the following guiding development principles and Best Management Practices (BMPs) during subsequent detailed project phases:

- A preliminary lot layout should incorporate anticipated watercourse setbacks and maximization of unique terrestrial habitat areas, as well as to identify opportunities to include wildlife corridors that travel the entire length of the site.
- Minimize the use of culverts (with a preference for open-bottomed culverts, box culverts, and clearspan bridges) during construction to maintain wildlife connectivity and biological integrity. If required, culvert preference is for open bottomed and box culverts. Culvert installation will require a *Water Sustainability Act* authorization and may require a DFO Project Review contingent on the number and location of culverts.

- Neighbourhoods and individual lots should include appropriate measures to sequester and store stormwater run-off to minimize and increase instantaneous discharges to the watercourses on-site, which has the potential to affect water quality and increase erosion potential.
- The design team should familiarize themselves with the following documents and incorporate applicable BMPs into the layout for the site:
 - *DFO Land Development Guidelines for the Protection of Aquatic Habitat* (Chilibeck et al. 1992); and
 - *Develop with Care 2014: Environmental Guidelines for Urban and Rural Land Development in British Columbia* (Cullington 2014).
- To avoid undue impacts to potentially nesting birds, vegetation clearing should occur after August 31 and prior to March 1 to avoid the breeding bird season (*Canada Wildlife Act; Migratory Birds Convention Act. 2022*). If clearing is required within the breeding bird season, the Canadian Wildlife Service (CWS) provides general guidelines for tree clearing within the breeding bird season, which require that a Qualified Environmental Professional (QEP) conduct bird nest surveys prior to clearing. Identified nests will be flagged with a minimum 20 m buffer, designated as a 'No-Go' zone and monitored periodically until the nest is deemed inactive.
- Re-evaluate the Pileated Woodpecker nest and take measures to incorporate nest protection into project design. If the nest cannot be protected, nest checks must be periodically conducted and a determination that the nest is inactive for a period of 3 years is required prior to nest removal, which is to be coordinated with Environment Canada.
- Adhere to the appropriate Best Management Practices for sensitive species/species-at-risk including Best Management Practices for Amphibians and Reptiles in Urban and Rural Environments in BC (2004) and the Draft Gastropod Best Management Practices Guidebook (2007).
- Appropriate salvages will be considered prior to land clearing and/or development including amphibian salvages and gastropod salvages in accordance with applicable. The *Wildlife Act* prohibits the killing, harming or harassment of any wildlife. Appropriate permits (General Wildlife Permit and Animal Care Permit) will be required prior to any salvage efforts.

- Retain mature conifers and significant trees, where possible.
- Where danger trees exist, top 5-6 m from the ground and retain the remaining stump and trunk to provide some wildlife function.
- Consideration will be given to proper invasive species removal during project construction removal and disposal methods can be determined in consultation with the Invasive Plant Council of BC and/or the Metro Vancouver Invasive Plant Council.

12 CLOSURE

This Environmental Assessment report summarizes environmental background information applicable to the site, as well as a summary of field assessments and field surveys for the period of 2014 to 2023 inclusive of aquatic and terrestrial habitats and their associated inhabitants, serving to identify potential development opportunities and constraints and guiding development principles to maintain and enhance habitat function.

13 REFERENCES

AquaTerra Environmental Ltd. 2014. Development Feasibility Study – Ioco Lands Parcel A, B, and E Port Moody and Anmore, BC.

B.C. Conservation Data Centre. 2022. BC Species and Ecosystems Explorer. B.C. Government, Victoria B.C. Available on-line here: <http://a100.gov.bc.ca/pub/eswp/>

Chilibeck, B., Chislett, G. and G. Norris. 1992. *Land Development Guidelines for the Protection of Aquatic Habitat*. ISBN 0-7726-1582-9

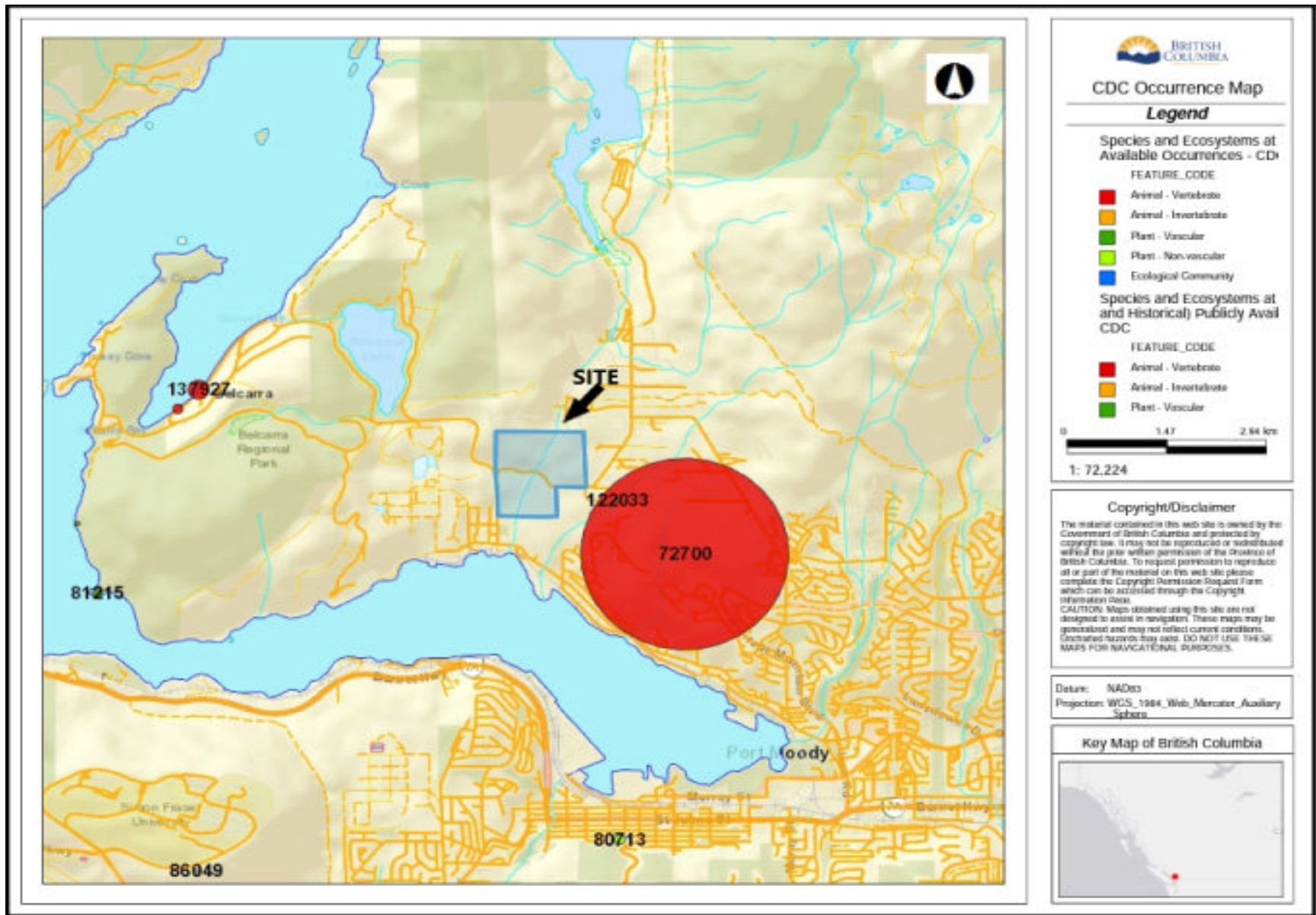
Cullington. 2014. Develop with Care 2014: Environmental Guidelines for Urban and Rural Land Development in British Columbia. Available on-line here:
<http://www.env.gov.bc.ca/wld/documents/bmp/devwithcare2014/DWC-Cover.pdf>

Ministry of Environment, Lands and Parks (MELP). July 1998. Planting Criteria and Recommended Native Tree and Shrub Species for Restoration and Enhancement of Fish and Wildlife Habitat. Ministry of Environment, Lands and Parks.

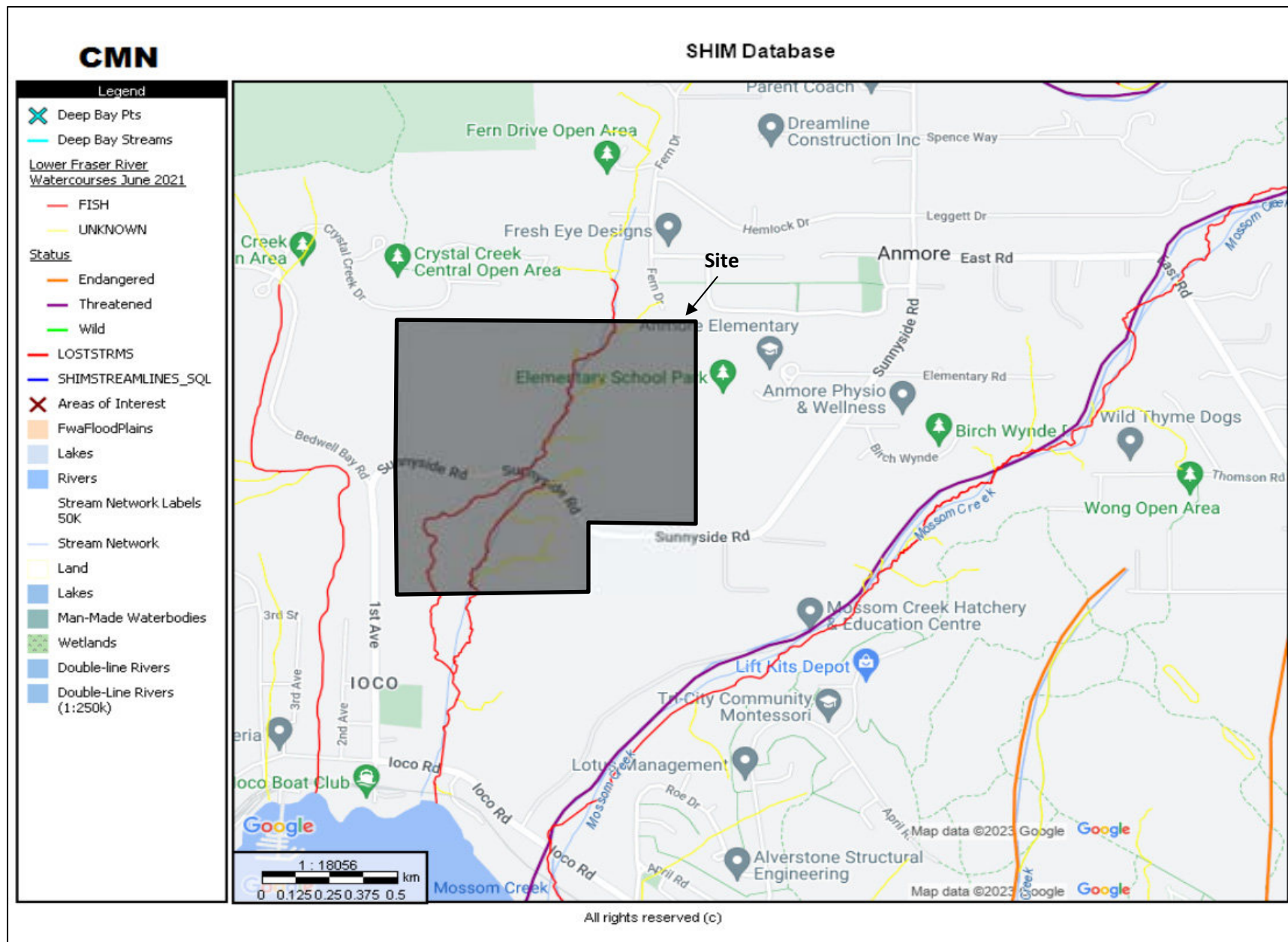
MELP 1999. British Columbia Wildlife Habitat Rating Standards. Prepared by the Ministry of Environment, Lands and Parks Resources Inventory Branch for the Terrestrial Ecosystem Task Force Resources Inventory Committee. Version 2.0. Available on-line here: <http://www.llbc.leg.bc.ca/public/pubdocs/bcdocs/335486/whrs.pdf>

Ministry of Forests, Lands and Natural Resource Operations (MFLNRO). 2013. Guidelines for Raptor Conservation during Urban and Rural Land Development in British Columbia. Available on-line here:
www.env.gov.bc.ca/wld/.../raptor_conservation_guidelines_2013.pdf

APPENDIX A
Conservation Data Center Mapping Results



APPENDIX B
SHIM Mapping Results



APPENDIX C
Field Survey Photographs

November 2014 – Middle reach of Schoolhouse Creek North of Sunnyside Road.



November 2014 – Doctors Creek wetland area north of Sunnyside Road.



November 2014 – Rocky outcrop north of Sunnyside Road, east of Doctors Creek,



May 2015 - Provincially Blue-listed (Special Concern) Red-legged Frog observed throughout the site.



September 2017 – Lower reach of S-Trib 5-4 during low flow conditions.



September 2017 – Upper reach of S-Trib 5-4 during low flow conditions.



September 2017 – Upper reach of D-Trib 2 during low flow conditions.



September 2017 – Upper reach of D-Trib 4 during low flow conditions.



June 2022 - Coastal Western Hemlock and Sword Fern dominant stands.



June 2022 - Riparian area with dominant salmonberry, and ferns.



June 2022 - Wildlife tree with activity.



June 2022 - Isolated patches of Spotted Touch-me-not.



June 2022 - Wildlife tree with cavities.



June 2022 - Potential kill site.



June 2022 - Mossy Forest floor in coniferous dominant stands.



June 2022 - Rocky outcropping.



June 2022 - Wetland area on the southwestern corner of the site with high volume of garbage.



June 2022 - Owl scat observed.



June 2022 - Pileated woodpecker actively utilizing wildlife tree.



June 2022 - Moss dominated forest floor.



June 2022 - Black-tailed deer observed (doe and fawn).



June 2022 - Patches of dense salmonberry observed throughout the site.



June 2022 - Skunk cabbage and other riparian vegetation observed near watercourses.



APPENDIX D
Terrestrial Vegetation Plot Data

APPENDIX D

Icona Properties – Anmore Lands North 2022 Terrestrial Vegetation Plot Data

Common Name	Scientific Name	Plot Number – B1 – B15														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<i>Tree Cover</i>																
Western Redcedar	<i>Thuja plicata</i>	✓	✓	✓		✓	✓	✓	✓			✓			✓	✓
Coastal Western Hemlock	<i>Tsuga heterophylla</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Douglas Fir	<i>Pseudotsuga menziesii</i>	✓	✓	✓					✓							
Big Leaf Maple	<i>Acer macrophyllum</i>											✓	✓	✓	✓	✓
Red Alder	<i>Alnus rubra</i>		✓			✓					✓		✓	✓	✓	✓
Paper Birch	<i>Betula papyrifera</i>											✓	✓			

Shrub Cover																
Beaked Hazelnut	<i>Corylus cornuta</i>															✓
Vine maple	<i>Acer circinatum</i>	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Salal	<i>Gaultheria shallon</i>	✓	✓	✓	✓					✓			✓			
Elderberry	<i>Sambucus nigra</i>	✓		✓									✓		✓	
Salmonberry	<i>Rubus spectabilis</i>	✓		✓	✓	✓		✓		✓			✓	✓	✓	✓
Oceanspray	<i>Holodiscus discolor</i>									✓						
Trailing Blackberry	<i>Rubus ursinus</i>				✓	✓						✓	✓			
Huckleberry	<i>Vaccinium parvifolium</i>	✓		✓		✓	✓		✓	✓					✓	✓
False Azalea	<i>Menziesia ferruginea</i>			✓												
Devils Club	<i>Oplopanax horridus</i>			✓												
Herbaceous Cover																

Wall-lettuce	<i>Lactuca muralis</i>							✓	✓	✓						✓
Starflower	<i>Trientalis borealis</i>	✓														
Foamflower	<i>Tiarella trifoliata</i>								✓			✓	✓			✓
Western Sword Fern	<i>Polystichum munitum</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Lady fern	<i>Athyrium filix-femina</i>			✓								✓				
Spiny Wood Fern	<i>Dryopteris expansa</i>	✓	✓		✓	✓		✓		✓		✓	✓	✓	✓	
Deer Fern	<i>Struthiopteris spicant</i>	✓	✓	✓	✓	✓			✓	✓		✓	✓	✓		
Invasive																
English Holly	<i>Ilex aquifolium</i>	✓				✓										
English Ivy	<i>Hendera helix</i>	✓							✓							✓
Spotted Touch- Me-Not	<i>Impatiens Parviflora</i>							✓		✓						✓

Common Horsetail	<i>Equisetum arvense</i>												✓				
Himalayan Blackberry	<i>Rubus americanus</i>																✓

Common Name	Scientific Name	Plot Number – B15 – B30															
		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
<i>Tree Cover</i>																	

Western Redcedar	<i>Thuja plicata</i>	✓	✓	✓				✓	✓	✓						
Western Hemlock	<i>Tsuga heterophylla</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Douglas Fir	<i>Pseudotsuga menziesii</i>					✓	✓					✓	✓	✓	✓	
Red Alder	<i>Alnus rubra</i>		✓						✓							
Paper Birch	<i>Betula papyrifera</i>															✓
Shrub Cover																
Vine Maple	<i>Acer circinatum</i>	✓		✓	✓	✓	✓			✓	✓				✓	
Salal	<i>Gaultheria shallon</i>		✓			✓	✓	✓	✓		✓	✓	✓		✓	✓
Elderberry	<i>Sambucus nigra</i>				✓								✓			
Japanese Knotweed	<i>Reynoutria japonica</i>															
Salmonberry	<i>Rubus spectabilis</i>	✓	✓	✓	✓	✓					✓		✓			✓

Trailing Blackberry	<i>Rubus ursinus</i>		✓			✓			✓	✓						
Huckleberry	<i>Vaccinium parvifolium</i>		✓		✓				✓	✓	✓	✓	✓	✓	✓	
False Azalea	<i>Menziesia ferruginea</i>						✓		✓				✓			
Indian Plum	<i>Oemleria cerasiformis</i>			✓												
Dull Oregon Grape	<i>Mahonia nervosa</i>								✓							
Herbaceous Cover																
Starflower	<i>Trientalis borealis</i>					✓				✓			✓			
Foamflower	<i>Tiarella trifoliata</i>	✓	✓	✓									✓			
Western Trillium	<i>Trillium ovatum</i>				✓											
Clasping Twistedstalk	<i>Streptopus amplexifolius</i>				✓											
Western Sword Fern	<i>Polystichum munitum</i>	✓	✓	✓		✓	✓	✓	✓	✓	✓					✓

Lady Fern	<i>Athyrium filix-femina</i>						✓									✓
Spiny Wood Fern	<i>Dryopteris expansa</i>	✓	✓	✓	✓	✓	✓			✓	✓					
Deer Fern	<i>Struthiopteris spicant</i>	✓		✓	✓	✓					✓	✓	✓			✓
Bracken fern	<i>Pteridium aquilinum</i>					✓		✓	✓			✓		✓		
Invasive																
English Holly	<i>Ilex aquifolium</i>				✓											
English Ivy	<i>Hendera helix</i>				✓											
Himalayan Blackberry	<i>Rubus americanus</i>															✓

Common Name	Scientific Name	Plot Number – B31 – B45																	
		31	32	33	34	35	36	37	38	39	40	41	42	43	44	45			
Tree Cover																			
Western Redcedar	<i>Thuja plicata</i>			✓	✓	Not in scope of work					✓				✓				
Western Hemlock	<i>Tsuga heterophylla</i>	✓	✓	✓	✓						✓	✓	✓	✓	✓	✓	✓	✓	✓
Douglas Fir	<i>Pseudotsuga menziesii</i>		✓																
Black Cottonwood	<i>Populus balsamifera</i>																✓		
Mountain Ash	<i>Sorbus aucuparia</i>	✓																	
Big Leaf Maple	<i>Acer macrophyllum</i>			✓															
Red Alder	<i>Alnus rubra</i>														✓				✓
Paper Birch	<i>Betula papyrifera</i>															✓	✓	✓	✓
Shrub Cover																			

Beaked Hazelnut	<i>Corylus cornuta</i>					Not in scope of work		✓			
Vine maple	<i>Acer circinatum</i>							✓	✓	✓	✓
Salal	<i>Gaultheria shallon</i>		✓	✓				✓			
Elderberry	<i>Sambucus nigra</i>	✓						✓			
Salmonberry	<i>Rubus spectabilis</i>	✓			✓			✓	✓	✓	✓
Ninebark	<i>Physocarpus capitatus</i>										
Trailing Blackberry	<i>Rubus ursinus</i>	✓						✓	✓		✓
Huckleberry	<i>Vaccinium parvifolium</i>	✓	✓	✓	✓			✓			✓
False Azalea	<i>Menziesia ferruginea</i>	✓	✓								
Herbaceous Cover											
Wall-lettuce	<i>Lactuca muralis</i>					Not in scope of work	✓			✓	
Western Sword	<i>Polystichum munitum</i>			✓				✓	✓	✓	✓

Fern											
Lady fern	<i>Athyrium filix-femina</i>									✓	
Spiny Wood Fern	<i>Dryopteris expansa</i>			✓	✓			✓	✓		
Deer Fern	<i>Struthiopteris spicant</i>	✓			✓			✓		✓	
Licorice Fern	<i>Polypodium glycyrrhiza</i>				✓						
Bracken fern	<i>Pteridium aquilinum</i>	✓	✓					✓	✓		
Invasive											
Spotted Touch- Me-Not	<i>Impatiens Parviflora</i>							Not in scope of work	✓		

Common Name	Scientific Name	Plot Number – B46 – B60															
		46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
Tree Cover																	
Western Redcedar	<i>Thuja plicata</i>		✓	✓	✓												
Western Hemlock	<i>Tsuga heterophylla</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Douglas Fir	<i>Pseudotsuga menziesii</i>		✓		✓	✓	✓	✓									✓
Red Alder	<i>Alnus rubra</i>									✓							
Paper Birch	<i>Betula papyrifera</i>									✓							
Shrub Cover																	
Beaked Hazelnut	<i>Corylus cornuta</i>			✓													
Vine maple	<i>Acer circinatum</i>	✓		✓		✓	✓	✓		✓	✓	✓		✓	✓	✓	
Salal	<i>Gaultheria shallon</i>	✓	✓		✓	✓	✓	✓		✓	✓		✓				✓

Elderberry	<i>Sambucus nigra</i>												✓			✓	
Salmonberry	<i>Rubus spectabilis</i>		✓	✓							✓		✓				
Trailing Blackberry	<i>Rubus ursinus</i>			✓													✓
Huckleberry	<i>Vaccinium parvifolium</i>	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓		✓	
False Azalea	<i>Menziesia ferruginea</i>						✓	✓									
Dull Oregon Grape	<i>Mahonia nervosa</i>		✓		✓	✓											
Herbaceous Cover																	
Starflower	<i>Trientalis borealis</i>															✓	
Western Sword Fern	<i>Polystichum munitum</i>	✓	✓	✓	✓	✓	✓	✓						✓	✓	✓	✓
Lady fern	<i>Athyrium filix-femina</i>																
Spiny Wood Fern	<i>Dryopteris expansa</i>	✓		✓		✓	✓	✓					✓	✓	✓	✓	

Deer Fern	<i>Struthiopteris spicant</i>	✓	✓	✓			✓	✓		✓	✓	✓				
Bracken fern	<i>Pteridium aquilinum</i>		✓			✓	✓	✓								✓
Invasive																
English Holly	<i>Ilex aquifolium</i>														✓	✓
Himalayan Blackberry	<i>Rubus americanus</i>											✓				

Common Name	Scientific Name	Plot Number – B61 – B75																	
		61	62	63	64	65	66	67	68	69	70	71	72	73	74	75			
Tree Cover																			
Western Redcedar	<i>Thuja plicata</i>		Not in scope of work								✓			✓		✓			
Western Hemlock	<i>Tsuga heterophylla</i>	✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Douglas Fir	<i>Pseudotsuga menziesii</i>	✓					✓	✓	✓									✓	✓
Black Cottonwood	<i>Populus balsamifera</i>																		✓
Red Alder	<i>Alnus rubra</i>															✓			✓
Shrub Cover																			
Vine maple	<i>Acer circinatum</i>	✓	Not in scope of work				✓	✓	✓	✓	✓	✓	✓	✓		✓			
Salal	<i>Gaultheria shallon</i>	✓					✓	✓		✓						✓			✓
Salmonberry	<i>Rubus spectabilis</i>						✓	✓									✓	✓	

Oceanspray	<i>Holodiscus discolor</i>												
Trailing Blackberry	<i>Rubus ursinus</i>				✓			✓		✓			
Huckleberry	<i>Vaccinium parvifolium</i>				✓	✓	✓		✓	✓			
Herbaceous Cover													
Western Sword Fern	<i>Polystichum munitum</i>			✓			✓	✓	✓	✓	✓	✓	✓
Lady fern	<i>Athyrium filix-femina</i>												✓
Spiny Wood Fern	<i>Dryopteris expansa</i>	✓						✓	✓	✓	✓	✓	✓
Deer Fern	<i>Struthiopteris spicant</i>	✓					✓	✓				✓	
Bracken fern	<i>Pteridium aquilinum</i>				✓	✓	✓						
Invasive													
English Holly	<i>Ilex aquifolium</i>	✓	<i>Not in scope of work</i>		✓		✓						

Common Name	Scientific Name	Plot Number – B76 – B92																
		76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92
Tree Cover																		
Western Redcedar	<i>Thuja plicata</i>	✓	✓	✓							✓	✓	✓					✓
Western Hemlock	<i>Tsuga heterophylla</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Douglas Fir	<i>Pseudotsuga menziesii</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
Red Alder	<i>Alnus rubra</i>																	✓
Shrub Cover																		
Vine maple	<i>Acer circinatum</i>		✓	✓		✓	✓			✓			✓					
Salal	<i>Gaultheria shallon</i>	✓			✓	✓	✓	✓		✓	✓	✓	✓	✓	✓			
Elderberry	<i>Sambucus nigra</i>	✓	✓															✓
Salmonberry	<i>Rubus spectabilis</i>	✓			✓							✓						✓

Oceanspray	<i>Holodiscus discolor</i>																	
Trailing Blackberry	<i>Rubus ursinus</i>	✓	✓	✓				✓							✓	✓		
Huckleberry	<i>Vaccinium parvifolium</i>	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓
Dull Oregon Grape	<i>Mahonia nervosa</i>			✓		✓												
Thimbleberry	<i>Rubus parviflorus</i>		✓															
Herbaceous Cover																		
Wall-lettuce	<i>Lactuca muralis</i>																	✓
Starflower	<i>Trientalis borealis</i>			✓	✓					✓								
Foamflower	<i>Tiarella trifoliata</i>											✓						
Cleavers	<i>Galium aparine</i>									✓								
Western Sword Fern	<i>Polystichum munitum</i>	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓			✓

Lady fern	<i>Athyrium filix-femina</i>																		
Spiny Wood Fern	<i>Dryopteris expansa</i>		✓	✓	✓		✓	✓											
Deer Fern	<i>Struthiopteris spicant</i>	✓										✓		✓	✓	✓	✓		
Bracken fern	<i>Pteridium aquilinum</i>										✓		✓	✓				✓	
Invasive																			
English Holly	<i>Ilex aquifolium</i>				✓														
English Ivy	<i>Hendera helix</i>									✓									

Common Name	Scientific Name	Plot Number – M1 – M15														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Tree Cover																
Western Redcedar	<i>Thuja plicata</i>	✓	✓		✓	✓		✓	✓	✓	✓			✓		
Western Hemlock	<i>Tsuga heterophylla</i>	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓
Douglas Fir	<i>Pseudotsuga menziesii</i>	✓											✓			
Bigleaf Maple	<i>Acer macrophyllum</i>	✓		✓												
Red Alder	<i>Alnus rubra</i>						✓								✓	
Western Mountain Ash	<i>Sorbus scopulina</i>									✓						
Shrub Cover																
Vine Maple	<i>Acer circinatum</i>		✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓

Salal	<i>Gaultheria shallon</i>		✓									✓	✓	✓		
Lady Fern	<i>Athyrium filix-femina</i>		✓		✓	✓	✓		✓							
Elderberry	<i>Sambucus nigra</i>											✓	✓			✓
Salmonberry	<i>Rubus spectabilis</i>					✓				✓	✓				✓	✓
Trailing Blackberry	<i>Rubus ursinus</i>							✓		✓	✓			✓		
Huckleberry	<i>Vaccinium parvifolium</i>	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓		
Indian Plum	<i>Oemleria cerasiformis</i>															
Stink Currant	<i>Ribes bracteosum</i>					✓										
Herbaceous Cover																
Starflower	<i>Trientalis borealis</i>				✓						✓					
Foamflower	<i>Tiarella trifoliata</i>					✓	✓								✓	✓
Western Sword	<i>Polystichum munitum</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Fern																	
Spiny Wood Fern	<i>Dryopteris expansa</i>		✓	✓				✓			✓	✓	✓	✓	✓	✓	✓
Deer Fern	<i>Struthiopteris spicant</i>		✓	✓	✓	✓			✓	✓	✓	✓		✓			✓
Licorice Fern	<i>Polypodium glycyrrhiza</i>							✓									
Bracken fern	<i>Pteridium aquilinum</i>		✓				✓										
Invasive																	
English Holly	<i>Ilex aquifolium</i>						✓	✓		✓							
English Ivy	<i>Hendera helix</i>					✓		✓									
Himalayan Blackberry	<i>Rubus americanus</i>																✓
Laurel								✓		✓							
Common Horsetail	<i>Equisetum arvense</i>										✓						

Spotted Touch- me-not	<i>Impatiens Parviflora</i>																✓	✓
--------------------------	-----------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---	---

Common Name	Scientific Name	Plot Number – M16 – M30															
		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Tree Cover																	
Western Redcedar	<i>Thuja plicata</i>	✓	✓			✓	✓	✓	✓		✓		✓	✓		✓	
Western Hemlock	<i>Tsuga heterophylla</i>	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	
Douglas Fir	<i>Pseudotsuga menziesii</i>				✓			✓			✓						
Red Alder	<i>Alnus rubra</i>	✓					✓										
Mountain Ash	<i>Sorbus aucuparia</i>											✓					
Black Cottonwood	<i>Populus balsamifera</i> <i>ssp. trichocarpa</i>															✓	
Shrub Cover																	
Vine Maple	<i>Acer circinatum</i>	✓	✓	✓	✓	✓					✓	✓			✓	✓	

Salal	<i>Gaultheria shallon</i>	✓				✓		✓	✓		✓	✓	✓	✓	✓	✓
Elderberry	<i>Sambucus nigra</i>	✓		✓		✓										✓
Salmonberry	<i>Rubus spectabilis</i>	✓		✓		✓	✓	✓				✓	✓	✓	✓	✓
Trailing Blackberry	<i>Rubus ursinus</i>		✓													✓
Huckleberry	<i>Vaccinium parvifolium</i>	✓	✓			✓		✓	✓	✓	✓	✓		✓		✓
False Azalea	<i>Menziesia ferruginea</i>															
Indian Plum	<i>Oemleria cerasiformis</i>													✓	✓	
Thimbleberry	<i>Rubus parviflorus</i>					✓										
Hardhack	<i>Spirea douglasii</i> ssp. <i>douglasii</i>						✓									
False Azalea	<i>Menziesia ferruginea</i>								✓							
Herbaceous Cover																

Foamflower	<i>Tiarella trifoliata</i>			✓		✓		✓					✓			✓
Skunk Cabbage	<i>Lysichiton americanum</i>					✓							✓	✓	✓	
Western Buttercup	<i>Ranunculus occidentalis</i>						✓									
Bunchberry	<i>Cornus canadensis</i>											✓				
Western Sword Fern	<i>Polystichum munitum</i>	✓	✓	✓	✓								✓			✓
Lady Fern	<i>Athyrium filix-femina</i>		✓										✓			
Spiny Wood Fern	<i>Dryopteris expansa</i>	✓	✓	✓	✓	✓	✓		✓					✓	✓	✓
Deer Fern	<i>Struthiopteris spicant</i>						✓		✓			✓	✓	✓	✓	✓
Bracken fern	<i>Pteridium aquilinum</i>							✓		✓	✓	✓		✓		✓
Invasive																
English Ivy	<i>Hendera helix</i>				✓											

Himalayan Blackberry	<i>Rubus americanus</i>						✓					✓				
Common Horsetail	<i>Equisetum arvense</i>					✓	✓						✓	✓		
Spotted Touch- me-not	<i>Impatiens Parviflora</i>	✓	✓	✓												

Common Name	Scientific Name	Plot Number – M31 – M45															
		31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	
Tree Cover																	
Western Redcedar	<i>Thuja plicata</i>								✓	✓	✓	✓			✓	✓	
Western Hemlock	<i>Tsuga heterophylla</i>	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Douglas Fir	<i>Pseudotsuga menziesii</i>						✓		✓			✓	✓	✓	✓		
Bigleaf Maple	<i>Acer macrophyllum</i>		✓														
Red Alder	<i>Alnus rubra</i>	✓	✓	✓								✓				✓	
Black Cottonwood	<i>Populus balsamifera</i> <i>ssp. trichocarpa</i>	✓															
Shrub Cover																	
Vine Maple	<i>Acer circinatum</i>		✓	✓			✓	✓		✓	✓	✓	✓			✓	

Salal	<i>Gaultheria shallon</i>					✓				✓	✓	✓	✓	✓	✓	✓
Salmonberry	<i>Rubus spectabilis</i>	✓	✓	✓	✓	✓		✓		✓		✓				✓
Trailing Blackberry	<i>Rubus ursinus</i>	✓					✓									
Huckleberry	<i>Vaccinium parvifolium</i>	✓	✓		✓		✓			✓	✓		✓	✓	✓	
Devils Club	<i>Oplopanax horridus</i>									✓						
Herbaceous Cover																
Starflower	<i>Trientalis borealis</i>			✓								✓				
Foamflower	<i>Tiarella trifoliata</i>		✓	✓	✓							✓				
Skunk Cabbage	<i>Lysichiton americanum</i>															✓
Rattlesnake Plantain	<i>Goodyera oblongifolia</i>							✓								
Lady Fern	<i>Athyrium filix-femina</i>		✓		✓	✓						✓			✓	

Spiny Wood Fern	<i>Dryopteris expansa</i>			✓	✓	✓		✓				✓	✓	✓		
Deer Fern	<i>Struthiopteris spicant</i>	✓	✓		✓	✓	✓			✓	✓	✓	✓		✓	
Western Sword Fern	<i>Polystichum munitmum</i>	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		
Bracken fern	<i>Pteridium aquilinum</i>	✓					✓		✓		✓		✓	✓	✓	
Invasive																
English Holly	<i>Ilex aquifolium</i>													✓		✓
English Ivy	<i>Hedera helix</i>		✓													

Common Name	Scientific Name	Plot Number – M46 – M60															
		46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	
Tree Cover																	
Western Redcedar	<i>Thuja plicata</i>				✓		✓	✓		✓	✓			✓		✓	
Western Hemlock	<i>Tsuga heterophylla</i>	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	
Douglas Fir	<i>Pseudotsuga menziesii</i>			✓	✓		✓		✓	✓		✓	✓			✓	
Shrub Cover																	
Vine Maple	<i>Acer circinatum</i>	✓				✓		✓	✓	✓	✓			✓	✓	✓	
Salal	<i>Gaultheria shallon</i>	✓		✓	✓		✓		✓	✓	✓	✓	✓			✓	
Salmonberry	<i>Rubus spectabilis</i>		✓			✓									✓		
Trailing Blackberry	<i>Rubus ursinus</i>						✓		✓		✓	✓	✓	✓		✓	
Huckleberry	<i>Vaccinium parvifolium</i>	✓		✓	✓	✓	✓	✓			✓	✓	✓	✓		✓	

Dull Oregon Grape	<i>Mahonia nervosa</i>								✓								
Herbaceous Cover																	
Starflower	<i>Trientalis borealis</i>															✓	
Foamflower	<i>Tiarella trifoliata</i>		✓														
Wall Lettuce	<i>Lactuca muralis</i>														✓		
Skunk Cabbage	<i>Lysichiton americanum</i>		✓														
Western Sword Fern	<i>Polystichum munitum</i>								✓		✓			✓	✓	✓	
Lady Fern	<i>Athyrium filix-femina</i>									✓							
Spiny Wood Fern	<i>Dryopteris expansa</i>						✓	✓						✓	✓	✓	
Deer Fern	<i>Struthiopteris spicant</i>	✓	✓			✓	✓										
Bracken fern	<i>Pteridium aquilinum</i>		✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		

<i>Invasive</i>																
English Holly	<i>Ilex aquifolium</i>							✓		✓		✓				

Common Name	Scientific Name	Plot Number – M61 – M71										
		61	62	63	64	65	66	67	68	69	70	71
Tree Cover												
Western Redcedar	<i>Thuja plicata</i>						✓	✓	✓			
Western Hemlock	<i>Tsuga heterophylla</i>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Douglas Fir	<i>Pseudotsuga menziesii</i>				✓	✓	✓	✓		✓	✓	
Bigleaf Maple	<i>Acer macrophyllum</i>					✓						
Shrub Cover												
Vine Maple	<i>Acer circinatum</i>	✓			✓		✓	✓				
Salal	<i>Gaultheria shallon</i>				✓		✓	✓	✓		✓	✓
Salmonberry	<i>Rubus spectabilis</i>		✓	✓								
Trailing Blackberry	<i>Rubus ursinus</i>	✓	✓	✓				✓				

Cutleaf Blackberry	<i>Rubus laciniatus</i>		✓									
Huckleberry	<i>Vaccinium parvifolium</i>	✓	✓	✓		✓		✓	✓	✓	✓	
False Azalea	<i>Menziesia ferruginea</i>											
Indian Plum	<i>Oemleria cerasiformis</i>										✓	
Dull Oregon Grape	<i>Mahonia nervosa</i>				✓		✓					
Herbaceous Cover												
Starflower	<i>Trientalis borealis</i>		✓	✓								
Wall Lettuce	<i>Lactuca muralis</i>			✓								
Western Sword Fern	<i>Polystichum munitum</i>	✓	✓	✓			✓	✓	✓	✓		✓
Lady Fern	<i>Athyrium filix-femina</i>	✓	✓						✓			
Spiny Wood Fern	<i>Dryopteris expansa</i>	✓									✓	
Deer Fern	<i>Struthiopteris spicant</i>							✓	✓			✓

Bracken fern	<i>Pteridium aquilinum</i>			✓		✓	✓				✓		
<i>Invasive</i>													
English Holly	<i>Ilex aquifolium</i>				✓		✓						✓

APPENDIX F: Preliminary Habitat Compensation Report

HABITAT COMPENSATION AND ENHANCEMENT OPTIONS ANALYSIS MEMORANDUM

TO: GILIC Developments Inc.
1455 West Georgia Street
Vancouver, BC
V6G 2T3



cc: Aplin & Martin; Village of Anmore

Date: 03 September 2019

FROM: Chris Lee, M.Sc., RPBio, QEP, BC-CESCL

SUBJECT: Burrard Commons Habitat Compensation and Enhancement Options Analysis Memorandum (1600 – 1700 Sunnyside Road, Anmore BC)

Overview

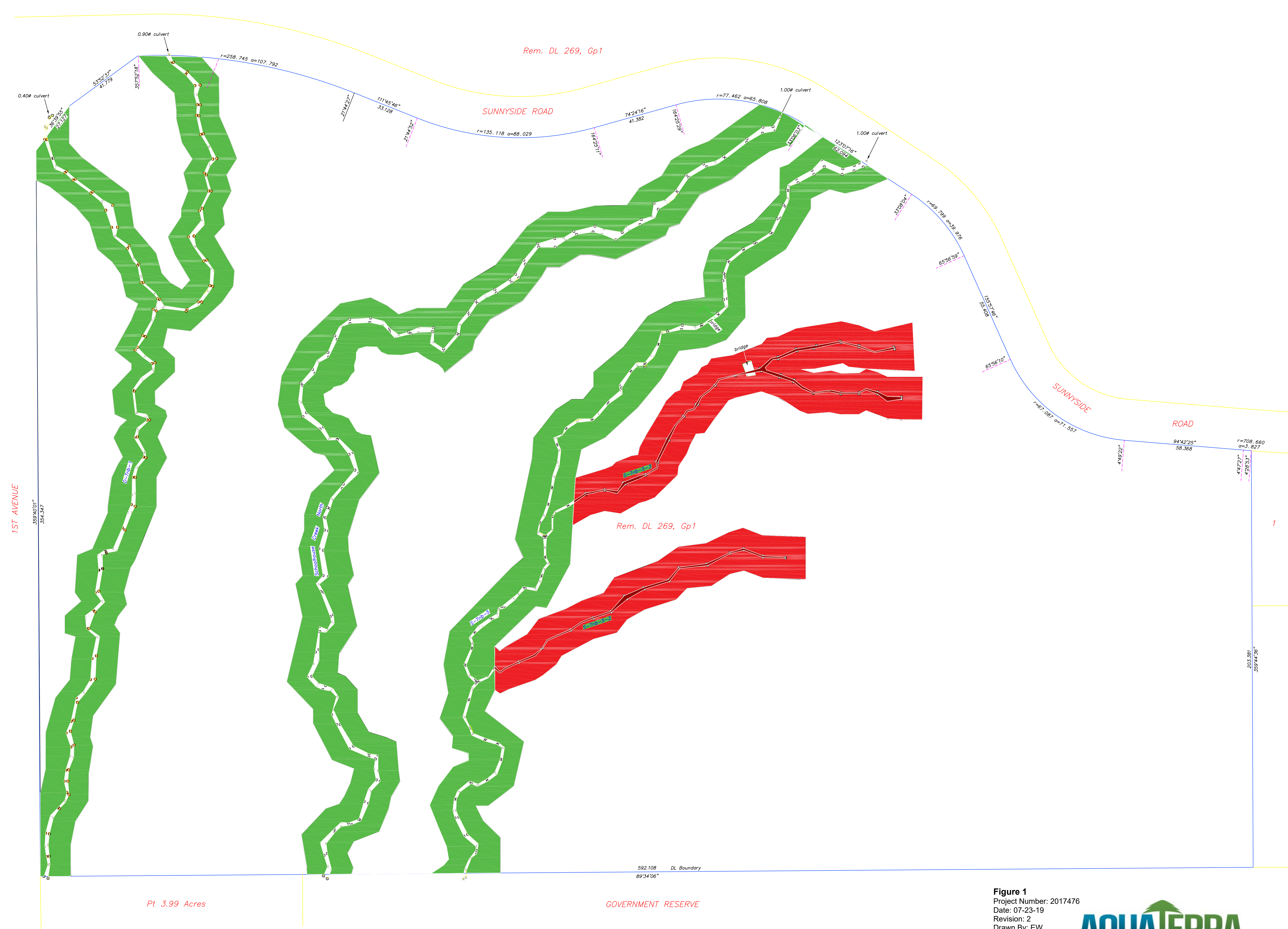
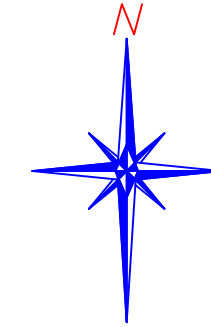
AquaTerra Environmental Ltd. ('AquaTerra') prepared this brief Habitat Compensation and Enhancement Options Analysis Memorandum (the 'memo') at the request of GILIC Developments Inc., and its agents, to identify the potential aquatic and riparian habitat losses associated with the proposed development of the Burrard Commons site, and to provide associated options to offset these losses via the identification of habitat compensation and enhancement measures. This memo is a living document and will be updated periodically to accommodate new information or supplementary habitat compensation or enhancement options identified during the detailed design process.

Habitat Impacts

The prospective watercourses that may be impacted to accommodate development are identified as Schoolhouse Tributary 5-2 (S-Trib 5-2) and Schoolhouse Tributary 5-3 (S-Trib 5-3). These watercourses occupy a portion of the site that is relatively flat and are situated within the area where proposed development density is anticipated to be highest, inclusive of a central development hub and road access off of Sunnyside Road. Both of these tributaries are first order watercourses that convey flows seasonally over a short distance with a localized catchment area originating predominantly on the south side of Sunnyside Road. AquaTerra evaluated the habitat contributions of these watercourses over the period of January – September 2017 and identified them as potential contenders for consolidation with habitat offsetting measures (watercourse monitoring report issued in February 2019 under separate cover). The permanent, high value habitat watercourses, inclusive of Doctor's Creek, Schoolhouse Creek mainstem, and Schoolhouse Creek Tributary 5 (refer to **Figure 1** for location details) are to remain, as is, with appropriate Streamside Protection & Enhancement Areas (SPEAs) and additional protection provision options, as outlined in this memo.

SURVEY PLAN SHOWING WATERCOURSE HIGH WATER MARK ON PORTIONS OF
DISTRICT LOT 269, GROUP 1, NEW WESTMINSTER DISTRICT

SCALE: 1:750
All distances are in metres



LEGEND

- o Indicates Flaggings at High Water Mark Set by Environmental Consultant.
- x Indicates Infill High Water Mark Location.
- Indicates High Water Mark of Watercourse.

Let dimensions are based on Plan BCP38573
We assume no responsibility for the unauthorized use of this plan.

CERTIFIED CORRECT
this 22nd day of April 2019.

W. PAPOVE B.C.L.S.

Figure 1
Project Number: 2017476
Date: 07-23-19
Revision: 2
Drawn By: EW
Approved By: CL



CHARGES ON TITLE	
CHARGE NO.	NATURE
CA4167322	Restrictive Covenant

PAPOVE PROFESSIONAL LAND SURVEYING INC.
202 - 1120 WESTWOOD STREET
COQUITLAM, B.C. V3B 7K8
TEL : (604) 464-5199
FAX : (604) 464-6509
FILE NUMBER : 7544

Habitat Impact Justification

AquaTerra anticipates that the groundwater and interflow can be collected and conveyed to Schoolhouse Tributary 5 such that overall flow volumes are not altered as a result of watercourse consolidation. Moreover, through the design and implementation of stormwater management components, precipitation inputs can be collected and conveyed towards Schoolhouse Tributary 5 at a rate that mimics pre-development conditions, based on modeling parameters (discussed in the following sections). Additional S-Trib 5-2 and S-Trib 5-3 bisect a former gun range area, as such, the lower reaches of both watercourses bisect an impacted area dominated by invasive species (Himalayan Blackberry [*Rubus armeniacus*]) with some Red Alder (*Alnus rubra*) re-growth. Riparian habitat value along the impacted portions of the watercourses are lower relative to the other watercourses identified on-site situated within an existing forested canopy.

Regulatory Framework

Per Section 11 of the *Water Sustainability Act* (WSA), specific definition relating to "**changes in and about a stream**" require review and approval by the province. Changes in and about a stream is defined as:

- (a) any modification to the nature of a stream, including any modification to the land, vegetation and natural environment of a stream or the flow of water in a stream; or
- (b) any activity or construction within a stream channel that has or may have an impact on a stream or a stream channel.

Any changes to a stream channel(s) require a WSA approval. A WSA approval requires a minimum review period of 140 calendar days, but can often take in excess of one (1) year as a result of government personnel constraints, application backlogs, and the duty to consult local First Nations. A typical application package for a WSA approval includes an Environmental Assessment (EA), supporting documentation, letters of support (if applicable), design drawings and associated information, options analysis, and mitigation measures including compensation measures. Appropriate mitigation measures and the provisions for compensation measures are provided in Section 11, Part 16 (Mitigation Measures) of the WSA.

Habitat Compensation and Enhancement Options

AquaTerra has identified four (4) preliminary habitat compensation and enhancement options for the site, which are summarized in **Table 1** and **Figure 2**, and are discussed below.

Table 1: Habitat Compensation and Enhancement Options.

Area Reference	Aquatic Habitat Gain (m ²)	Aquatic Habitat Loss (m ²)	Riparian Habitat Gain (m ²)	Riparian Habitat Loss (m ²)
A			3042	
B			4976	
C	1377		Existing	
D			8168	
S-Trib 5-2		142		3320
S-Trib 5-3		256		5634
GAIN:LOSS RATIO	3.5:1		2.3:1	

Area A Detailed Habitat Compensation Description

Area A is located between Doctor's Creek and Doctor's Creek Trib-1. Habitat compensation consists of expanding the existing riparian setback an additional 20 meters from both creeks (up to the full 30 m riparian zone of influence extents), resulting in an additional contiguous riparian area measuring approximately 3042 m² (**Table 1**). This supplementary undeveloped buffer area would enhance post-development wildlife foraging and cover opportunities.

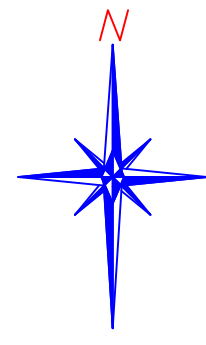
Area B Detailed Habitat Compensation Description

Area B is located along the entire western extent of Doctor's Creek. Similar to Area A, habitat compensation consists of expanding the existing riparian setback an additional 20 meters from the creek (up to the full 30 m riparian zone of influence extents), resulting in an additional compensation area of approximately 4976 m². This supplementary undeveloped buffer area would enhance post-development wildlife foraging and cover opportunities as well as a supplementary buffer from existing road-related traffic, run-off, invasive species encroachment, and insolation effects.

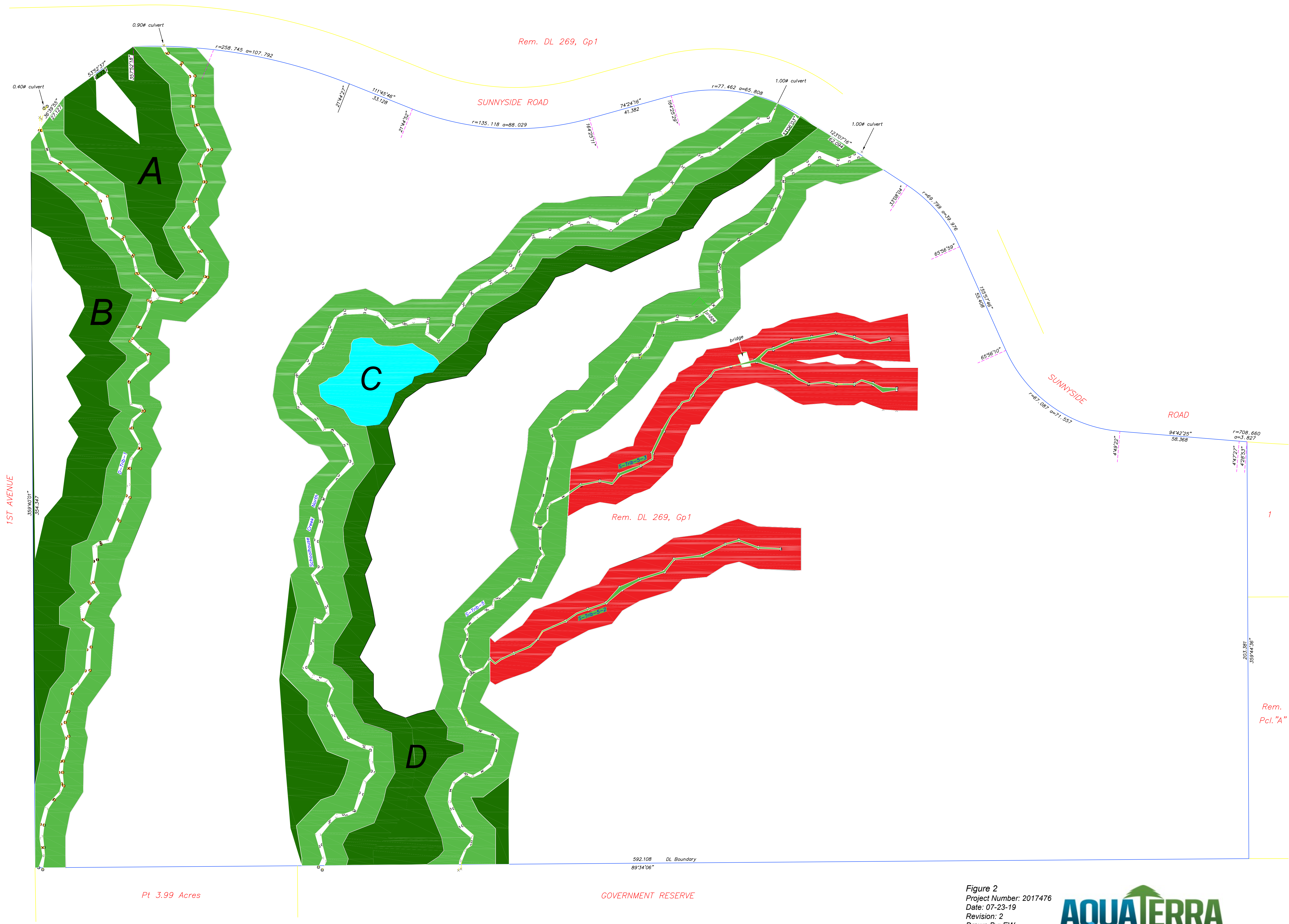
Area C Detailed Habitat Compensation and Enhancement Description

Area C is located adjacent to the Schoolhouse Creek mainstem, consisting of the construction of a pond / wetland habitat, which has been in decline in Anmore and neighbouring communities as a result of historical development. The construction of the pond / wetland would result in an additional aquatic habitat compensation area measuring approximately 1377 m². Ponds / wetlands are nodes for high biodiversity and the construction of a pond / wetland would add valuable aquatic shelter, refuge, forage opportunity and habitat connectivity for a variety of aquatic and terrestrial species, as well as new habitats that aren't currently on-site, thereby offering potential utilization by new species. Moreover, the pond / wetland would encourage insect and vegetation growth, serving as food/nutrient inputs for downstream fish populations. The proposed riparian buffer around the pond / wetland is 15 m (or greater) in accordance with the Riparian Areas Regulation (RAR).

SURVEY PLAN SHOWING WATERCOURSE HIGH WATER MARK ON PORTIONS OF
DISTRICT LOT 269, GROUP 1, NEW WESTMINSTER DISTRICT



SCALE: 1:750
All distances are in metres



LEGEND

- Indicates Flaggings at High Water Mark Set by Environmental Consultant.
- × Indicates Infill High Water Mark Location.
- Indicates High Water Mark of Watercourse.

Let dimensions are based on Plan BCP38573
We assume no responsibility for the unauthorized use of this plan.

CERTIFIED CORRECT
this 22nd day of April 2019.

© W. PAPOVE B.C.L.S.

Figure 2
Project Number: 2017476
Date: 07-23-19
Revision: 2
Drawn By: EW
Approved By: CL



CHARGES ON TITLE	
CHARGE NO.	NATURE
CA4167322	Restrictive Covenant

PAPOVE PROFESSIONAL LAND SURVEYING INC.
202 - 1120 WESTWOOD STREET
COQUITLAM, B.C. V3B 7K8
TEL : (604) 464-5199
FAX : (604) 464-6509
FILE NUMBER : 7544

Area D Detailed Habitat Compensation Description

Area D is located across the southern extents of Schoolhouse Creek and Schoolhouse Creek Tributary 5 (S-Trib-5). Similar to Area A and B, proposed habitat compensation consists of expanding the existing riparian setback on the stream-sides of both creeks (up to the full 30 m riparian zone of influence extents). This compensation option location was selected as Schoolhouse Creek serves as the most ecologically valuable watercourse within the project area, being utilized by Coho Salmon, Cutthroat Trout, and a variety of wildlife species. As such, the additional riparian buffer, estimated at 8168 m², would maintain connectivity and the existing habitats between Schoolhouse Creek and S-Trib-5, and would enhance the riparian buffer as a wildlife corridor, increasing the area for wildlife movement across the site unhindered.

Discussion and Recommendations

AquaTerra identified four (4) potential habitat compensation and enhancement locations and opportunities within Burrard Commons area. Additional areas may be identified via discussions with regulators and stakeholders. The report will be updated, as required, as detailed design and additional inputs are considered.

Limitations

The road network has not been finalized but is anticipated to require crossing of watercourses at various locations. AquaTerra anticipates a 18-20 m wide crossing corridor at each watercourse, which will reduce the habitat gains and increase the habitat losses accordingly. This memorandum will be updated as more details become available.

Closure

We trust this document includes the required information to facilitate planning and design of the Burrard Commons area as it relates to the protection of existing aquatic resources and habitat compensation and enhancement measures to offset potential habitat losses to accommodate development. If you have any questions or require clarification of the materials presented in this document please contact Chris Lee, M.Sc., RPBio, QEP, BC-CESCL at AquaTerra Environmental Ltd at 604-765-2993.

APPENDIX G: Recommended Leisure Amenities

Types of Leisure Amenities to Include in a Proposed new South Anmore Neighbourhood

I have been asked to project and recommend, based on experience with similar projects, the need for additional leisure amenities within a proposed new neighbourhood in the Village of Anmore, BC. I am hereby submitting this final report.

I started with a few assumptions, which, if incorrect, may cause some revisions to the spreadsheet below the assumptions. That spreadsheet represents the kinds of indoor and outdoor leisure amenities that would be appropriate for the assumed new neighbourhood.

Assumptions About the Proposed New Neighbourhood

- Total land area for the proposed neighbourhood would be approximately 150 acres in roughly a square configuration; almost a quarter section of land, except for about 10 acres taken out of the square at the southeast corner.
- At build out, there would be about 3100-3500 dwelling units with a likely range of 5,100 to 6,700 residents.
- The residents would be characterized as a broad mix of demographic types from young singles and couples to adults living together in a family formulation to older empty nesters and seniors, of all types of backgrounds, interests and abilities.
- Leisure amenities provided for the 6,700 new residents would also serve the existing 2,356 residents of Anmore and need to be sized accordingly.
- The only publicly available leisure amenities that currently exist in Anmore are a middle school with associated school grounds, a public park adjacent to the school ground with two tennis courts, another park adjacent to the new neighbourhood on its northeast boundary, and several smaller parks and trails in the Village.
- Centralized indoor and outdoor amenities would have to be provided relatively early in the development schedule but would have to be scoped for the full build out as it is difficult to build portions of many of the proposed amenities. Therefore, in the initial years they would be underutilized.
- The developer will be dedicating significant portions of the site for public park (and recreation use) and for environmental protection and the amenities in the list below will be located on that dedicated allotment.

Recommended Provision of Leisure Amenities for the Above Assumed Neighbourhood

Classification	Amenity	Quantity
Outdoor		
	Centralized and adjacent to the indoor centralized amenities wherever possible	
	Spray Pad which can be used when wet or dry	3000-5000 sq. ft. of dedicated space
	Major playground with play structures for various ages and degrees of challenge	3000-5000 sq. ft. of dedicated space
	Artificial Turf Sports Field with lights, perimeter fence and a small support building	Roughly 10,000 sq. ft. of dedicated space for the field plus space for a support building
	Surfaced activity pad for court sports, casual sport play, skateboarding and some fitness programming	6000 to 10,000 sq. ft. of hard surfaced space
	A Public art installation of some kind	
	Decentralized Throughout the Neighbourhood	
	Fitness Circuit - six to ten equipment stations separated by a short walk or jog	One or two along a pathway
	Trails – various kinds all connected, some with hard surfaces and some with natural surfacing	
	Covered hard surfaced alcoves – which can be used for activities, social gatherings, programs (e.g. nature interpretation, tai-chi, or bird watching), small performances, personal reflection or free play)	Two or three; each of 500 to 1200 sq. ft. of covered space, located away from the centralized spaces
	Picnic Area- for family picnics and larger group events; possibly connected with the special event area	One area, scalable as site develops
	Special Event Area – a larger open area for outdoor special events with up to 1000 people	One area, scalable as site develops
	Playgrounds – with a variety of interesting opportunities and various levels of challenge	Two or three, each smaller than the centralized space and more focussed on a narrower range of user ages; possibly 1500 to 3000 sq. ft. of dedicated space

Classification	Amenity	Quantity
Indoor		
	Centralized into a Single Community Centre Accessibly Located within the Neighbourhood	
	Large flexihall that can function for a wide variety of purposes from court sports to casual sport uses (shooting baskets) to large group programs, social events, presentations, special events, large meetings and displays	7000-8000 sq. ft. of net usable space
	Open crush space in the foyer for gatherings, socializing and possibly display of art	1000 to 2000 sq. ft. of net usable space
	Multipurpose spaces of various sizes that can be adapted or equipped for a wide variety of uses including fitness classes, other programs, social events, special events, and meetings	At least three spaces with sizes and floor finishes varying to accommodate different types of use: possibly 3000, 1800 and 800 sq. ft. of net usable space
	Fitness centre with a wide range of fixed equipment	4000-6000 sq. ft. of net usable space
	Additional dedicated use spaces (e.g. arts and crafts studios, makers spaces, youth centre, seniors centre, dance studio, teaching/programming kitchen, games room, social lounge, theatre,	Likely only three or four such spaces of varying sizes totalling in the range of 4000 to 6000 sq. ft. of net usable space
	Optional modest library space would not normally be included for such a small neighbourhood population but could be added. If added, would need a critical mass to make it work. Normally, a public library would be in the .5 to 1 sq. ft. per capita range, but minimum size would likely be closer to 10,000 sq. ft. If provided, make it part of the Community Centre to capitalize on synergy of support spaces.	Possibly 10,000 sq. ft. of net usable space
	Decentralized Throughout Neighbourhood	
	Fitness Rooms within higher density nodes further away from the centralized fitness centre so that some fitness opportunity is available within 400 meters of all residences.	Possibly two or three, in the range of 1500 to 2000 sq. ft. of space each

Normally, Community Centre space is provided at a rate of roughly 1 to 1.2 sq. ft. of net usable space per capita. However, smaller communities/neighbourhoods exceed that rate in order to create a critical mass and balance of multipurpose spaces with dedicated use spaces. This would be such a case.

Respectfully Submitted,

A handwritten signature in black ink that reads 'Brian Johnston'. The signature is written in a cursive, flowing style.

Brian L. Johnston

Partner

APPENDIX H: Village Retail Market Analysis



Anmore South Village Retail Market Analysis
Final Report

March 2022

Prepared for:



icona properties

Contents

1 Introduction 3

2 Methodology 4

 2.1 Approach 4

 2.2 Work Plan 4

3 Project Description 5

4 Population Projections 7

5 Trade Area for Retail in the Subject Area 8

 5.1 Delineation of the Trade Area 8

 5.2 Population Projections for the Trade Area 9

 5.3 Trade Area Demographic Snapshot 9

6 Retail Demand 10

 6.1 Retail Categories 10

 6.2 Approach to Estimating Retail Demand in Anmore South 10

 6.3 Supportable Local Retail Floorspace in the Trade Area based on Expenditure Data 11

 6.4 Population and Tourism in the Trade Area 11

 6.5 Case Studies 12

 6.5.1 Northwoods Village 12

 6.6 Willoughby Town Centre 14

 6.6.1 Tenants 15

 6.7 Conclusion from Demand Assessment 16

7 Conclusions 17

1 Introduction

Aplin & Martin is working with icona properties to develop a land use plan for a mixed-use community in the Village of Anmore. The project is called Anmore South and will be located on a 150 acre parcel of land in the southwest corner of the Village. The vision for the project is 'a community in nature', and aims to enliven Anmore with new vitality, housing diversity and self-sufficiency. It is anticipated the plan will accommodate mixed-use apartment, townhouse, recreation facilities, retail, service space and more, with a build-out horizon of 20 years. The current land use plan contemplates 3,300 residential units with the first phase likely completing in 2027.

A cornerstone of the existing land use plan is a village retail node at the centre of the community. The existing community of Anmore does not have neighbourhood retail services, so the village retail node would serve both existing and future residents. icona envisions the village retail node as mixed use and pedestrian focused, with unique tenants. While parking will be available nearby, the primary exposure will be via pedestrian routes and walkways. As such, wayfinding and signage will play a role in guiding residents to retail areas.

icona properties and Aplin & Martin retained City Squared Consulting to undertake a retail market study which would identify the scale and mix of retail uses which could be accommodated in Anmore South.

2 Methodology

2.1 Approach

To complete the market study, we projected demand based on the build-out population of the project and the demographic profile of the community. This includes identifying the total floorspace which could be supported by residents of the community and the likely types of stores (retail and service space¹) which would locate in the node.

2.2 Work Plan

We undertook the following work plan to complete the project:

1. Reviewed project documentation provided by the client, including location of the planned retail, the anticipated number of units by type and project build-out/phasing schedule.
2. Delineated a trade area for the village retail node.
3. Calculated the existing and future population of the trade area.
4. Reviewed transportation statistics to estimate tourism/visitors the area.
5. Reviewed provincial expenditure data and adjusted retail expenditures for existing and future residents of Anmore. Translated expenditure data into supportable retail floorspace by category.
6. Estimated the supportable floorspace by category which could be captured in a retail village node in the community.
7. Reviewed the types of retail stores which would likely locate in the village retail node in the community.
8. Confirmed typical tenant mix and recommended size of retail units.
9. Reviewed the physical characteristics of the proposed land use plan and provided recommendations for the location of the retail component.

¹ Including any demand for local serving office floorspace.

3 Project Description

Exhibit 1 shows the location of the proposed land use plan in the Village of Anmore. The project is located directly to the north of Port Moody, and is accessible by road via loco Road and First Avenue.

Exhibit 1: Location of Anmore South Land Use Plan



Exhibit 2 shows a preliminary land use plan for Anmore South and the location of the planned village retail. The village retail node is anticipated to be centrally located at the project, setback from the existing road right of way and adjacent to Anmore Elementary School.

Note: land use plan has been updated with the same unit yield and household values since the March 2022 Retail Market Analysis Report.

Exhibit 2: Preliminary Land Use Plan for Anmore South



Source: icona properties

Exhibit 3 summarizes the build-out schedule for Anmore South. The project is anticipated to begin construction in 2023 and will be built over five phases to be completed in 2043. The project includes 3,294 units, including 15% rental homes, of which a 15% share are affordable rental homes.

Exhibit 3: Build-Out Schedule for Anmore South

Project Phase	Timing	Cumulative Units	Total Units	Strata Homes	Rental Homes	Market Rental Homes	Affordable Rental Homes
Site Prep & Infrastructure	2023 to 2024	-	-	-	-	-	-
Phase 1	2024 to 2027	550	450	383	68	57	10
Phase 2	2028 to 2031	1,000	550	468	83	70	12
Phase 3	2032 to 2036	1,550	880	748	132	112	20
Phase 4	2037 to 2040	2,860	880	748	132	112	20
Phase 5	2041 to 2043	3,294	534	454	80	68	12
Total	2023 to 2043	3,294	3,294	2,800	494	420	74

Source: icona properties

4 Population Projections

Exhibit 4 summarizes population projections for Anmore South based on the build-out schedule in Exhibit 3. The population projection is based on a persons per unit assumption of 3.5 persons per single family dwelling, 2.8 residents per townhouse unit and 1.7 residents per apartment unit. The build-out schedule anticipates a 2043 population of 5,892 residents in the Anmore South community.

Exhibit 4: Population Projections for Anmore South

Project Phase	Persons Per Unit	Phase 1 - 2024 to 2027	Phase 2 - 2028 to 2031	Phase 3 - 2032 to 2036	Phase 4 - 2037 to 2040	Phase 5 - 2041 to 2043	Total
<i>Units</i>							
Single Family Units		5	7	10	10	8	40
Townhouse Units		50	50	-	50	50	200
Apartment Units		390	495	870	820	479	3,054
<i>Population</i>							
Single Family Units	3.5	18	25	35	35	28	140
Townhouse Units	2.8	140	140	-	140	140	560
Apartment Units	1.7	663	842	1,479	1,394	814	5,192
Total Population		821	1,006	1,514	1,569	982	5,892

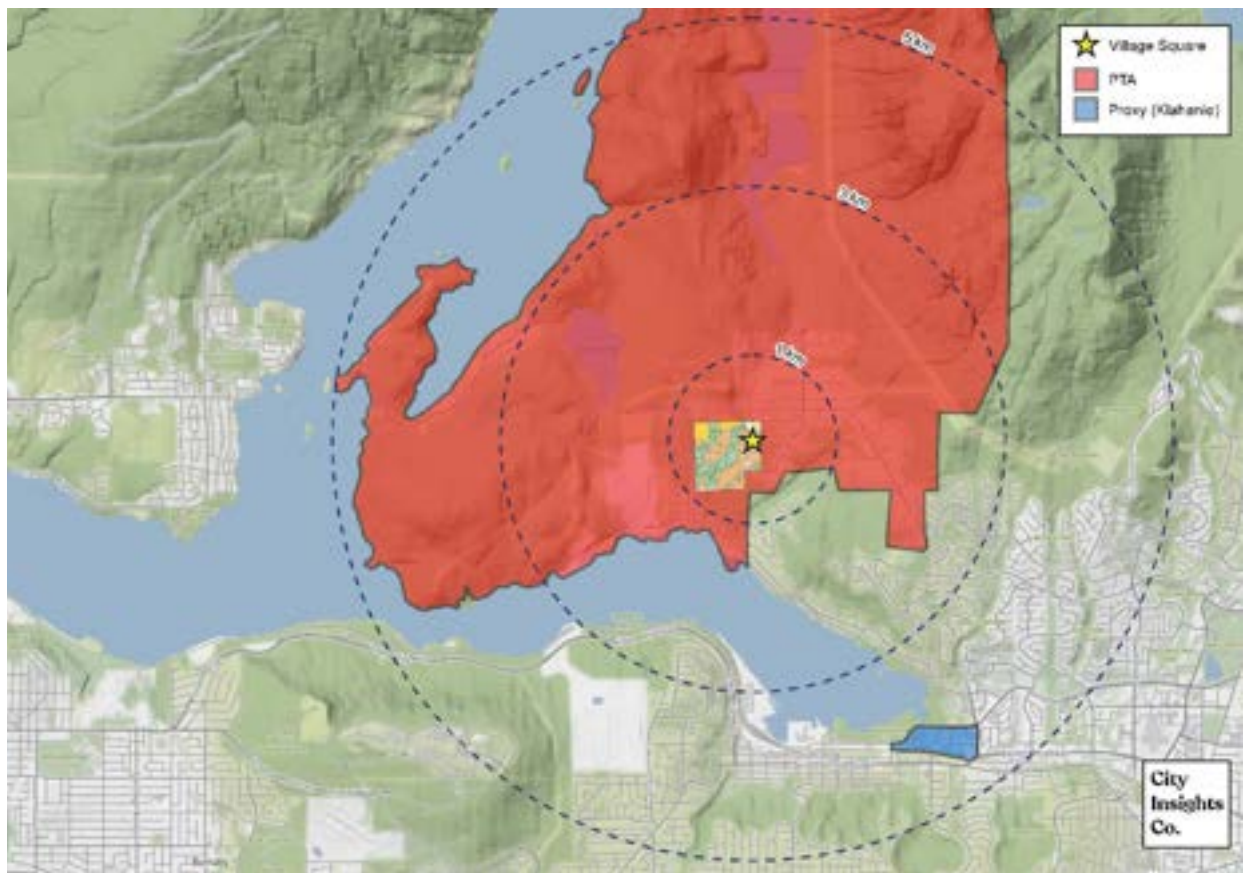
Source: icona properties

5 Trade Area for Retail in the Subject Area

5.1 Delineation of the Trade Area

The trade area for a retail village in Anmore South was influenced by the following:

- Proximity to residential areas
- Relative proximity, scale and quality of competitive retail projects
- Transportation network
- Site size and general scale of anticipated retail node



Source: City Insights Consulting

Particularly, we reviewed the transportation network and the location of neighbourhood centres in the immediate area. Given the distance to other retail centres, a retail node in Anmore South would capture the majority of spending from residents in the area delineated in red.

5.2 Population Projections for the Trade Area

Exhibit 6 summarizes the projected population of the trade area, which includes residents from the existing community and future residents of Anmore South.

Exhibit 6: Projected Population of the Trade Area

	2022	2027	2031	2036	2040	2043
Existing Trade Area Population	3,494	3,682	3,839	4,045	4,217	4,351
Anmore South Population		821	1,827	3,341	4,910	5,892
Total Trade Area Population		4,503	5,666	7,386	9,127	10,243

Source: City Insights Consulting, City Squared Consulting, Statistics Canada

The population of existing residents in the trade area will increase from 3,494 in 2022 to 4,351 by 2043, growing at an average annual rate of 1.03%. The Anmore South population is anticipated to increase from 821 by the end of 2027, to 5,892 by 2043. The population of both existing and future residents will reach 10,243 by 2043.

5.3 Trade Area Demographic Snapshot

Exhibit 7 summarizes demographics of the existing population in the trade area. Residents of the trade area have a higher PPU (persons per household) than comparison areas, likely due to the large share of single family homes. The median age is about 5 years older than other areas in Vancouver, and the household income is close to double the average household income. The total number of children per family is similar to other areas in Vancouver, while the level of post secondary attainment is slightly higher.

Exhibit 7: Trade Area Demographic Snapshot

	Existing Trade Area	Port Coquitlam	Coquitlam	Vancouver
Average Persons per Household	3.0	2.66	2.69	2.53
Median Age	45.6	40.2	40.5	40.3
Avg Household Income	\$238,400	\$119,247	\$117,496	\$121,325
Avg # children /Family	1.1	1.2	1.2	1.1
% with Post Secondary	84%	74%	90%	78%

Source: City Insights Consulting

Of particular importance for the retail analysis is average household income. This will influence total expenditure per capita and supportable floorspace in the community.

6 Retail Demand

6.1 Retail Categories

Within the retail category there are two types of stores which differ based on characteristics of demand, location and trade area. The two types of retail include:

Local Retail

- Community serving retail and service space includes businesses that meet the daily needs of residents. Tenants include supermarkets, small restaurants and cafes, drycleaners, hair salons, pharmacies, liquor stores, small pet supply stores, local hardware stores, and banks or credit unions.

Regional Retail

- Region serving retail and service space includes businesses that serve a large trade area and including tourism and destination retail. These types of stores locate in urban centres, malls or large format/big box locations with highway or rapid transit access. Types of tenants include a range of specialty stores, homewares, clothing and accessories, car dealerships, department stores, electronic stores, chain restaurants and building supply stores.

Anmore South is a candidate for local serving retail floorspace, including convenience retail or a neighbourhood centre, which is anchored by a grocery store.

Anmore South is largely not a candidate for region serving retail. The trade area population is insufficient to support the types of stores that would locate in a regional centre. However, due to the location of the village adjacent to a regional tourism destination (Belcarra Regional Park²) there is an opportunity to capture some of this inflow traffic to support retail that serves both local and regional visitors.

6.2 Approach to Estimating Retail Demand in Anmore South

To understand the share of retail which can be captured in the plan area, we will examine several indicators of demand. These include:

1. Supportable retail per capita based on expenditure data.
2. Population in the trade area.
3. A review of case studies and neighbourhood centre retail per capita in similar communities.

² Belcarra Regional Park attracted 1,175,400 visitors in 2020.

6.3 Supportable Local Retail Floorspace in the Trade Area based on Expenditure Data

Exhibit 8 summarizes the total supportable floorspace per capita in the trade area.

The first column shows total expenditure per capita in British Columbia by expenditure category. This is adjusted to account for the average household income of both future and existing residents of the trade area. An industry standard sales efficiency factor is used to translate expenditure into supportable floorspace.

Exhibit 8: Supportable Local Retail Floorspace Per Capita in the Trade Area

	BC Expenditure/ Capita	Existing Residents			Future Residents		
		Anmore Existing/ Capita	Sales Efficiency	Supportable Retail Per Capita	Anmore Future/ Capita	Sales Efficiency	Supportable Retail Per Capita
Supermarkets	\$2,892	1.40	\$800	5	1.05	\$800	4
Convenience stores	\$136	1.40	\$800	0	1.05	\$800	0
Specialty food stores	\$148	1.40	\$650	0	1.05	\$650	0
Beer, wine and liquor stores	\$1,038	1.60	\$1,000	2	1.20	\$1,000	1
Health & personal care stores	\$1,216	1.40	\$750	2	1.00	\$750	2
Miscellaneous store retailers	\$574	1.00	\$400	1	1.00	\$400	1
Services				8			8
Local Sub-total (SF)				19			17

Source: City Squared Consulting

Exhibit 8 shows that each resident of the trade area supports between 17 and 19 square feet per capita of local serving retail floorspace. Anmore South could capture a share of this demand.

6.4 Population and Tourism in the Trade Area

Based on our analysis of expenditure data and experience with retail demand, each resident supports about 4 to 5 square feet of grocery store retail. About half of this retail is captured in neighbourhood centres, with the remaining half going to larger grocery store chains, Costco, or stores in regional locations. If residents of the trade area in Anmore support 4 to 5 square feet per capita, we can assume about 2 to 2.5 square feet would be captured at a neighbourhood retail node in Anmore, if the population threshold is met and sufficient access is provided.

Since grocery stores are typically a minimum of 10,000 square feet, and more likely 15,000 to 20,000 square feet, we can deduce that a threshold population of about 5,000 to 7,500 residents is required to support a grocery store. Since Anmore South will have a trade area population of 7,500 in 2037 and 10,000 by 2043, Anmore South will have sufficient population to support a grocery store.

If there is sufficient demand for a grocery store, there will be a range of other local serving retail which will co-locate with the grocery anchor to capitalize on foot traffic and exposure to the grocery. We will review case studies of neighbourhood centres with similar trade area populations to Anmore to get a sense of the amount of floorspace and the types of stores which could be captured in Anmore South.

6.5 Case Studies

We reviewed case studies to get a sense of the total supportable retail floorspace in a village node in Anmore South and the types of stores which would locate at the project. Both case studies were selected due to a mixed-use format in a suburban context that was anchored by a grocery store. The projects were characterized by unique design, ground floor retail and residential apartment development on upper floors.

The case studies include:

1. Northwoods Village
2. Willoughby Town Centre

We also reviewed case studies for unique village retail destinations that were included in an earlier memo. These were not driven by market factors, but rather urban design and typology elements which would act as a regional draw to Anmore South.

6.5.1 Northwoods Village

Northwoods Village is a mixed use retail and residential community located in North Vancouver along Dollarton Highway. The neighbourhood centre is designed with a mountain-inspired architectural style, reminiscent of Whistler or other ski resort towns. The project includes 64,000 square feet of retail anchored by Stong's grocery.

Exhibit 9: Northwoods Village in North Vancouver



There is a wide range of tenants at the project, including Buddha-Full, Colony Bar and Pink Door Clothing which have made the centre a destination for the community. The neighbourhood centre also captures significant inflow traffic from visitors to Seymour Mountain and Deep Cove.

The total list of tenants at the project is shown in Exhibit 10.

Exhibit 10: Northwoods Tenant Mix and Floorspace

Tenant	Category	Floorspace (SF)
Colony Northwoods	F&B	3,500
Starbucks	F&B	1,200
Buddha Full	F&B	1,500
Panago	F&B	1,500
Barcelos Flame Grilled Chicken	F&B	3,000
Sophia's Nail Spa	Services	874
Techniks Hair Salon	Services	800
Waypoint Insurance	Services	893
CIBC	Services	8,500
Eye Craft Optometry	Services	916
Dental	Services	3,800
Anytime Fitness	Services	3,200
Vitae Health & Sport	Health	1,746
Aquatic Supplies	Hobbies	874
Little Pink Door Boutique	Clothing	970
M&M Food	Spec. Food	1,400
Stong's Market	Grocery	22,000
Dollarton Liquor Store	Liquor	4,500
Bosley's	Pet	3,200
Total		64,373

Source: City Squared Consulting

The project has a range of food and beverage offerings, several services, health, hobby, clothing, specialty food, liquor, pet stores and a full service grocery. Stong's grocery is 22,000 square feet and is adjacent to a 4,500 square foot liquor store.

6.5.1.1 Floorspace per Capita

A review of the primary trade area of Northwoods Village shows a population of 10,205 residents. This allows us to calculate the amount of supportable floorspace per resident of the trade area by expenditure category, particularly in an area with inflow visitor traffic.

Exhibit 11: Northwoods Floorspace by Category

	Floorspace (SF)	Population	SF/Capita
Food & Beverage	11,000	10,205	1.08
Services	11,983	10,205	1.17
Pharmacy	1,746	10,205	0.17
Clothing	1,844	10,205	0.18
Specialty Food	1,400	10,205	0.14
Grocery	22,000	10,205	2.16
Liquor Store	4,500	10,205	0.44
Pet Food	3,200	10,205	0.31
Total			5.7

Source: City Squared Consulting

Each resident of the trade area supports **5.7 square feet** of retail floorspace at the Northwoods Village neighbourhood commercial node.

6.6 Willoughby Town Centre

Willoughby Town Centre is an award winning greenfield project in a suburban context, with a retail high street that remains walkable while accommodating a large parking requirement. The first phase of development at Willoughby Town Centre was completed in 2012, when Hakam's Independent Grocer opened. The project includes a mix of building types and uses, including mixed use residential, mixed use retail and office, stand-alone office and multifamily development.

Exhibit 12: Willoughby Town Centre



Source: Cushman & Wakefield

Exhibit 12 shows the layout of Willoughby Town Centre and the form of buildings in each area. This includes ground floor retail along the retail promenade, second storey office space (highlighted in yellow), and a stand-alone office building. The retail promenade to the east is fronted by mixed use development on both sides of the street, with ground floor retail and residential on upper floors. There is street front parking, underground parking, and parking at the rear of buildings. At the centre point of the project, there is a traditional single storey neighbourhood centre with surface parking. This has been designed to form a contiguous promenade with the retail high street.

6.6.1 Tenants

Exhibit 13 shows tenants and occupied floorspace at Willoughby Town Centre. Anchor tenants include Hakam's Independent Grocer (27,000 square feet) and Shoppers Drug Mart (15,600 square feet). The project has total occupied retail floorspace of 87,430 square feet.

Exhibit 13: Willoughby Town Centre Tenant Mix and Floorspace

Tenant	Category	Floorspace (SF)
Hakam's Your Independent Grocer (Loblaws)	Grocery	27,000
Prime Farm Market	Grocery	1,275
Town Centre Liquor Store	Liquor	4,500
Shoppers Drug Mart	Pharmacy	15,600
The Bone & Biscuit Co	Pet	900
YourOh! Deli	Specialty Food	890
Candy Store	Specialty Food	790
BanChan Korean Bistro	F&B	950
Dairy Queen	F&B	2,400
# Hashtag Donair	F&B	890
Mad Italian Pizza Company	F&B	1,100
Mattu's Coffee & Tea	F&B	1,300
Noma Sushi	F&B	1,250
strEATS Willoughby Kitchen	F&B	1,000
Woking Dragon	F&B	1,800
DLUX Treasures for the Home	Furnishing	890
Wildflowers Style & Co	Clothing	800
Willoughby Doctors of Optometry	Services	1,065
Era Hair Studio	Services	890
G&F Financial Group	Services	2,700
Great Clips	Services	1,020
Infinite Serenity Holistic Spa	Services	1,338
Oxygen Yoga & Fitness	Services	1,224
Sassy Nail Salon & Spa	Services	600
AMC Insurance Services (2008) Ltd	Services	1,300
TD Canada Trust	Services	3,800
Willoughby Town Centre Dental	Services	3,358
Yorkson Dental	Services	1,200
RBC Royal Bank	Services	3,500
SmileTown Dentistry Langley	Services	1,200
Yorkson Creek Veterinary Hospital	Services	900
Vacant		12,570
Total		87,430

6.6.1.1 Floorspace per Capita

Exhibit 14 summarizes total floorspace by expenditure category per resident of the trade area for Willoughby Centre.

Exhibit 14: Willoughby Town Centre Floorspace By Category

	Floorspace (SF)	Population	SF/Capita
Grocery	28,275	13,658	2.07
Food & Beverage	10,690	13,658	0.78
Services	24,095	13,658	1.76
Pharmacy	15,600	13,658	1.14
Clothing	800	13,658	0.06
Specialty Food	1,680	13,658	0.12
Liquor Store	4,500	13,658	0.33
Pet	900	13,658	0.07
Total			6.3

Source: City Squared Consulting

Each resident of the trade area supports **6.3 square feet** of retail floorspace at the Willoughby Centre neighbourhood commercial node.

6.7 Conclusion from Demand Assessment

A review of our demand assessment shows that Anmore South has a sufficient population to support a neighbourhood centre. The trade area has the population threshold to support a grocery store, which would attract a range of other local serving retail. In addition, there is significant visitor inflow to the area's parks and trails, which could help support larger food and beverage retail and some region serving retail stores (small clothing, hobby, homewares stores).

Case studies showed that neighbourhood centres captured between 5.7 and 6.3 square feet per capita of retail demand, or about one third of total supportable local serving retail floorspace. Based on a trade area population of 10,243 Anmore South could support about 56,000 to 65,000 square feet of local serving retail.

7 Conclusions

Our demand assessment for a retail node at Anmore South showed supportable retail floorspace ranges between 5.7 square feet and 6.3 square feet per capita. Based on our population projection for the trade area, we have outlined a demand schedule below.

Exhibit 15: Projected Floorspace Demand at Anmore South Village

	2027	2031	2036	2040	2043
Existing Resident Population Growth	3,682	3,839	4,045	4,217	4,351
Anmore South Population	821	1,827	3,341	4,910	5,892
Total Trade Area Population	4,503	5,666	7,386	9,127	10,243
<i>Retail Demand Low (SF)</i>		31,160	40,620	50,196	56,335
<i>Retail Demand High (SF)</i>		35,693	46,529	57,497	64,530

Source: City Squared Consulting

Our case study analysis informed our demand estimate of between 56,000 to 64,500 square feet of supportable retail floorspace at Anmore South. However, since existing and future residents of Anmore have higher expenditure potential which translates into more supportable retail floorspace, we recommend a retail component at the high end of the range, or **between 60,000 to 65,000 square feet of retail floorspace**.

In addition to case studies and expenditure potential, we reviewed the population thresholds that are needed for different types of retail. A minimum population of 5,000 is recommended before introduction of a small format grocery store (10,000 square feet), and 7,500 for a small/medium grocery store (15,000 square feet). A grocery store could be introduced earlier for non-economic reasons (site animation, servicing existing residents) but some form of subsidy would likely be required in the initial years.

We also recommend the retail to be in one location which maximizes visibility to passing vehicle and foot traffic.

Specific recommendations by expenditure category are outlined below:

- **Grocery Store – 15,000 to 22,000 SF:** the projected trade area population would support a small to mid-sized grocery store ranging from 15,000 to 22,000 square feet. The grocery store is likely supportable in 2031, but reduced rents may be required until the population in the trade area reaches 7,500 residents.
- **Food & Beverage – 10,000 SF:** we recommend about 10,000 square feet of food and beverage retail at the project. Case studies showed about 1 square feet per capita of the trade area is supportable in neighbourhood centres, particularly with tourism inflow. To establish a destination and attract visitors from Belcarra Regional Park, we would recommend two larger stand-alone unique restaurants/bars, in addition to smaller quick service options of 800 to 1,500 square feet.
- **Services – 12,000 to 15,000 SF:** services make up a large share of retail offerings at neighbourhood centres, and provide necessary functions for day-to-day resident needs. Services which could locate in Anmore South could include financial services, insurance, hair, nail, spas, medical, yoga and other fitness outlets. Commercial retail unit (CRU) sizes for services range from 800 to 1,500 square feet.
- **Pharmacy – 10,000 SF:** the project trade area build-out population could support a small pharmacy or wellness store.
- **Clothing, Hobby or Homewares – 1,000 to 2,000 SF:** this expenditure category is primarily found in regional destinations. However, successful mixed use neighbourhood centres with some tourism inflow can often support

a small amount of clothing, hobby and homeware floorspace. However, we would recommend small CRUs to minimize monthly lease payments (risk) to the tenant and these uses are not guaranteed.

- **Specialty Food – 1,000 to 2,000 SF:** specialty food includes smaller deli's, grocers, produce markets, etc. We would recommend one to two smaller retail units to accommodate specialty food.
- **Liquor Store – 2,500 to 3,500 SF:** neighbourhood centres typically support one liquor store which can range in size.
- **Pet – 1,000 to 1,500 SF:** specialty pet stores are increasingly found in neighbourhood centres, particularly in high income areas.

In addition to local serving retail, there is an opportunity for some local serving office;

- **Local Serving Office – 10,000 SF:** local serving office space accommodates professional services and does not necessarily need streetfront exposure. However, lease rates are typically lower than ground floor retail so financial viability given project creation costs must be taken into consideration.

APPENDIX I: Preliminary Transportation Demand Management Report



Anmore South Community, Anmore, BC Preliminary Transportation Demand Study

Draft Version 1.0

Prepared for
Icona Properties

Date
May 1, 2023

Project No.
04-21-0091

May 1, 2023
04-21-0091

Laurie Schmidt
Vice President Development
Icona Properties
Suite 900 - 1111 West Hastings Street
Vancouver, BC
V6E 2J3

Mr. Schmidt:

**Re: Anmore South - OCP Amendment Application, Anmore, BC
Preliminary Transportation Demand Study**

Bunt & Associates has prepared the attached Preliminary Transportation Demand Study for Icona Properties' proposed Master Plan development for the Anmore South neighbourhood in the Village of Anmore, BC. Icona is preparing to submit an Official Community Plan (OCP) Amendment Application to the Village to formally initiate an update of the Anmore South Special Study Area designation for community development.

The report summarizes existing transportation conditions in Anmore in the vicinity of the proposed development, describes the transportation features of the project, provides an estimate of anticipated future traffic, and identifies potential Transportation Demand Management strategies to manage the future transportation requirements of this master planned neighbourhood.

I trust that our input here will be of assistance. Please don't hesitate to contact me should you have any questions.

Yours truly,
Bunt & Associates



Peter Joyce, MAsc, P.Eng.
Senior Consultant

CORPORATE AUTHORIZATION

Prepared By: Peter Joyce, MASc, P.Eng.
Senior Consultant

Bunt & Associates Engineering Ltd.
1550-1050 West Pender Street
Vancouver, BC V6E 3S7
Canada

Approved By: Peter Joyce, MASc, P.Eng.
Senior Consultant

Telephone: +1 604 685 6427
Facsimile: +1 604 685 6579

Date: 2021-12-06

Project No. 04-21-0091

Status: Draft 1.0

This document was prepared by Bunt & Associates for the benefit of the Client to whom it is addressed. The copyright and ownership of the report rests with Bunt & Associates. The information and data in the report reflects Bunt & Associates' best professional judgment in light of the knowledge and information available to Bunt & Associates at the time of preparation. Except as required by law, this report and the information and data contained are to be treated as confidential and may be used and relied upon only by the client, its officers and employees. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Bunt & Associates accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

TABLE OF CONTENTS

EXECUTIVE SUMMARY I

 Introduction i

 Existing Conditions i

 Neighbourhood Plan Road Network iii

 Future Traffic Forecasts iii

 Transportation Demand Management (TDM) iv

 Sub-Regional Transportation Assessment – Proposed Working Group v

1. INTRODUCTION 1

 1.1 Anmore South 1

 1.2 Study Purpose 2

 1.3 Site Location 2

2. EXISTING CONDITIONS 4

 2.1 Existing Transportation Network 4

 2.1.1 Road Network 4

 2.1.2 Transit Network 6

 2.1.3 Cycling & Pedestrian Networks 7

 2.2 Current Relevant Policies & Plans 7

 2.2.1 Municipal Plans 7

 2.3 Regional Travel Factors 9

 2.4 Existing Vehicle Volumes 10

 2.4.1 Traffic Data Collection Program 10

 2.5 Theoretical Road Capacity 11

3. ANMORE SOUTH – COMMUNITY VISION 13

 3.1 Development Philosophy and Land Use 13

 3.2 Transportation Strategy 13

 3.2.1 Travel Mode Split Target 13

 3.2.2 Transportation Planning and Design Principles 15

4. TRANSPORTATION DEMAND MANAGEMENT (TDM) 16

4.1 Definition 16

4.2 TDM for Anmore South 16

4.2.1 Encourage Transit Use..... 16

4.2.2 Encourage Active Travel (Walking, Cycling, Rolling)..... 17

4.2.3 Reduce Reliance on Private Vehicle Use..... 17

4.2.4 Education - Sustainable Transportation Information 17

5. TRAFFIC FORECASTS 19

5.1 Background Traffic Forecasts 19

5.2 Site Traffic..... 19

5.2.1 Existing Travel Characteristics..... 19

5.2.2 Future Travel Characteristics (Reduced Reliance on Private Automobile Trips) 20

5.3 Surplus Capacity Assessment..... 20

5.4 Road Network Improvements – Local Area..... 21

5.5 Broader Transportation Improvements – Proposed North Shore Working Group 22

6. CONCLUSIONS & RECOMMENDATIONS 23

6.1 Anmore South Development Traffic..... 23

6.2 Road Network Capacity – Anmore Road Network 23

6.3 Transportation Demand Management (TDM) 24

6.3.1 Encourage Transit Use..... 24

6.3.2 Encourage Active Travel (Walking, Cycling, Rolling)..... 24

6.3.3 Reduce Reliance on Private Vehicle Use..... 25

6.3.4 Education - Sustainable Transportation Information 25

6.4 Proposed Tri-Cities “North Shore” Transportation Solutions Working Group 25

EXHIBITS

Exhibit 1.1: Site Location 3

Exhibit 3.1: Site Plan..... 14

FIGURES

Figure 1.1: Anmore South – Area Context 1

Figure 2.1: Village of Anmore Existing Road Network and Classification 4

TABLES

Table 2.1: Existing Street Characteristics	5
Table 2.2: Transit Stops	Error! Bookmark not defined.
Table 2.3: Existing Transit Service Frequency	Error! Bookmark not defined.
Table 2.4: Existing Peak Hour Roadway Link Volume	10
Table 2.5: Roadway Peak Hour Directional Volumes	11
Table 2.6: Roadway Directional Peak Hour Spare Capacity	11
Table 4.1: Forecast Background 2040 Peak Hour Roadway Link Volume	19

EXECUTIVE SUMMARY

Introduction

The proposed Anmore South neighbourhood development in the Village of Anmore presents a unique opportunity for community living across the whole of Metro Vancouver. The prospect of a densified residential neighbourhood mixed with local scale commercial uses and amenities all located within a natural woodland environment and close to some of the best parks in the region and located relatively close to regional rapid transit and commuter rail services is compelling.

Anmore South will comprise approximately 60 hectares in the southwest area of Anmore. Informed first and foremost by the natural setting and environmental influences of this area, then by the connectivity needs and liveability aspirations of the future residents, the locations and design treatments for supporting infrastructure (servicing and roads) and building locations will follow. A somewhat unique planning approach for a unique community.

Over time, South Anmore area is contemplated to become a community with up to 3,500 homes with supporting neighbourhood commercial and community services and amenities. A network of trails for pedestrians and cyclists will provide for convenient and safe active travel mode connections through the neighbourhood and to the larger Anmore community beyond.

As with nearly all new development, the transportation aspects of the project are a crucially important consideration. For Anmore South, Bunt & Associates (Bunt) has identified the potential trip generation among a range of travel mode options to provide direction for further transportation planning and engineering analysis. The success of Anmore South will in large part depend on the planning for compelling travel options beyond reliance on private vehicle trips.

Existing Conditions

Current access to the IOCO Lands is provided by two existing roads: (i) 1st Avenue, connecting south to Port Moody via Ioco Road, and (ii) Sunnyside Road, connecting northeast to the Village of Anmore and further east back into Port Moody via East Road. These two roadways also provide access to and from the nearby Village of Belcarra, Belcarra Regional Park, and Buntzen Lake Park. Ioco Road, 1st Avenue, Sunnyside Road, and East Road are all part of TransLink's MRN (Major Road Network).

The development site is currently served by limited and infrequent bus routes to Anmore, Belcarra, Port Moody, and Coquitlam. However, buses to Port Moody provide convenient access to the Millennium Line at the Inlet Centre and Moody Centre stations and the West Coast Express at the Moody Centre Station; thus, a connection to the Frequent Transit Network (FTN) is available.

Although the site is located within close proximity to a vast array of recreational trails and outdoor activities, essential everyday amenities as well as basic pedestrian infrastructure (e.g., sidewalk, crosswalks, street lighting, etc.) are currently lacking. In terms of local cycling infrastructure, improvements to existing facilities within Anmore and the designation of recommended routes connecting the IOCO Lands with both Belcarra Regional Park and Inlet Centre Station are enabling cycling to become a more viable travel mode for both leisure and commuting purposes.

Traffic conditions on the area road system can indeed be stressed at times, largely on account of the growing popularity of the regional and provincial parks in the area. Furthermore, projected population and employment growth within local centres as well as the largely untapped potential of the nearby industrial lands fronting onto Burrard Inlet will at some future point add yet a further significant demand to the area transportation system.

Based on traffic volume observations in 2017 by Bunt well before the Covid-19 pandemic, and application of theoretical road capacity for roads such as 1st Avenue, Sunnyside Road and East Road, we have developed estimates of the presently available remaining traffic capacity. Our analysis to date has considered only the key access routes located within the Village of Anmore. For the peak direction of traffic flow for the different traffic time periods considered, our estimates of the presently available remaining road capacity are as follows:

Weekday morning peak traffic period:

- On 1st Avenue, 595 vehicles per hour (vph) for the southbound peak direction of traffic flow;
- On Sunnyside Road, 380 vph for the eastbound peak direction of traffic flow;
- On East Road, 345 vph for the eastbound peak direction of traffic flow.

Weekday afternoon peak traffic period:

- On 1st Avenue, 545 vph for the northbound peak direction of traffic flow;
- On Sunnyside Road, 345 vph for the westbound peak direction of traffic flow;
- On East Road, 290 vph for the westbound peak direction of traffic flow.

Weekend afternoon peak traffic period:

- On 1st Avenue, 430 vph for the southbound peak direction of traffic flow;
- On Sunnyside Road, 300 vph for the westbound peak direction of traffic flow;
- On East Road, 255 vph for the westbound peak direction of traffic flow.

Neighbourhood Plan Road Network

With nature/environment leading the neighbourhood design planning process together with a strong objective to connect the area both conveniently and safely with a system of trails for pedestrians and cyclists, the project team determined that the existing alignment of Sunnyside Road through the neighbourhood should be generally maintained, with localized improvements to increase traffic safety.

Intersection control treatments will be confirmed once intersection operations analysis has been conducted through subsequent more detailed transportation analysis.

Future Traffic Forecasts

Theoretical spare capacity on the key roadway links has been assessed for a future horizon year of 2040, accounting for an assumed 20-year project buildout period.

Vehicle trip generation rates for each of the proposed land uses within the Anmore South development have been derived and, in combination with assumptions regarding internal capture (trips contained within the development site), average vehicle occupancy, 5% transit trips, non-motorized trips, as well as an allowance for pass-by and diverted trip reductions, the potential vehicle trip generation for the proposed development has been calculated. With this current low level of transit usage, the development is expected to generate about 1,320 vehicle trips (combined inbound and outbound) during the weekday morning and afternoon peak hour traffic periods.

This level of added development traffic, with the 5% transit mode split and without the benefit of a well-planned Transportation Demand Management (TDM) strategy, would more than consume all remaining available capacity on East Road which is the governing road capacity constraint (westbound traffic during the weekday afternoon peak hour traffic period).

With an increased transit ridership of 20% and application of TDM measures, the predicted site generated vehicle traffic for the developed would be reduce to just under 1,000 vehicles per hour which could nearly be accommodated by the surplus road network capacity, but only if there is no increase in area background traffic over the next twenty years.

More realistically, with allowance for background traffic increases of at least 2% per year over the next twenty to thirty years, e.g., continuing increases in visits to Belcarra and Buntzen Lake parks. Other contributing factors to the transportation landscape include the future of the nearby Imperial Oil Industrial Lands, the Provincial Government-owned Burrard Thermal Industrial Lands, and the potential future redevelopment of the old loco townsite. Any and all of these contributing sources of future traffic will have impact onto the area network including Anmore and Port Moody most directly but also Coquitlam to some degree.

Transportation Demand Management (TDM)

To best manage its own transportation requirements, a key strategy for Anmore South is to create an efficient and effective mobility connection to the regional transit system, namely the Inlet Centre and Moody Centre Stations on the Evergreen Line rapid transit extension and as well the West Coast Express commuter rail station at Moody Centre. The short travel distance/time between these stations and Anmore South is highly compelling and a key to Anmore South strategy to encourage travel by sustainable modes other than private vehicle trips.

Improvements to transit access and measures to incentivize the use of transit will be at forefront of the TDM strategy for Anmore South and the project will continue to work closely with TransLink to identify partnership opportunities through the TransLink Independent Transit Strategy (ITS) framework. With the intent of achieving a transit mode split target of at least 20%, Anmore South may augment the public transit service with its own shuttle service during peak travel times to add further convenience and reliability for transit-based trips.

In addition, a substantial array of other TDM measures will be front and centre with the proposed development, including the provision of a shared fleet of vehicles and bicycles, electric and conventional, to allow future residents, employees, customers and visitors to Anmore South to decrease their reliance on private vehicle use. Facilities for secured long-term resident/employee bike storage and short-stay public bike parking will be provided in abundance throughout the community, together with bike maintenance rooms supplied with repair stands and tools, and bike washing areas will identify Anmore South as a community that embraces cycling.

Active mode (walking, cycling and rolling) connectivity both within the Anmore South community and to adjacent areas of the Village of Anmore will be a key design feature of the project. Sidewalks, trails and pathways with careful consideration of grades and accessible mobility will extend along roadways and throughout the community to provide enjoyable, safe and convenient routes for all users.

Vehicle parking supply will also factor as a key element of the Anmore South TDM strategy, with reduced parking rates for both the residential and non-residential uses from what would traditionally be applied for a development in this locational context. The project will seek that balance between providing just enough parking to remove any potential for spillover parking onto area streets but not too much which only serves to encourage private vehicle trips over more sustainable travel modes.

Sub-Regional Transportation Assessment – Proposed Working Group

Outside of Anmore and neighbouring Belcarra, all municipalities within the Metro Vancouver Region have been experiencing tremendous growth over the past several years including notably the neighbouring Tri-City municipalities of Port Moody, Coquitlam and Port Coquitlam. This growth has placed considerable operational pressures on existing transportation systems including the area road network. Development in these other municipalities has among other things contributed to increased visitations to Belcarra Regional Park and Buntzen Lake Provincial Park and increased vehicle traffic travelling on roads in the Village of Anmore. And by the same token future development in Anmore will result in increased traffic on the road networks in Port Moody, Coquitlam and beyond.

In response to these anticipated changes, Icona proposes the formation of a Tri-City “North Shore” Transportation Solutions Working Group. This multidisciplinary team will be responsible for devising innovative and sustainable transportation solutions in alignment with TransLink's 2050 Goals, which emphasize convenience, reliability, affordability, safety, comfort, and a carbon-free transit system.

The proposed working group will comprise key stakeholders, including representatives from Belcarra, Anmore, Port Moody, Coquitlam, TransLink, Metro Vancouver, the Province of BC, the Port of Vancouver, the Tri-Cities Chamber of Commerce, Imperial Oil, Gilic Development, and Icona Properties.

Upon establishing a comprehensive Terms of Reference, the working group will collaborate to develop data-driven strategies and present their findings to all stakeholders by Q2, 2024. By taking a proactive approach to transportation planning, the North Shore Transportation Solutions Working Group aims to minimize the impacts of future developments on this sub-regional transportation system and more broadly support a thriving, sustainable region.

1. INTRODUCTION

1.1 Anmore South

Bunt & Associates (Bunt) has been retained by Icona Properties to prepare a preliminary Transportation Rationale for their proposed new residential community development located in the Village of Anmore municipality. **Figure 1.1** below identifies the location of the 60-hectare Anmore South lands which is situated in the southwest corner of the Village of Anmore in the context of other municipalities that line Burrard Inlet within the Metro Vancouver Region.



Figure 1.1: Anmore South – Area Context

The Anmore South neighbourhood brings about an opportunity for fresh new approaches to transportation planning for new developments leading to more environmentally sustainable and healthier outcomes, and a better overall transportation fit for the area compared to the more conventional approaches of the past.

The prospect of locating potentially up to 3,500 homes within a forested setting and within walking/cycling distance to regional and provincial parks is uncommon these days in the Metro Region. Doing so in this type of setting that is also reasonably close (a 10–15-minute bus trip) to high functioning, regional rapid transit and commuter rail services is almost unheard of and one of the highly compelling aspects of the Anmore South neighbourhood. Planning and providing for this “connecting” transportation “piece” will be at the core of the transportation strategy for Anmore South.

Another important consideration is the development timeline for the project. As a phased development, the Anmore South neighbourhood will not appear all at once but rather incrementally over time. The

anticipated 20-year development timeline for the neighbourhood allows for the transportation impact to be moderated by time and also be evolving travel behaviour that have been shifting away from private vehicle trips toward more sustainable travel options.

1.2 Study Purpose

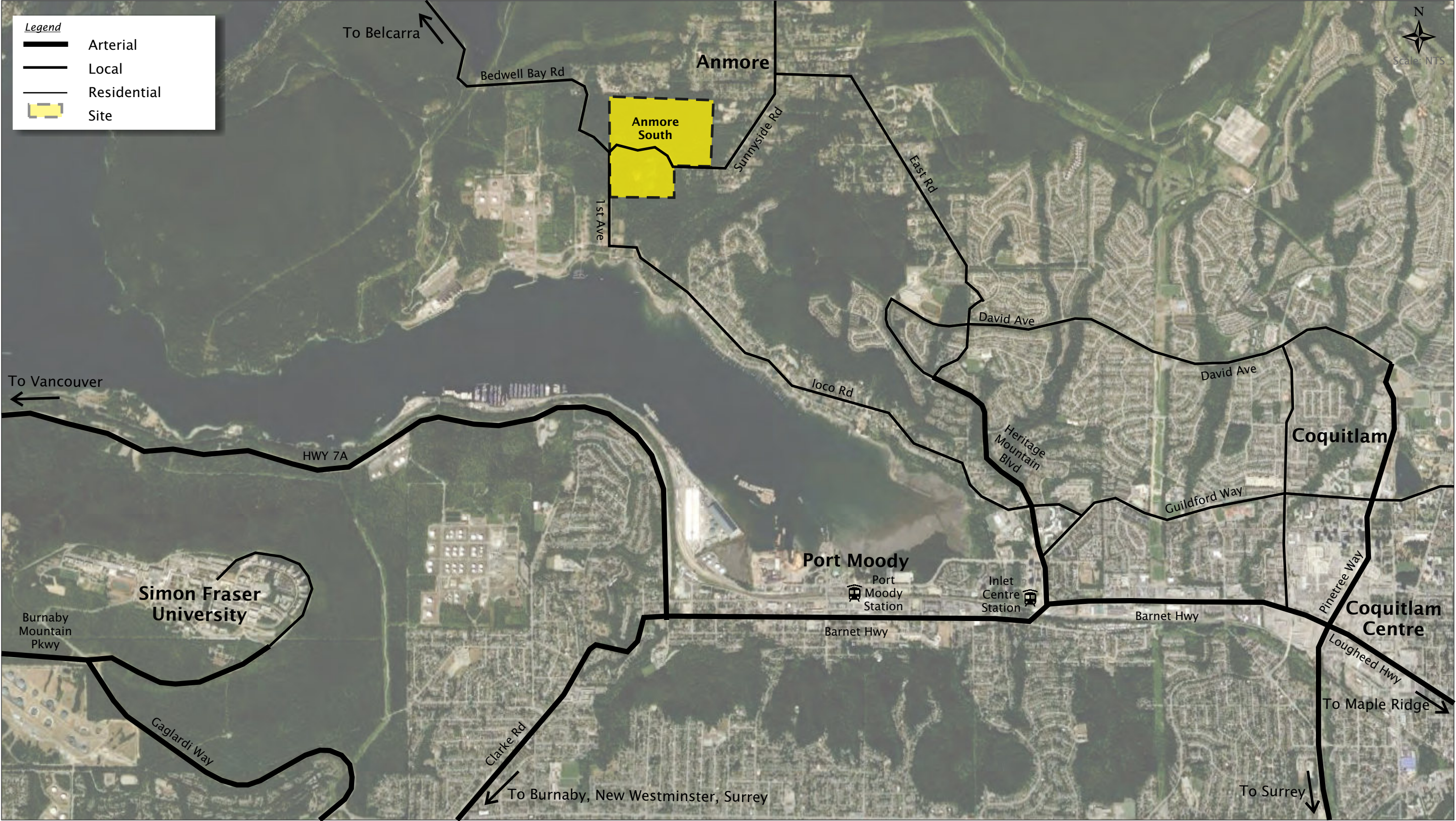
The purpose of this Preliminary Transportation Demand Study is two-fold. Firstly, the transportation demand management (TDM) principals are set out which focus on strategies to reduce reliance on private vehicle trips and instead encourage trips using more sustainable travel modes including transit, ridesharing, cycling and walking, and secondly, the preliminary traffic management considerations are identified including the anticipated site traffic trip generation and the road capacity.

The transportation report is structured as follows:

- Section 1 – Introduction: study purpose, objective, and site location;
- Section 2 – Existing Conditions: summarizes the existing road, transit, cycling and walking networks in the vicinity of the site, provide a brief review of pertinent regional and local plans, and provide a summary of existing peak hour traffic volumes and theoretical road capacity conditions on key roads within the Village of Anmore;
- Section 3 – Development Proposal: summarizes the proposed development, including the development plan, proposed land uses, and internal road network;
- Section 4 – Transportation Demand Management Strategies: lists a number of potential TDM strategies which could aid in lessening the development’s anticipated vehicle traffic impact; and,
- Section 5 – Forecasted Traffic: provides a high-level analysis on site vehicle trip generation, distribution, and assignment, area traffic forecasts, and expected traffic operations at the planned road access points to the development;
- Section 6 – Conclusions and Recommendations: summarizes the findings and recommendations of the report.

1.3 Site Location

Exhibit 1.1 provides a high-level context for the Anmore South lands and the area road network. As indicated, the site is accessed by both Sunnyside Road and by 1st Avenue. Sunnyside Road provides connection to other existing development with the Village of Anmore and to the East Road arterial route connection to Port Moody while 1st Avenue connects to Ioco Road in Port Moody and the broader regional road network beyond. Sunnyside Road and 1st Avenue intersect with Bedwell Bay Road which connects to the Village of Belcarra to the west and the Belcarra Regional Park. Buntzen Lake Provincial Park is accessed via Sunnyside Road to the north.



S:\PROJECTS\04-18-0478 loco Lands 2019\4.0 Analysis & Design\CDR

Exhibit 1.1
Site Location

04-21-0091

Anmore South
May 2023



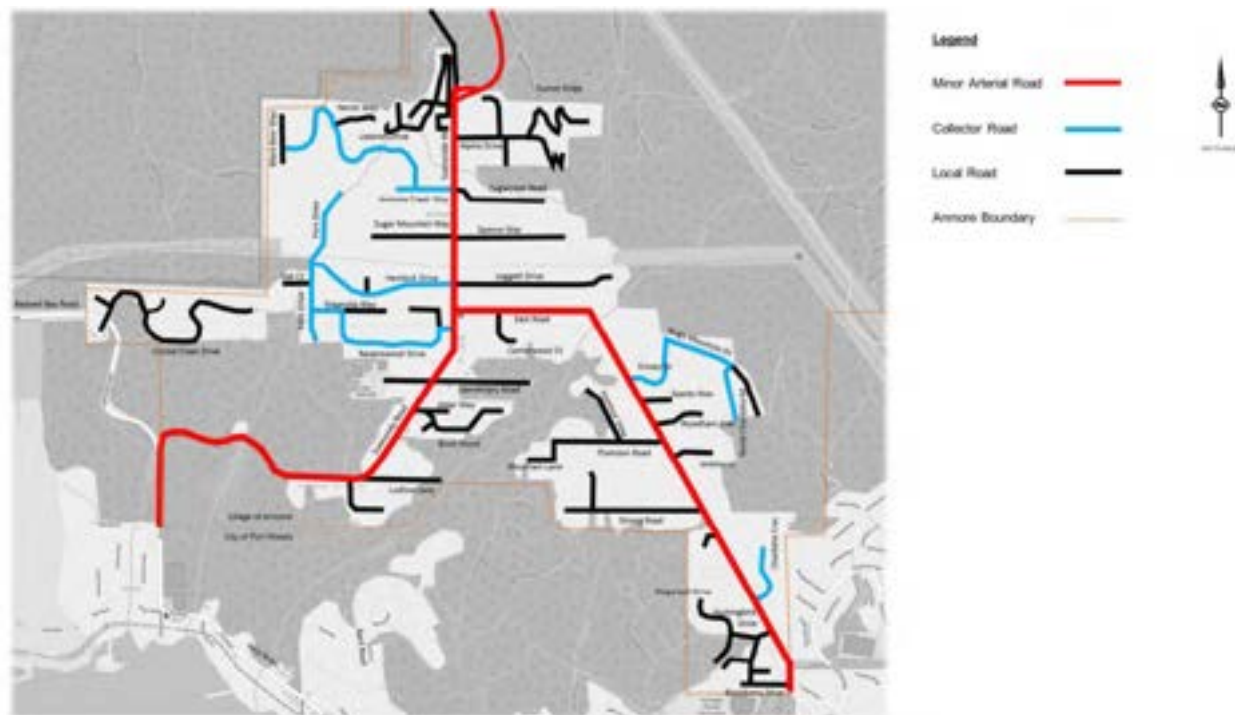
2. EXISTING CONDITIONS

2.1 Existing Transportation Network

2.1.1 Road Network

Figure 2.1, taken from the Village of Anmore *Road Network Plan*¹, illustrates current roadways and their classification in Anmore.

Figure 2.1: Village of Anmore Existing Road Network and Classification



Source: ISL, 2017.

Current access to the IOCO Lands is provided by two existing roads: (i) 1st Avenue, connecting south to Port Moody via Ioco Road, and (ii) Sunnyside Road, connecting northeast to the Village of Anmore and further east back into Port Moody via East Road. These two roadways also provide access to and from the nearby Village of Belcarra, Belcarra Regional Park and Buntzen Lake Park. Ioco Road, 1st Avenue, Sunnyside Road and East Road are all part of TransLink's MRN (Major Road Network).

¹ *Village of Anmore: Road Network Plan*. ISL, 2017. <http://anmore.com/wp-content/uploads/2017/08/Road-Network-Plan-2017.pdf>

East Road, connecting Anmore to Port Moody and Coquitlam via Heritage Mountain Road and David Avenue, respectively, is another key corridor for the IOCO Lands. Regarding David Avenue, discussions have taken place among different stakeholders and the public as to whether it should be extended further west along the already established David Avenue road right-of-way providing a new mobility connection for IOCO Lands, the Belcarra Regional Park, and other communities, and divert traffic away loco Road, Sunnyside Road, and East Road. However, this Transportation Rationale will focus exclusively on existing roads within the Village of Anmore.

Table 2.1 summarizes the existing street characteristics.

Table 2.1: Existing Street Characteristics

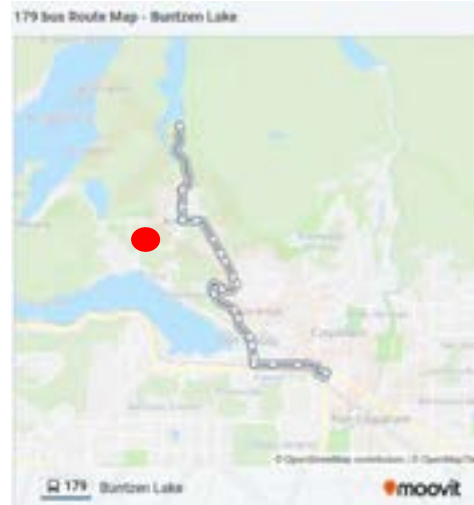
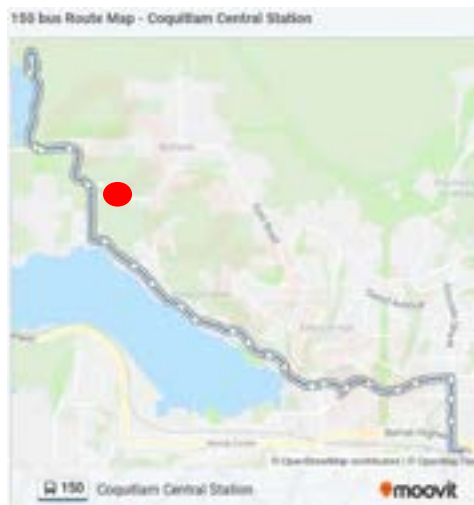
STREET	CLASSIFICATION	NUMBER OF TRAVEL LANES	POSTED SPEED	PARKING FACILITIES
1 st Avenue	Minor Arterial Road	2	50 Km/h	None
Sunnyside Road	Minor Arterial Road	2	50 Km/h	None
East Road	Minor Arterial Road	2	30-50 Km/h	On-Street

- **1st Avenue** is a short and straight north-south minor arterial road servicing largely regional traffic to and from Anmore, Belcarra and Belcarra Regional Park, extending from loco Road to Sunnyside Road/Bedwell Bay Road. 1st Avenue has one travel lane in each direction with limited paved shoulders and a posted speed limit of 50 km/h. No sidewalks or crosswalks are provided, and street lighting is very limited.
- **Sunnyside Road** is a winding east-west minor arterial road with rolling terrain servicing mostly regional traffic to and from Anmore and Belcarra, extending from 1st Avenue to the Buntzen Lake, north of Anmore. In the vicinity of the Anmore South development site, Sunnyside Road has one travel lane in each direction with no shoulders and a speed limit of 50 km/h. No sidewalks or crosswalks are provided, and street lighting is very limited.
- **East Road** is a relatively straight north-south minor arterial road servicing mostly regional traffic to and from Anmore and Buntzen Lake Park, extending from Sunnyside Road to Forest Park Way. East Road has one travel lane in each direction with discontinuous shoulders and a speed limit of 50 km/h, restricted to 30 Km/h in specific segments due to sightline restrictions. Despite being an arterial, private driveways are present along the corridor with limited on-street parking opportunities along the east edge. Discontinuous sidewalks are present on both sides of the road. Limited crossing opportunities are provided with only a few painted crosswalks. Street lighting is limited.

2.1.2 Transit Network

The Anmore South lands are currently directly serviced by the #181 and #182 bus routes connecting Anmore and Belcarra to the Moody Centre SkyTrain Station (Evergreen Line) and West Coast Commuter Rail Station, and indirectly by the #150 and #179 services connecting to Coquitlam Centre SkyTrain (Evergreen Line) and West Coast Commuter Rail Station.

Service frequency ranges from 30 minutes to 40 minutes with the shorter headways on routes 150, 179 and 181 provided as spring/summer seasonal adjustments in effect on weekends and holidays.



● Anmore South

2.1.3 Cycling & Pedestrian Networks

Walking is an everyday activity whether as a single-purpose journey or linked with transit and driving. Typically, people are willing to walk up to 15 minutes for certain activities (i.e., work, school, recreation activities) and 400 to 800 meters is the average distance for such trips (equivalent to travel times between 4 to 10 minutes). Although the site is located within close proximity to a vast array of recreational trails and outdoor activities, essential everyday amenities and neighbourhood shops and services are currently lacking in this part of Anmore, and what amenities do exist are located closer to the municipal hall, school and existing residential neighbourhoods.

Cyclists can generally travel 3 to 4 times the distance of pedestrians over a similar period of time, suggesting 4 to 5 Km coverage for trips made from the site by bicycle. The average cycling speed for commuters is about 15 Km/h, and the average distance per journey is approximately 5 Km. This equates to about a 20-minute journey on average. Cycling is increasingly becoming a more popular travel mode for work and leisure, and improvements to cycling infrastructure in Anmore are helping to make it both more convenient and safer for cyclists.

The Anmore South community is presently accessed by informal bike routes along 1st Avenue and Sunnyside Road. These are recommended routes for cyclists but do not have any special treatments to improve cycling. Anmore and Belcarra Regional Park are located within cycling distance to the site, with Belcarra and the Inlet Centre Station being within a 30-minute bike ride. For more casual users, the rolling terrain along Sunnyside Road and loco Road may discourage cycling, though the increasing popularity of ebikes and their ability to ease cycling effort on hills can largely overcome this.

2.2 Current Relevant Policies & Plans

2.2.1 Municipal Plans

Village of Anmore OCP

The Village of Anmore Official Community Plan (OCP)² focuses on achieving faster rates of development in the short term, providing more flexible lot size restrictions, and supporting denser forms of development, while keeping population growth carefully monitored.

Anmore residents are currently dependent on private vehicles for most of their daily activities. To tackle this issue and to provide more sustainable transportation modes, the Village of Anmore relies on TransLink's Northeast Sector Area Transit Plan (NESATP).

² *Official Community Plan*. Village of Anmore, 2014. <http://anmore.com/wp-content/uploads/2017/06/Official-Community-Plan.pdf>

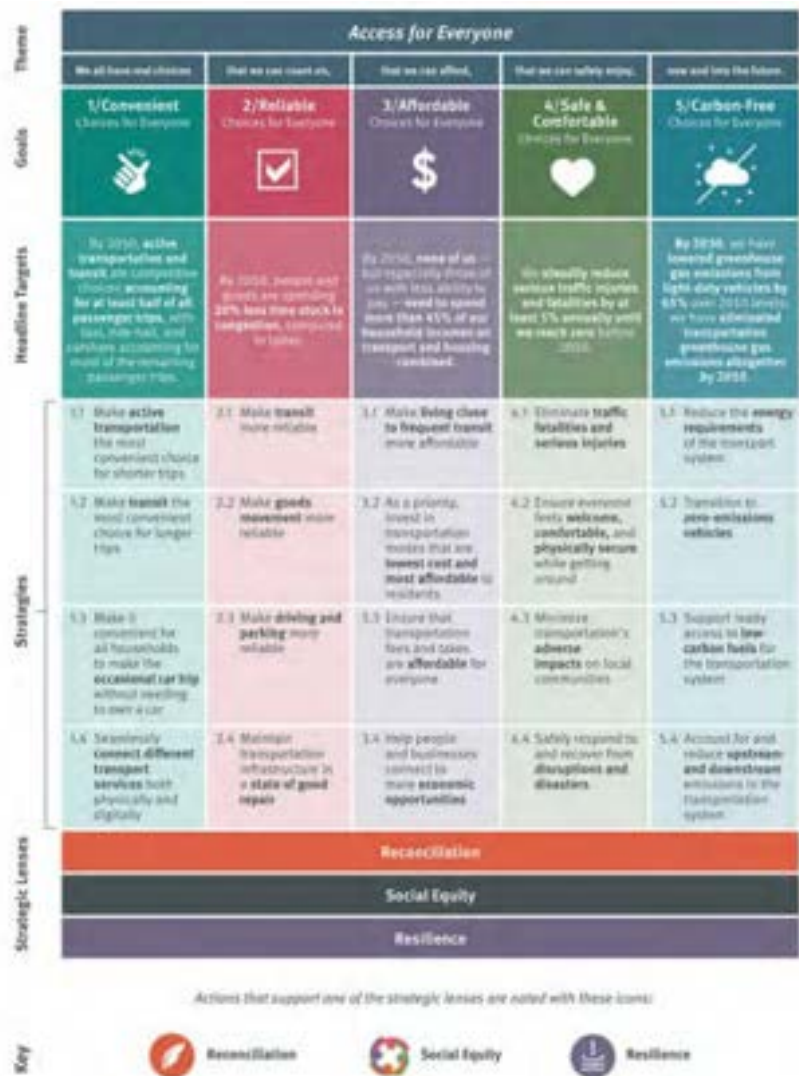
The OCP considers the IOCO Lands to be a major future development area. Within the guidelines and regulations listed in the OCP, an eventual development in this area is expected to differentiate itself from other developments within Anmore through its commitment to environmental preservation, high levels of sustainable building performance, and the creation of a walkable community that is well integrated within the existing community. Regional Plans.

Transportation 2050 – Regional Transportation Strategy

Metro Vancouver adopted the Transport 2050 Regional Transportation Strategy (RTS) in early 2022. The five overarching goals of Transportation 2050 are to provide transportation that is convenient, reliable, affordable, safe & comfortable, and carbon-free. The Plan identifies a wide range of action items to achieve these goals, and include among others:

- Quadrupling the size of the rapid transit network, from 100 to 400 kilometres
- Building out an 850-kilometre traffic-protected Major Bikeway Network
- Putting frequent transit within a short walk of most homes and jobs
- Dedicating more streets to walking, biking, rolling, and transit
- Promoting electrified and shared bikes, scooters, and cars

The adjacent chart from the Transport 2050 Plan set out the goals, key targets and strategies to further shape our transportation future over the next 30 years, from all regional scale all the way down to the local community level for new development such as envisioned for Anmore South.



Northeast Sector Area Transit Plan (NESATP)

TransLink's Northeast Sector Area Transit Plan (NESATP)³ provides for a 30-year long-term vision for service and infrastructure priorities for Coquitlam, Port Moody, Port Coquitlam, Anmore, and Belcarra. This plan, developed over the period from 2013-2015, acknowledges that transit in this area has not been properly aligned with recent land developments.

Stakeholder and public consultation input was used to develop a long-term vision and identify short-term priorities for transit improvements, further improved by the Evergreen Extension of the Millennium Line, which initiated service in 2016.

As part of the near-term priorities, new routes were proposed for the study area and identified as *medium priority*, for which TransLink will seek additional funding before being able to provide any new services. It is expected for the implementation of these new routes to increase transit mode share in the mid-term future. Currently at Phase 4, efforts are being made towards monitoring and reporting on the progress of the Area Transit Plan to ensure land use and transportation planning continue to be coordinated.

David Avenue Extension

An extension of David Avenue westward from Port Moody to provide an additional regional road network connection to the Villages of Anmore and Belcarra, Belcarra Regional Park and Buntzen Lake Provincial Park, and the extension industrially zoned lands fronting onto Burrard Inlet has been under consideration for more than 30 years and a road right-of-way was in place up until 2020 when the City of Port Moody Council voted to remove the right-of-way.

The decision by Port Moody City Council will mean that the existing road connections of Ioco Road and East Avenue will continue to experience pressured traffic conditions into the foreseeable future, particularly as regional demand for access to Belcarra Park and Buntzen Lake Park increases. Moreover, the potential for future redevelopment on the industrially zoned lands in this area has become quite limited which is of regional economic consequence.

Bunt's transportation planning for the Anmore South lands does not necessarily assume a future David Avenue extension into Anmore. If the existing two road connections, East Avenue and Ioco Road, are to function alone for all future vehicular trips (transit and private automobiles alike), significant traffic demand management (TDM) measures will need to be applied to new development.

2.3 Regional Travel Factors

Within general proximity to the site, there are three town centres with differing levels of urban form and development (Anmore, Belcarra, and Port Moody) and one industrial zone (Imperial Oil and Burrard Thermal) surrounding the site. All of them are expected to grow both in residents (quantified as Dwelling Units, or DU) and employment (quantified as jobs). Projections based on previous studies by the development team for area/employment relations, it is forecasted that Anmore will double its current

³ *Northeast Sector Area Transit Plan*. TransLink, 2015. <https://www.translink.ca/Plans-and-Projects/Area-Planning/Northeast-Sector-Area-Transit-Plan.aspx>

population and employment by 2041. Over that same period of time, Belcarra is forecasted to grow by 40% its current population and employment while Port Moody is forecasted to grow by 50% its population and 30% its employment.

The Imperial Oil Lands, currently underused, are still a wild card for the area. In the future, the area could be redeveloped into a heavy industrial area or into a high-tech or Research & Development site. These two scenarios, among other possibilities, could bring employment numbers up to potentially thousands of jobs. In any case, the future of the Imperial Oil Lands is still undefined, but a significant increase in the number of jobs in this area could generate a significant number of new trips, vehicle/transit in the region.

In addition, the Belcarra Regional and Buntzen Lake parks are key traffic generators in the area, particularly over weekends and during summer months. Any further expansion or development of new attractions will likely increase travel demand for the parks. This potential expansion, combined with a sustained yearly growth of park visitors, make residents of Belcarra, Anmore, and Port Moody susceptible to significant fluctuations in park-related traffic.

2.4 Existing Vehicle Volumes

2.4.1 Traffic Data Collection Program

For the purpose of this Transportation Rationale, existing traffic volumes were sourced from previous traffic count data collected by Bunt dated Thursday 4th (from 7:00 to 10:00 AM and from 3:00 to 6:00 PM) and Sunday 7th (from 2:00 to 6:00 PM), May, 2017, and are summarized in **Table 2.4**, which includes the observed peak hour periods.

Table 2.4: Existing Peak Hour Roadway Link Volume

ROADWAY	SOURCE	DATE OF COUNT	TWO-WAY PEAK HOUR VOLUMES		
			WEEKDAY AM	WEEKDAY PM	WEEKEND PM
1 st Avenue @ Sunnyside Road/Bedwell Bay Road	Bunt	Thursday 4 th and Sunday 7 th , May, 2017	285	405	560
Sunnyside Road @ 1 st Avenue/Bedwell Bay Road	Bunt		225	230	275
Sunnyside Road @ East Road	Bunt		300	320	310
East Road @ Sunnyside Road	Bunt		330	390	460
PEAK HOUR			8:15 - 9:15 AM	3:15 - 4:15 PM	3:00 - 4:00 PM

Historically, roadways leading up to recreational areas, such as regional parks, tend to be higher during summer/winter months (depending on the type of activities available) and, particularly on weekends. The count data above shows higher vehicle volumes during the Weekend PM peak hour, exceeding the Weekday PM peak hour volume by up to 40%. During the summer months with peak activity at the area parks, this weekend over weekday high utilization of the area roads is even more pronounced.

2.5 Theoretical Road Capacity

A roadway's theoretical capacity is defined as the maximum theoretical hourly rate at which vehicles can reasonably traverse a point or uniform section of roadway during a given period of time under prevailing roadway, traffic flow, and control conditions. As a general rule of thumb, a roadway theoretical capacity along an urban/suburban corridor with intersecting streets controlled by traffic signal is 750 vehicles per hour per lane (vphpl), which may be restrained (i.e., reduced) by elements such as weather, traffic conditions, road design, terrain, and others.

As a general indicator of traffic performance, this measure of traffic utilization of theoretical road capacity is a useful measure of potentially how much additional traffic volume a road can accommodate. It is important to note that road capacity is not equivalent to *intersection capacity*, which may be able to accommodate more or less vehicles than through road segments. As the development application process progresses, intersection capacity analysis will be conducted. For the purpose of this Transportation Rationale, site traffic impact will be assessed from a road capacity perspective alone.

Table 2.5 shows the peak hour directional volumes for each of the three roadways in the study area, and **Table 2.6** shows their existing theoretical spare capacity. The analysis considers both the weekday morning peak traffic period (typically between 7-9am) and the weekday afternoon peak traffic period (typically between 3-6pm).

Table 2.5: Roadway Peak Hour Directional Volumes

STREET	ROADWAY PEAK HOUR DIRECTIONAL VOLUMES		
	WEEKDAY AM	WEEKDAY PM	WEEKEND PM
1 st Avenue	155 vph (southbound)	205 vph (northbound)	320 vph (southbound)
Sunnyside Road	120 vph (eastbound)	155 vph (westbound)	200 vph (westbound)
East Road	155 vph (eastbound)	210 vph (westbound)	245vph (westbound)

Table 2.6: Roadway Directional Peak Hour Spare Capacity

STREET	DIRECTIONAL CAPACITY ¹	SPARE CAPACITY ²		
		WEEKDAY AM	WEEKDAY PM	WEEKEND PM
1 st Avenue	750 vph	595 vph (southbound)	545 vph (northbound)	430 vph (southbound)
Sunnyside Road	500 vph	380 vph (eastbound)	345 vph (westbound)	300 vph (westbound)
East Road	500 vph	345 vph (eastbound)	290 vph (westbound)	255 vph (westbound)

(1) Capacity at Sunnyside Road and East Road has been reduced by one-third to compensate for the rolling terrain.

(2) Specific directional spare capacity is selected so it aligns with the direction of a potential development site traffic during AM and PM peak hour periods (i.e., outbound and inbound directions, respectively).

Currently, there is spare traffic capacity along 1st Avenue, Sunnyside Road, and East Road within the Village of Anmore. Since a future development will be expected to generate peak traffic during the Weekday AM and PM peak hours, capacity will be assessed only on these time periods. Weekend and seasonal traffic will be analyzed in subsequent transportation analysis, to be conducted later during the development application process.

The key conclusions obtained from this spare capacity analysis are:

- 1st Avenue can currently accommodate nearly 600 additional vehicles per hour, southbound, during the AM peak hour and nearly 550 additional vehicles per hour, northbound, during the PM peak hour.
- Sunnyside Road can currently accommodate 380 additional vehicles per hour, eastbound, during the AM peak hour although, because of its connection to East Road, spare capacity along this corridor will be reduced to 345 additional vehicles more per hour. During the PM peak period, Sunnyside Road can currently accommodate 345 additional vehicles per hour westbound although, because of its connection to East Road, spare capacity will be reduced to 290 additional vehicles per hour.
- The existing available 290 vehicle per hour (vph) capacity for the weekday afternoon westbound peak direction of traffic flow on East Road translates into the ability to development of approximately 1,500 dwelling units (mainly multi-family format) for South Anmore assuming that the future residents of the area continue to make travel choices predominantly based on private car usage, and assuming no increase in area background traffic on the Village of Anmore road network.
- With increasing use of transit and other sustainable travel mode (walking/cycling, ridesharing, etc.) and less reliance on private automobile trips into the future, this development potential can be increased.

3. ANMORE SOUTH – COMMUNITY VISION

3.1 Development Philosophy and Land Use

Icona Properties is planning a new residential community, Anmore South, on a 60-hectare site located within the Village of Anmore. These lands are presently undeveloped with a variety of open and forested lands with a variety of watercourses and ravines. The natural appeal of the area is remarkable, particularly for an area situated so close to the built urban infrastructure and regional transportation connections of the nearby Moody Centre area of Port Moody.

The development philosophy for Anmore South is simply and eloquently framed around the idea of “Leading with Nature”. The future buildings and community “hearts” of this new neighbourhood will connect to and embraced by the surrounding natural environment.

Within this context, Anmore South is envisioned to become home for up to potentially 3,500 new households, largely in the form of medium density, multifamily housing. Supporting amenities and neighbourhood serving commercial and civic uses are planned to provide a complete community appeal to both existing and future residents of Anmore. As shown in **Exhibit 3.1**, this new community will be accessed by both Sunnyside Road and 1st Avenue.

3.2 Transportation Strategy

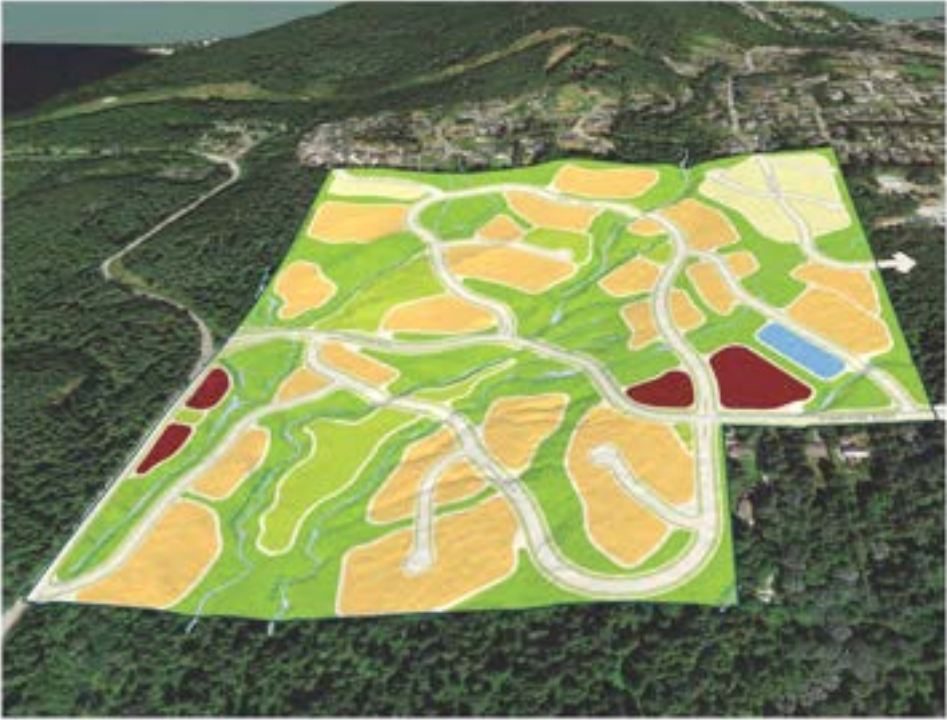
3.2.1 Travel Mode Split Target

At present, the majority (over 85%) of trips made in Anmore involve the use of a private vehicle. Public transit accommodates about 10% of trips, and trips by walking/cycling less than 5%. This is characteristic of a largely residential, low-density community with few local shops and services, and limited transit service. Contrast this with other areas of Metro Vancouver which benefit from a range of retail and employment uses located near to where people live, more frequent transit service and used cycling routes, with private vehicle trips as much as 30-40% lower and trips by transit, cycling and walking all significantly higher.

The vision for Anmore South, with a proposed blend of higher-density residential and commercial uses, well connected trails for walking and cycling, and improved access to public transit, is to become a community with transportation characteristics closer to that of the more urban nodes of the Region and significantly less car dependent than the existing community. A transportation strategy aimed at reducing private vehicle use to no more than 60-65% of all trips (down from over 85% today), transit at 15-20%, and walking/cycling at 15-20% of all trips will be key to a successful transportation story for this new neighbourhood.

a home for everyone

housing diversity + community heart



LAND USE

2%	High-Density Office	2%	High-Density Office
5%	Medium-Density Office	10%	Medium-Density Office
15%	Multi-Family	15%	Medium-Density Office
20%	Medium-Density Office	20%	Medium-Density Office

icona

Neighbourhood Structure

The Anmore South Lands provide the opportunity to include a variety of residential forms + densities, from ground-oriented single-family or duplex through to townhomes and apartments.

A mix of housing forms provides a vibrant community experience, allowing for future growth with a range of lifestyles, life-stages and incomes. The OCP Amendment Application anticipates a mixed-use village with shops, services, and a community centre - all within a 5-minute walk of Anmore Elementary School.

The phased build-out of Anmore South is anticipated to span 25+ years, accommodating long-term managed growth to the benefit of the Village.



PLACEMARK.CA

community connections

linking the neighbourhood



TRANSPORTATION NETWORK

Major Road Network (10m-15m)	Community Pathway (see table below)	Potential Transit Corridor
Collector Street (20m-30m)	Community Pathway (see table below)	Footpath
Local Street (30m-40m)	Community Pathway (see table below)	0-200 Metre Walking Radius (15m-20m)

icona

Liveable Streets + Trails

The proposed Anmore South Street Network has the potential to establish a **pedestrian/cyclist-first public realm with a unified network of liveable streets + multi-use pathways** to encourage a safe connected community.



PLACEMARK.CA

Exhibit 3.1 Community Vision - Transportation Connections & Land Use

3.2.2 Transportation Planning and Design Principles

The transportation strategy for Anmore South will be guided by a number of planning and design principles:

- The mobility network for the neighbourhood will be informed first and foremost by pedestrian and cycling connections that provide access for users of all ages and abilities.
- The street network will be designed to safely and efficiently integrate into the sidewalk and trail networks.
- Design with curb letdowns, conflict paint markings, tactile pedestrian surfaces and provide appropriate traffic control devices at key crossing locations of the active modes network with the street network.
- Ensure that lighting is provided along key pedestrian and cycling routes to increase safety and comfort for users at all times of the day.
- Implement “car-light” planning to the neighbourhood with reduced vehicle parking supply rates and increased bike parking rates compared to conventional residential and commercial development. Provide Level 2 electric vehicle charging capability for all new vehicle parking spaces and an electric outlet for every two bike storage locations, whether long-term secured spaces or shorter-term public bike parking.
- Pursue opportunities with the car share providers in the community (Modo and Evo) to operate a community-branded car share program with a supply of car share vehicles and car share memberships to residents to reduce the level of private car ownership and usage.
- Create convenient passenger loading zones in the commercial hub area to facilitate on-demand mobility options including taxi and ride hailing services.
- Pursue options to enhance public transit service to this area including possibly a strategic partnership with TransLink via the Independent Transit Service policy to benefit not only the Anmore South neighbourhood but the whole of the communities of both Anmore and Belcarra.
- Explore opportunities with TransLink to establish a community-branded Compass Card for Anmore South with smart card capability to reward transit users with reward points to be redeemed at participating local merchants, and with transit credit added to the card as a reward for shopping purchases.
- Provide subsidized transit passes to new residents of the neighbourhood for a period of two years to encourage transit use, particularly for connection to the regional rapid transit and commuter rail systems at the Moody Centre Station in Port Moody.
- Provide state-of-the-art bus transit shelters at all future bus stops in the Anmore South neighbourhood, all accessed by well-lit sidewalks.

4. TRANSPORTATION DEMAND MANAGEMENT (TDM)

4.1 Definition

Transportation Demand Management (TDM) is defined as the “application of strategies and policies to reduce travel demand (specifically that of single-occupancy private vehicles), or to redistribute this demand in space or in time”⁴. A successful TDM program can influence travel behaviour away from Single Occupant Vehicle (SOV) travel during peak periods towards more sustainable modes such as High Occupancy Vehicle (HOV) travel, transit, cycling or walking. The responsibility for implementation of TDM measures can extend across many groups, including regional and municipal governments, transit agencies, private developers, neighbourhood associations and employers.

4.2 TDM for Anmore South

There is a broad range of TDM measures available to influence travel choice, some which are geared toward encouraging more use of public transit services, others toward encouraging more trips by active travel modes (walking, cycling, rolling), and still others intended to have employers create conditions at the workplace that promote commuting trips other than by private automobile. Underlying all of these different TDM approaches is the need to educate and communicate the community and individual health benefits of reducing our reliance on automobile trips and promote use of more sustainable travel options.

To best manage its own transportation requirements, a key strategy for Anmore South is to create an efficient and effective mobility connection to the regional transit system, namely the Inlet Centre and Moody Centre Stations on the Evergreen Line rapid transit extension and as well the West Coast Express commuter rail station at Moody Centre. The short travel distance/time between these stations and Anmore South is highly compelling and a key to Anmore South strategy to encourage travel by sustainable modes other than private vehicle trips.

4.2.1 Encourage Transit Use

Improvements to transit access and measures to incentivize the use of transit will be at forefront of the TDM strategy for Anmore South and the project will continue to work closely with TransLink to identify partnership opportunities through the TransLink Independent Transit Strategy (ITS) framework. With the intent of achieving a transit mode split target of at least 20%, Anmore South may augment the public transit service with its own shuttle service during peak travel times to add further convenience and reliability for transit-based trips.

⁴ <http://ops.fhwa.dot.gov/tdm/index.htm> FHWA Travel Demand Management home page

4.2.2 Encourage Active Travel (Walking, Cycling, Rolling)

In addition, a substantial array of other TDM measures will be front and centre with the proposed development, including the provision of a shared fleet of bicycles, electric and conventional, to allow future residents, employees, customers and visitors to Anmore South to decrease their reliance on private vehicle use. Facilities for secured long-term resident/employee bike storage and short-stay public bike parking will be provided in abundance throughout the community, together with bike maintenance rooms supplied with repair stands and tools, and bike washing areas will identify Anmore South as a community that embraces cycling.

Active mode (walking, cycling and rolling) connectivity both within the Anmore South community and to adjacent areas of the Village of Anmore will be a key design feature of the project. Sidewalks, trails and protected bike lanes with careful consideration of grades and accessible mobility will extend along roadways and throughout the community to provide enjoyable, safe and convenient routes for all users.

4.2.3 Reduce Reliance on Private Vehicle Use

Vehicle parking supply will also factor as a key element of the Anmore South TDM strategy, with reduced parking rates for both the residential and non-residential uses from what would traditionally be applied for a development in this locational context. The project will seek that balance between providing just enough parking to remove any potential for spillover parking onto area streets but not too much which only serves to encourage private vehicle trips over more sustainable travel modes.

To complement the reduced vehicle parking strategy, a car share program - potentially provided as specific service branded with the Anmore South development - would also serve to support the transit strategy by providing an alternative transportation mode when transit simply is unable to fit the purpose of trip (e.g., large item shopping, longer distance recreational trips, etc.), while still contributing to reducing vehicle ownership and mitigating site traffic impact.

4.2.4 Education - Sustainable Transportation Information

Travel patterns are most pliable when residents move from one location to another. Therefore, site developers/rental companies can play a significant role in changing people's travel behaviours, through marketing materials to potential buyers/renters and through provision of information packages to new residents which stress the attractiveness and ease of alternative travel modes. In marketing materials to potential residents, clear and simple messages such as cost savings and health benefits (within the context of lifestyle choice and urban living), along with practical information about local transit services, walking and cycle routes to key locations, carpooling and car-sharing services, would help attract residents who want to live a car-free lifestyle.

For residents who are moving in, a Transportation Information Package should be provided on move-in day. The package should include:

- A map showing amenities and shopping opportunities within a typical walking/cycling catchment of 800m, including those within the site;
- A map showing local cycling and transit routes with key destinations and travel times by different modes;
- Information about bicycle safety and local bicycle shops and repair facilities;
- Information pertaining to on-site car share provisions, car share membership sign up and procedures;
- Information pertaining to available bicycle and vehicle parking;
- Information on regional rideshare organizations; and
- A list of websites and apps that can aid in the use of alternative transportation such as transit apps.

5. TRAFFIC FORECASTS

5.1 Background Traffic Forecasts

Background traffic is traffic that would be present on the road network if the site did not develop. However, background traffic should be increased to reflect general growth in the area by the expected opening date. For calculation purposes, it is assumed that Anmore South will be fully developed over about a 20-year horizon and that general traffic growth for the area will be in the range of 2% per annum.

Table 4.1 shows the forecasted background traffic on the key roads within the Village of Anmore by the horizon year (2040):

Table 4.1: Forecast Background 2040 Peak Hour Roadway Link Volume

ROADWAY	2017 TWO-WAY PEAK HOUR VOLUMES		2040 TWO-WAY PEAK HOUR VOLUMES*	
	WEEKDAY AM	WEEKDAY PM	WEEKDAY AM	WEEKDAY PM
1 ST Avenue	285	405	450	640
Sunnyside Road	300	320	475	505
East Road	330	390	520	615

(* Growth rate assumed at 2% per annum)

At this level of moderate background traffic growth, the incremental traffic on the area roads would be in the range of 150-250 vehicles per hour (total both directions) during the peak traffic periods of the day. For the peak direction of traffic flow (generally eastbound/southbound during the weekday morning period and westbound/northbound during the weekday afternoon period), the growth in background traffic over this 20-year period would be in the range of 100-175 vehicles per hour, or generally a net increase of 2-3 vehicles per minute.

5.2 Site Traffic

The future vehicle traffic associated with development of the Anmore South lands is referred to as development or site generated traffic.

5.2.1 Existing Travel Characteristics

As noted previously, the existing travel characteristics of residents of the Village of Anmore are predominantly based on the private vehicle which account for approximately 85% of trips, with public transit another 10% of trips and walking/cycling the other 5%.

For the purposes of this preliminary analysis, a generalized vehicle trip rate of 0.40 vehicle trips per dwelling unit has been assumed to be representative of this existing travel mode choice characteristic based on the trip rate data reported in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition) for mid-rise multifamily housing (Land Use Code 221).

The non-residential uses planned for Anmore South could include a community centre of up to 8,000 square feet together with retail shops and services, restaurants and other employment generating space such as office and medical/dental clinics, all geared to be community serving and not intended to draw in significant traffic from outside the area. This may result in some redistribution of existing and potential future traffic away from roads connecting to other existing commercial areas including the Moody Centre area but is not anticipated to add substantial new traffic onto the area road system. For this reason, the predicted trip generation for Anmore South has been based on the traffic associated with the residential component.

With an assumed future residential development of up to 3,500 dwelling units at project completion in 20 years, the site traffic generated by Anmore South, assuming no change to the existing travel mode choice characteristics of this area, would be approximately 1,320 vehicles per hour (combined inbound and outbound trips) during both the weekday morning and weekday afternoon peak hour traffic periods.

5.2.2 Future Travel Characteristics (Reduced Reliance on Private Automobile Trips)

As noted previously in Section 3.2.1, the transportation strategy for Anmore South is focused on reducing the reliance on private automobile trips to be achieved through increased use of transit and other sustainable travel options. With a target of no more than 60-65% private vehicle trips for the community, the private vehicle trip rate for Anmore South would be reduced from the 0.40 trips per dwelling unit figure identified above to become approximately 0.30 trips per dwelling unit.

For the 3,500-dwelling unit Anmore South development, the future vehicle traffic trip generation associated with the project would decrease to approximately 1,000 vehicles per hour of combined inbound and outbound trips during both the weekday morning and afternoon peak traffic periods.

5.3 Surplus Capacity Assessment

As noted previously in Section 2.5, there is currently surplus traffic capacity along 1st Avenue, Sunnyside Road, and East Road within the Village of Anmore. Because the Anmore South development is expected to generate its peak traffic activity during the Weekday AM and PM peak hours, capacity will be assessed only on these time periods. Weekend and seasonal traffic will be analyzed in subsequent transportation analysis, to be conducted later during the development application process.

The key conclusions obtained from this surplus capacity analysis are:

- 1st Avenue can currently accommodate nearly 600 additional vehicles per hour, southbound, during the AM peak hour and nearly 550 additional vehicles per hour, northbound, during the PM peak hour.

- Sunnyside Road can currently accommodate 380 additional vehicles per hour, eastbound, during the AM peak hour although, because of its connection to East Road, spare capacity along this corridor will be reduced to 345 additional vehicles more per hour. During the PM peak period, Sunnyside Road can currently accommodate 345 additional vehicles per hour westbound although, because of its connection to East Road, spare capacity will be reduced to 290 additional vehicles per hour.
- The existing available 290 vehicle per hour (vph) capacity for the weekday afternoon westbound peak direction of traffic flow on East Road translates into the ability to development in the range of 1,500-1,600 dwelling units (mainly multi-family format) for South Anmore assuming that the future residents of the area continue to make travel choices predominantly based on private car usage. This analysis is premised on the following assumptions:
 - Anmore South vehicle trip rate of 0.40 trips per dwelling unit for both the weekday morning and afternoon peak hour traffic periods;
 - Weekday afternoon peak period traffic split of 65% inbound trips (trips returning to home) and 35% outbound trips (trips destined from home out into the community);
 - More than half (70%) of the Anmore South traffic uses East Road as the primary connection to the regional road network.
- Taking into account background traffic growth on the area network, i.e., traffic associated with general growth of the “Tri Cities” area of the Metro Vancouver Region, the 290 vehicle per hour westbound surplus capacity on East Road in the weekday PM peak hour would be reduced to approximately 150-175 vehicles per hour. With background traffic factored into the analysis, the available surplus capacity on East Road would be able to accommodate the development of approximately 950 to 1,000 dwelling units in Anmore South, or just under a third of the envisioned future development size.
- With background traffic layered into the future road capacity analysis, the vehicle use (private automobiles, taxi, car share and ride hail) mode split for Anmore South would need to further decrease to approximately 20-25% of all trips during the peak traffic periods of the day, with transit trips increasing to at least 45% of trips and walking/cycling trips to 30-35% of trips.

5.4 Road Network Improvements – Local Area

Consistent with the “Leading with Nature” philosophy for the project, the Anmore South development will retain Sunnyside Road and 1st Avenue on their existing alignments though upgraded to provide for improved traffic safety (lighting, sidewalks, protected bike lanes).

The new local streets to be constructed within the Anmore South community will be designed to achieve road grades as low as possible to encourage walking and cycling and narrowed to reduce vehicle travel speeds and minimize stormwater runoff.

5.5 Broader Transportation Improvements – Proposed North Shore Working Group

Outside of Anmore and neighbouring Belcarra, all municipalities within the Metro Vancouver Region have been experiencing tremendous growth over the past several years including notably the neighbouring Tri-City municipalities of Port Moody, Coquitlam and Port Coquitlam. This growth has placed considerable operational pressures on existing transportation systems including the area road network. Development in these other municipalities has among other things contributed to increased visitations to Belcarra Regional Park and Buntzen Lake Provincial Park and increased vehicle traffic travelling on roads within the Anmore. And by the same token future development in Anmore will result in increased traffic on the road networks in Port Moody, Coquitlam and beyond.

In response to these anticipated changes, Icona proposes the formation of a Tri-City “North Shore” Transportation Solutions Working Group. This multidisciplinary team will be responsible for devising innovative and sustainable transportation solutions in alignment with TransLink's 2050 Goals, which emphasize convenience, reliability, affordability, safety, comfort, and a carbon-free transit system.

The proposed working group will comprise key stakeholders, including representatives from Belcarra, Anmore, Port Moody, Coquitlam, TransLink, Metro Vancouver, the Province of BC, the Port of Vancouver, the Tri-Cities Chamber of Commerce, Imperial Oil, Gilic Development, and Icona Properties.

Upon establishing a comprehensive Terms of Reference, the working group will collaborate to develop data-driven strategies and present their findings to all stakeholders by Q2, 2024. By taking a proactive approach to transportation planning, the North Shore Transportation Solutions Working Group aims to minimize the impacts of future developments on this sub-regional transportation system and more broadly support a thriving, sustainable region.

6. CONCLUSIONS & RECOMMENDATIONS

6.1 Anmore South Development Traffic

- Icona Properties is proposing a new 60-hectare development, Anmore South, located in the SW corner of the Village of Anmore municipality, to be developed over a 20-year horizon period.
- Anmore South is envisioned to eventually become home for up to potentially 3,500 new households with housing provided largely in the form of medium-density, mid-rise apartment buildings. Locally serving retail shops and services, restaurants, office space and community amenity space is also contemplated.
- With the contemplated residential development and assuming present condition travel mode splits (i.e., 85% automobile based) and without the benefit of TDM measures to reduce private vehicle travel, the Anmore South community would generate an estimated 1,320 vehicles per hour during the weekday morning and afternoon peak hour traffic periods. This 1,320 vph estimate includes both inbound and outbound trips.
- With improved transit use to 25% during peak traffic periods (with a corresponding 20% decrease in automobile-based trips from 85% to 65%, the future vehicle traffic generated by Anmore South would decrease to an estimated 1,000 vehicles per hour of combined inbound and outbound trips.

6.2 Road Network Capacity – Anmore Road Network

- Existing traffic volumes using 1st Avenue are presently relatively modest and is estimated that the roadway can currently accommodate nearly an additional 600 vehicles per hour, southbound, during the AM peak hour (southbound being the peak direction of travel in the morning period on 1st Avenue) and nearly 550 additional vehicles per hour, northbound, during the PM peak hour (northbound being the peak direction of travel on this street in the afternoon).
- Similarly, the Sunnyside Road/East Road corridor can accommodate an additional 345 vehicles per hour, eastbound, during the AM peak hour and 290 additional vehicles per hour, westbound, during the PM peak hour. This weekday afternoon westbound traffic condition for East Road is the primary limiting factor in terms of road network capacity within the Village of Anmore.
- Assuming a moderate 2% annual increase in background traffic flow through the Village of Anmore over the next twenty years, e.g., increased visitations to the Belcarra Park and Buntzen Lake Park and/or other development in Anmore or Belcarra, the available surplus capacity for the afternoon period westbound East Road decreases from 290 vehicles per hour presently to approximately 150 to 175 vehicles per hour in about 20 years.

- Allowing for this assumed growth in area background traffic, the longer-term vehicle trips generated by the 3,300-dwelling unit Anmore South development will need to be reduced to approximately 25% of total trips (down from the present 85%) with corresponding increases in transit use and cycling trips and walking trips for access to the commercial shops and services in the community.
- To achieve this aggressively low automobile trip mode split will require an exceptionally strong and effective Transportation Demand Management (TDM) strategy for the community.

6.3 Transportation Demand Management (TDM)

- There is a broad range of TDM measures available to influence travel choice, some which are geared toward encouraging more use of public transit services, others toward encouraging more trips by active travel modes (walking, cycling, rolling), and still others intended to have employers create conditions at the workplace that promote commuting trips other than by private automobile. Underlying all of these different TDM approaches is the need to educate and communicate the community and individual health benefits of reducing our reliance on automobile trips.

6.3.1 Encourage Transit Use

- Improvements to transit access and measures to incentivize the use of transit will be at forefront of the TDM strategy for Anmore South and the project will continue to work closely with TransLink to identify partnership opportunities through the TransLink Independent Transit Strategy (ITS) framework. With the intent of achieving a transit mode split target of at least 20% and potentially up to 45% over the longer term, Anmore South will likely need to augment the public transit service with its own shuttle service during peak travel times to add further convenience and reliability for transit-based trips.

6.3.2 Encourage Active Travel (Walking, Cycling, Rolling)

- In addition, a substantial array of other TDM measures will be front and centre with the proposed development, including the provision of a shared fleet of bicycles, electric and conventional, to allow future residents, employees, customers and visitors to Anmore South to decrease their reliance on private vehicle use. Facilities for secured long-term resident/employee bike storage and short-stay public bike parking will be provided in abundance throughout the community, together with bike maintenance rooms supplied with repair stands and tools, and bike washing areas will identify Anmore South as a community that embraces cycling.
- Active mode (walking, cycling and rolling) connectivity both within the Anmore South community and to adjacent areas of the Village of Anmore will be a key design feature of the project. Sidewalks, trails and protected bike lanes with careful consideration of grades and accessible mobility will extend along roadways and throughout the community to provide enjoyable, safe and convenient routes for all users.

6.3.3 Reduce Reliance on Private Vehicle Use

- Vehicle parking supply will also factor as a key element of the Anmore South TDM strategy, with reduced parking rates for both the residential and non-residential uses from what would traditionally be applied for a development in this locational context. The project will seek that balance between providing just enough parking to remove any potential for spillover parking onto area streets but not too much which only serves to encourage private vehicle trips over more sustainable travel modes.
- To complement the reduced vehicle parking strategy, a car share program - potentially provided as specific service branded with the Anmore South development - would also serve to support the transit strategy by providing an alternative transportation mode when transit simply is unable to fit the purpose of trip (e.g., large item shopping, longer distance recreational trips, etc.), while still contributing to reducing vehicle ownership and mitigating site traffic impact.

6.3.4 Education - Sustainable Transportation Information

- Travel patterns are most pliable when residents move from one location to another. Site developers can therefore be instrumental in changing people's travel behaviours, through the distribution of marketing materials to potential buyers/renters and through provision of information packages to new residents which stress the attractiveness and ease of alternative travel modes. In marketing materials to potential residents, clear and simple messages such as cost savings and health benefits (within the context of lifestyle choice and urban living), along with practical information about local transit services, walking and cycle routes to key locations, carpooling and car-sharing services, would help attract residents who want to live a car-lite lifestyle.

6.4 Proposed Tri-Cities "North Shore" Transportation Solutions Working Group

- Increasing development growth across the Metro Region including the Tri-Cities is contributing directly to significant operational pressures on transportation systems in Port Moody, Coquitlam and Port Coquitlam, and indirectly to traffic capacity issues in Anmore with increased visitations to area parks.
- Future development of the Anmore South community will similarly have impact on the transportation systems of these neighbouring municipalities as will future development and/or reactivation of industrial activity on the Imperial Oil Industrial Lands, the Burrard Thermal Industrial Lands.
- In response to these anticipated changes, Icona proposes the formation of a Tri-City "North Shore" Transportation Solutions Working Group. This multidisciplinary team would comprise key stakeholders including representatives from Belcarra, Anmore, Port Moody, Coquitlam, TransLink, Metro Vancouver, the Province of BC, the Port of Vancouver, the Tri-Cities Chamber of Commerce, Imperial Oil, Gilic Development, and Icona Properties. The group would be tasked with identifying innovative and sustainable transportation solutions in alignment with TransLink's 2050 Goals, which emphasize convenience, reliability, affordability, safety, comfort, and a carbon-free transit system.

- Upon establishing a comprehensive Terms of Reference, the working group will collaborate to develop data-driven strategies and present their findings to all stakeholders by Q2, 2024. By taking a proactive approach to transportation planning, the North Shore Transportation Solutions Working Group aims to minimize the impacts of future developments on this sub-regional transportation system and more broadly support a thriving, sustainable region.

* * * * *

APPENDIX J: Fiscal Impact Analysis



ISCAL IMPACT ANALYSIS PROPOSED ANMORE SOUTH DEVELOPMENT

Fiscal Impact of Proposed Anmore South Development

NOVEMBER 2021

Prepared by:

VANN STRUTH CONSULTING GROUP INC.

For:

icona Properties

TABLE OF CONTENTS

Executive Summary	iii
1 Introduction	1
Approach	1
Project Overview	1
Report Structure	2
2 Revenue Impacts	3
Municipal Taxes (Including Fixed Asset Levy)	3
Grants in Lieu	4
Provincial Small Community Grant	4
Penalties & Interest	4
Business Licenses	4
Dog License Fees	5
Miscellaneous Income	5
Other Comments	5
3 Cost Impacts	6
General Government	7
Public Works for Existing Built Area	8
Public Works for New Infrastructure	8
Fiscal Services	8
Solid Waste	8
Police Service Costs	8
Fire Service Costs	9
Lifecycle Costs of New Infrastructure	9
Cost Factors Not Included in the Analysis	10
4 Net Fiscal Impact	11
Appendix: Detailed Assumptions	12

EXECUTIVE SUMMARY

This report summarizes the projected fiscal impact of the proposed Anmore South development on the Village of Anmore. The analysis is based on a similar approach used in the Village's 2013 Financial Sustainability Plan, which was also prepared by Vann Struth Consulting Group.

The analysis compares two alternative scenarios: (1) **Anmore's current financial situation**, based on the 2021 budget as outlined in the Village's draft Five-Year Financial Plan for 2021 to 2025; and (2) An alternative scenario that imagines that **Anmore South is fully built** today.

This approach means that all current tax and fee rates, grant funding formulas, and other revenue and cost ratios are in effect, unless otherwise noted. It allows for a simple and straightforward comparison of Village of Anmore finances with and without Anmore South by eliminating the uncertainty of the timing of development, cost inflation over time, changing Village priorities, and initiatives and other developments that are unrelated to Anmore South.

TABLE I - NET FISCAL IMPACT OF ANMORE SOUTH

COST ITEM	2021 FINANCIAL PLAN	WITH ANMORE SOUTH	NET IMPACT OF ANMORE SOUTH
TOTAL REVENUE	\$3,724,834	\$8,006,794	\$4,281,960
TOTAL VILLAGE OF ANMORE COSTS	\$2,427,074	\$4,709,714	\$2,282,640
Net	\$1,297,760	\$3,297,079	\$1,999,319
Fire Service Costs (Operation + Capital Amortization)	\$368,701	\$1,666,890	\$1,298,189
Net (Including Fire Service Costs)	\$929,059	\$1,630,190	\$701,131

As shown in the table above, the net impact on Village finances from Anmore South is significantly positive. Revenues are projected to increase by \$4.3 million, which is more than double their current level, while Village costs increase by \$2.3 million. **This creates a net improvement of \$2 million per year in Village finances.**

While not a Village responsibility, costs for the regional Sasamat Fire Department (SFD) are projected to increase fourfold, which reduces the net benefit to Village taxpayers (who support the SFD through regional district taxes) to a still significant \$700,000 per year. This is equivalent to a nearly 30% increase in municipal property taxes! These funds expand the financial options open to the Village, ranging from the creation of new or improved services to accelerating the renewal of Village infrastructure to reducing taxes.

This analysis includes both annual operating cost increases for the Village as well as the annual lifecycle costs for new infrastructure. It does not include any impacts from a proposed recreation centre at Anmore South (details of which are still under development and may include tools to eliminate any net financial impact on the Village). It is also assumed that off-site water and sewer infrastructure, such as new trunk lines connecting to the regional system, will not be owned by the Village and will not affect Village finances.

1 INTRODUCTION

This report summarizes an analysis of the fiscal impact of the proposed Anmore South development on the Village of Anmore.

The analysis is designed to test the financial feasibility of the project from the Village perspective and is based on a similar approach used in Anmore's 2013 Financial Sustainability Plan, also prepared by Vann Struth Consulting Group.

Approach

The analysis compares two alternative scenarios:

- First is **Anmore's current financial situation**, based on the 2021 budget as outlined in the Village's draft Five-Year Financial Plan for 2021 to 2025.¹
- Second is an alternative scenario that imagines that **Anmore South is fully built** today. This means that all current tax and fee rates, grant funding formulas, and other revenue and cost ratios are in effect, unless otherwise noted. In some cases, new revenue and cost items or modified versions of current rates or formulas are introduced to the analysis based on the scale of the Anmore South development.

This approach allows for a simple and straightforward comparison of Village of Anmore finances with and without Anmore South. It eliminates the uncertainty of the timing of development, cost inflation over time, changing Village priorities and initiatives that are unrelated to Anmore South, and the impact of other development elsewhere in the community.

The analysis was prepared based on project information provided by the landowners, icona Properties and their team of consultants. Village of Anmore staff provided select financial information on request and guidance on several topics and additional information was sourced from the Province of BC and by researching the example of other Metro Vancouver municipalities.

Project Overview

Specific assumptions and data sources required for each type of analysis are specified in each section of the report. An overview of the planned development is shown in TABLE 1.

The total developed area is expected to be 4 million square feet (SF). Most development is residential, except for 100,000 SF of ground floor commercial uses (which may include retail shops, restaurant, brewery, farmers markets, or various support services) and a recreation centre that is still in the planning stage.

¹ The draft Five Year Financial Plan was included in the February 1, 2021 Finance Committee agenda package. Using the draft Five Year Financial Plan as the baseline document for the analysis was the recommended approach by Village staff in a previous version of this study in 2019.

The composition of the development as outlined below is preliminary.

TABLE 1. ANMORE SOUTH DEVELOPMENT OVERVIEW

	COMMERCIAL	RESIDENTIAL	RECREATION CENTRE
Gross Developed Floor Area (square feet)		----- 4 million SF -----	
.... less Common Area Factor (hallways, entryways, mechanical rooms, other common areas)		----- 15% -----	
Net Floor Area	100,000 SF	3.3 million SF	To be determined
...Apartment Units Ranging from 1 to 3 bedrooms (average size of 950 SF)		~ 3,100 units (3.0 million SF)	
...Townhouse Units (average size of 2,000 SF)		~ 160 units (300,000 SF)	
...Ground Floor Non-Residential	100,000 SF		25,000 SF (assumed for analysis)

Report Structure

The key assumptions underlying Village revenue calculations are shown in Section 2 and key assumptions underlying Village cost calculations are shown in Section 3.

Section 4 provides a summary of the net fiscal impact on the Village while detailed revenue and cost assumptions can be found in the Appendix.

2 REVENUE IMPACTS

The Village of Anmore's draft 2021-2025 Financial Plan listed more than 20 separate revenue sources (some of which are expected to provide no revenue in 2021). The revenue sources that are impacted by the Anmore South development are highlighted in Table 2.

Estimated Village revenue if Anmore South were built today is about \$8 million, representing a more than 100% increase from the current \$3.7 million. Based only on municipal property taxes (including the Fixed Asset Levy that is used to support long-term infrastructure renewal), revenue would increase from \$2.4 million to \$6.1 million.

Details on the assumptions underlying each revenue calculation are provided beneath the table.

TABLE 2. SUMMARY OF NET REVENUE IMPACTS FROM ANMORE SOUTH

REVENUE ITEM	2021 FINANCIAL PLAN	WITH ANMORE SOUTH	NET IMPACT OF ANMORE SOUTH
MUNICIPAL TAXES (including FIXED ASSET LEVY)	\$2,445,754	\$6,096,348	\$3,650,594
GRANTS IN LIEU	\$116,080	\$623,672	\$507,592
SMALL COMMUNITY GRANT	\$350,000	\$417,901	\$67,901
PENALTIES & INTEREST	\$20,000	\$63,728	\$43,728
BUSINESS LICENCE FEES	\$16,320	\$63,720	\$47,400
DOG LICENCE FEES	\$2,500	\$12,380	\$9,880
MISCELLANEOUS INCOME	\$15,000	\$31,465	\$16,465
Other items unaffected by Anmore South	\$697,580	\$697,580	\$0
TOTAL REVENUE (Excluding amortization of capital assets)	\$3,724,834	\$8,006,794	\$4,281,960

Municipal Taxes (Including Fixed Asset Levy)

Based on the estimated value of new residential and commercial properties once Anmore South is fully built², the estimated increase in municipal property tax revenue is \$3.65 million per year.

Anmore's 2021 municipal tax rate for both residential and business properties, including the Fixed Asset Levy, is \$1.5315 per \$1,000 of assessed value. With new commercial development at Anmore South, the Village may consider increasing its business tax rate in the future, but to be conservative in this analysis, the business tax rate is maintained at the same level as the residential rate.

² Estimated assessed values are based on a preliminary hedonic pricing analysis using unit values from a sample of comparable townhouse, apartment and commercial developments in neighbouring Port Moody and Coquitlam.

Grants in Lieu

Grants in lieu are paid to the Village by utility and telecom companies based on 1% of their gross revenue from Anmore accounts. Given that Anmore South apartment units will be smaller, on average, than Anmore's current stock of single-family homes, the per-unit revenue for apartments is assumed to be only 75% as large as the current per-unit revenue.

Future grants in lieu are calculated on the basis of this smaller per-unit value and the revenue increase is about \$624,000 per year.

Provincial Small Community Grant

The BC government provides a Small Community Grant to smaller municipalities based on a formula that includes population and average assessed values. The formula includes the following elements:

- Base amount of \$200,000
- \$50 per resident (based on a three-year rolling average from BC Stats annual population estimates), up to a population of 5,000
- Reduction of \$25 per resident for population higher than 5,000
- Additional \$50,000 that is adjusted higher or lower based on the municipality's average property assessment per capita (also calculated based on a three-year rolling average). Municipalities with per capita assessment higher than the Provincial average, such as Anmore, have this portion of their grant reduced.

The population part of Anmore's grant will increase as the community's population grows to 5,000 and then declines gradually after 5,000. Anmore South will house an estimated 5,800 people, increasing the Village's population to about 8,200. The net effect from the population calculation is a significant increase in Anmore's grant.

The assessment part of the calculation also creates an increase. Per capita assessment from Anmore South properties will be significantly lower than the current situation (Anmore's current per capita assessment is about 85% higher than the BC average). This will create a modest increase in the assessment portion of the Small Community Grant calculation.

Taken together, Anmore's Small Community Grant is estimated to increase from the current \$350,000 to \$418,000, representing a net increase from Anmore South of \$68,000 per year.

Penalties & Interest

Penalties and interest revenue is received by the Village from delinquent taxes and fees. This is assumed to grow in proportion to households, but at only half the rate (because taxes owing on lower-value apartment units will generate lower penalty and interest charges). The projected impact is an additional \$16,000 per year.

Business Licenses

The calculation of business license revenue requires assumptions about population and new businesses. It is estimated that about 5,800 people will live in Anmore South and there will be an estimated 315 businesses, most of which will be home-based. This is based on an average unit size of 5,000 SF for

ground floor commercial units (supporting 20 businesses) and approximately 300 home-based businesses.

The home-based business count is based on the rate of home-based employment in Port Moody from the 2016 Census (which is the best comparable to Anmore given its high share of apartment development). Half of home-based employment is assumed to be an independent business (the other half are home-based workers for a business located elsewhere). The 2016 rate is also increased by 25% to account for likely COVID-influenced changes in home-based employment patterns going forward.

The current default business license fee in Anmore is \$110, with several identified categories ranging up to \$400. Most retail and service businesses that would locate at Anmore South are not contemplated in the current Business License schedule, but some are likely to generate a charge greater than the default.

For purposes of this analysis, the average business license cost is set at \$150. This yields an estimated increase in business license revenue of \$47,000 per year.

Dog License Fees

Historic Vancouver data (from 2006) suggests that the number of licensed dogs is equal to 11% of households. This is different than the actual rate of dog ownership, which is higher.

For Anmore, it is assumed that 10% of new households will have licensed dogs and the average license fee is \$30. This creates a net revenue impact of about \$10,000 per year.

Miscellaneous Income

Various administrative fees are charged for record searches, printed copies of reports and address changes. They are assumed to generate \$5 per capita for new residents of Anmore South and the net impact is about \$29,000 per year.

Other Comments

All other revenue items are assumed to be unaffected by Anmore South. This includes solid waste services, which are assumed to be fully self-funded by on-site residents, either directly through a private service or through an arrangement with the Village. In either case the net financial impact on the Village is assumed to be \$0.

The analysis does not include one-time Village revenues from development and construction due to them not occurring only once while the focus of the analysis is the long-term balance between Village revenues and costs.

Total revenues are shown excluding amortization. This is included in the Village's financial statements to reflect the current value that is received from existing capital assets and is offset by an equivalent amortization cost. It is simply an accounting figure that does not represent actual revenue and is excluded from the calculations in this report (although amortization costs of newly built infrastructure are included in the cost analysis in Section 3 as they are a real cost increase for the Village).

3 COST IMPACTS

The Anmore Financial Plan contains about 120 individual cost items. Some Village costs will be directly affected by Anmore South while others will be affected only in a minor way or not at all.

The estimation of Village costs with Anmore South is based on assigning each cost item to one of the following categories:

- No impact – Anmore South is not expected to have any impact on Village costs.
- Indirect impact – These are items that not directly affected by Anmore South, but are indirectly affected by the growth of population and households in the community. These costs are projected to increase with the number of households or population, but only at 10% of the current per-household or per-capita rate.
- Proportional impact – Certain other costs are assumed to increase in proportion to the number of households or population, but usually at a lower per-household or per capita rate. For example, a current cost that is \$100 per household might be assumed to apply to Anmore South at 50% the per-household rate, or \$50 for each new household. The reason for lower rates for Anmore South is that many costs have a fixed component that is unaffected by growth, but also because apartment and townhouse units are smaller, lower-value, and typically with lower demands for supporting infrastructure and services compared to Anmore’s current development, which is characterized by large single-family homes on large lots.
- Specialized impact – Some costs require a special analysis, the details of which are explained in the corresponding section throughout the report.

Table 3 on the next page provides a summary of the Anmore South cost impacts by category, followed by a discussion of the major assumptions underlying the cost analysis. A more detailed list of all individual cost items is in the appendix.

TABLE 3. SUMMARY OF NET COST IMPACTS FROM ANMORE SOUTH

COST ITEM	2021 FINANCIAL PLAN	WITH ANMORE SOUTH	NET IMPACT OF ANMORE SOUTH
GENERAL GOVERNMENT - COUNCIL	\$167,320	\$204,964	\$37,644
GENERAL GOVERNMENT - CAO	\$272,624	\$272,624	\$0
GENERAL GOVERNMENT - SUPPORT SERVICES	\$170,100	\$244,481	\$74,381
GENERAL GOVERNMENT - EVENTS	\$26,560	\$32,918	\$6,358
GENERAL GOVERNMENT - HR	\$6,390	\$8,744	\$2,354
GENERAL GOVERNMENT - MUNICIPAL HALL	\$201,440	\$289,525	\$88,085
GENERAL GOVERNMENT - LEGISLATIVE SERVICES (includes \$6,000 in extra costs for 2021 to represent the average annual cost of an election)	\$143,010	\$204,627	\$61,617
GENERAL GOVERNMENT - FINANCE & IT	\$248,020	\$355,722	\$107,702
GENERAL GOVERNMENT - PLANNING & DEV.	\$136,010	\$194,618	\$58,608
GENERAL GOVERNMENT - BUILDING & BYLAWS	\$240,550	\$345,121	\$104,571
PUBLIC WORKS	\$238,550	\$295,656	\$57,106
PUBLIC WORKS - YARD	\$15,300	\$18,963	\$3,663
PUBLIC WORKS - VEHICLES & EQUIPMENT	-\$28,900	-\$5,919	\$22,981
PUBLIC WORKS - LRN ROADS	\$84,900	\$105,224	\$20,324
PUBLIC WORKS - DRAINAGE	\$13,500	\$16,732	\$3,232
PUBLIC WORKS - PARKS & TRAILS	\$51,500	\$63,828	\$12,328
NEW PUBLIC WORKS COSTS - OFF-SITE	\$0	\$0	\$0
NEW PUBLIC WORKS COSTS - ON-SITE	\$0	\$161,782	\$161,782
PUBLIC WORKS - MRN ROADS	\$253,000	\$253,000	\$0
FISCAL SERVICES (not including amortization)	\$2,700	\$3,881	\$1,181
SOLID WASTE	\$184,500	\$184,500	\$0
Police Service Costs	\$0	\$742,025	\$742,025
ANNUAL LIFECYCLE COSTS FOR NEW INFRASTRUCTURE	-	\$716,700	\$716,700
TOTAL COSTS (Including amortization of new infrastructure only)	\$2,427,074	\$4,709,714	\$2,282,640
Fire Service (Annual Operating paid by Anmore residents)	\$368,701	\$1,566,890	\$1,198,189
Annual Lifecycle Costs of New Fire Service Assets (Anmore share)	\$0	\$100,000	\$100,000
TOTAL COSTS (with Fire Service)	\$2,795,775	\$6,376,604	\$3,580,829

General Government

Table 4 shows 10 separate General Government categories that cover about two-thirds of all cost items in the Financial Plan. Most of these individual cost items are either unaffected by Anmore South or are only indirectly affected (see the Appendix for the specific assumption for each cost item). The cumulative cost increase across all General Government categories is 34%, or about \$540,000.

Public Works for Existing Built Area

The impact of Anmore South on public works costs relating to Anmore's existing infrastructure and facilities is indirect. There will be additional usage of roads, trails and public facilities and consequently a marginal increase in operating and maintenance costs, based on 10% of the current per capita rate.

No additional costs are associated with extra maintenance of Anmore's regional Major Road Network roads, which would be offset by an equivalent increase in the TransLink grant for maintenance.

Public Works for New Infrastructure

There is a modest increase for annual maintenance costs for new infrastructure constructed onsite (roads, multi-use paths and underground water and sewer pipes). This is based on the estimated increase in the length of roads and underground servicing of about 16% relative to the length of Anmore's current infrastructure.³

Costs related to off-site infrastructure (primarily water and sanitary mains) are not included in this analysis as they are assumed to be regional assets and will not affect the Village budget. This includes a **likely benefit to the Village's Water Utility budget** by mitigating the need for Anmore to purchase water from the City of Port Moody.

Fiscal Services

The Fiscal Services category includes minor costs for bank charges (that are assumed to increase with more households), as well as the amortization of current capital assets that is balance by identical amortization revenue and is not shown in this analysis.

Solid Waste

There is assumed to be no change to the Village's Solid Waste costs. As noted under the Revenue section, solid waste services are assumed to be fully self-funded by Anmore South residents, either directly through a private service or through an arrangement with the Village. In either case the net financial impact on the Village is assumed to be \$0.

Police Service Costs

As a municipality with a population under 5,000, policing in Anmore is currently provided by the RCMP and funded by the federal government. The Anmore South development will cause Anmore's population to exceed 5,000, which means the municipality will become responsible for paying 70% of its policing costs.

Current policing costs (not paid by the Village) are just under \$250,000 per year. This represents about \$104 per capita. With Anmore South, policing costs are assumed to increase in proportion to population, plus an extra 25% is added to the per capita cost to recognize the addition of

³ To be exact, the Ministry of Municipal Affairs and Housing reports that Anmore has 20 km of roads and 23 km of underground servicing. The length of both road and underground pipes on Anmore South is an estimated 3.5 km, representing an 18% increase in Anmore's total road length and a 15% increase in the total length of underground servicing.

commercial areas to Anmore that may require additional police resources (for investigating theft, vandalism, etc.). The revised per capita cost for purposes of estimating future costs is set at \$129, of which 70% is the responsibility of the Village (or \$91 per capita).

With a total population of 8,200 with Anmore South, the Village's policing costs will be an estimated \$742,000 per year.

Fire Service Costs

Fire service in Anmore is provided by the volunteer Sasamat Fire Department (SFD), which is a Metro Vancouver service shared between Anmore and Belcarra and funded through the regional district property tax. Costs are shared between Anmore and Belcarra taxpayers based on each municipality's share of total property assessment (which is 70% Anmore/30% Belcarra in 2021).

SFD's total budget in 2021 is about \$524,000 and Anmore taxpayers cover 70% of this cost, or \$369,000. This is about \$153 per capita for Anmore residents.

To account for staffing, training and capital spending increases that are required to provide fire service to the higher buildings at Anmore South, Anmore's per capita cost is assumed to increase by 25%, to \$191 per capita.

Estimated fire service costs borne by Anmore taxpayers with the addition of Anmore South is \$1,567,000, representing an increase of \$1.2 million per year. This cost is not part of Village finances but is funded through the property tax and represents taxing room that is not available to the Village.

Lifecycle Costs of New Infrastructure

Any new local government infrastructure that is built for Anmore South creates a responsibility for maintaining and eventually replacing the asset. This is reflected in the current budget by estimating the "average annual lifecycle cost" of each new capital asset, which includes the estimated replacement cost of the asset, plus any significant maintenance or refurbishment costs that are anticipated (not including regular operating and maintenance costs that are reflected elsewhere in the operating budget), all divided by the expected useful life of the asset.

These calculations for each new local government capital asset at Anmore South are shown in Table 4. Note the replacement cost for some assets is set at a lower level than the initial capital cost – this reflects the fact that rebuilding a road is less expensive than building the road initially, for example.

The "extra maintenance cost" for roads is for a major resurfacing at some point during the road's total useful life. The estimated useful life for each asset is based on Anmore's current schedule for depreciating tangible capital assets.

The table also includes estimated capital costs for the Sasamat Fire Department. The \$1 million in capital costs is a broad estimate that includes a new fire truck as well as additional equipment purchases. It is depreciated over a relatively short timeframe of 10 years. Even though these costs are not part of the Village budget, it is assumed that because they are created by Anmore South development that they will be recovered from Anmore taxpayers through the regional district tax.

TABLE 4. AMORTIZATION CALCULATIONS FOR NEW CAPITAL ASSETS (CURRENT DOLLARS)

NEW CAPITAL ASSET	LENGTH (M)	COST PER METRE	INITIAL CAPITAL COST	REPLACE-MENT COST RATIO	REPLACE-MENT COST	EXTRA MAIN-TENANCE COST	TOTAL LIFECYCLE COST	USEFUL LIFE (YEARS)	AVERAGE ANNUAL LIFECYCLE COST
Roads	3,500	\$4,500	\$15,750,000	30%	\$4,725,000	\$1,260,000	\$5,985,000	30	\$199,500
Underground servicing	3,500	\$5,400	\$18,900,000	100%	\$18,900,000		\$18,900,000	50	\$378,000
Multi-Use Paths	3,000	\$1,500	\$4,500,000	50%	\$2,250,000	\$540,000	\$2,790,000	30	\$93,000
Trails (Basic)	6,000	\$200	\$1,200,000	75%	\$900,000	\$24,000	\$924,000	20	\$46,200
Total (Village Only)			\$40,350,000		\$26,775,000	\$1,824,000	\$28,599,000		\$716,700
Fire Department Equipment			\$1,000,000	100%	\$1,000,000		\$1,000,000	10	\$100,000
Total (including Fire)			\$41,350,000		\$27,775,000		\$29,599,000		\$816,700

The calculations in Table 4 show that the average annual lifecycle cost for new capital assets at Anmore South is an estimated \$717,000 for Village assets and an extra \$100,000 per year for fire service equipment (not part of the Village budget).

Cost Factors Not Included in the Analysis

Several possible costs are not included in the analysis:

- **Recreation centre.** A public recreation centre is part of the preliminary development plans that would serve Anmore South residents and the entire Anmore community. The details of the recreation centre are still under development, including the financial structure. Options are being explored to ensure there is no net financial impact on the Village or existing taxpayers, such as through a parcel tax.
- **Off-site water and sewer infrastructure.** As noted earlier in the discussion, major water and sewer trunk lines that would connect to the regional system are assumed to be a regional asset and will not affect Village finances. The analysis also does not include the potential ancillary benefit of lower water costs for Anmore by eliminating the need to purchase water from the City of Port Moody.

4 NET FISCAL IMPACT

TABLE 5. NET FISCAL IMPACT OF ANMORE SOUTH

COST ITEM	2021 FINANCIAL PLAN	WITH ANMORE SOUTH	NET IMPACT OF ANMORE SOUTH
TOTAL REVENUE			
(Excluding amortization of capital assets)	\$3,724,834	\$8,006,794	\$4,281,960
TOTAL VILLAGE OF ANMORE COSTS			
(Including amortization of new infrastructure only)	\$2,427,074	\$4,709,714	\$2,282,640
Net	\$1,297,760	\$3,297,079	\$1,999,319
Less Fire Service Costs (Operation + Capital Amortization)	\$368,701	\$1,666,890	\$1,298,189
Net (Including Fire Service Costs)	\$929,059	\$1,630,190	\$701,131

The Village of Anmore in 2021 has a surplus of revenue over costs of about \$1.3 million, which is generally equivalent to the amount transferred to reserve accounts. Most of this (\$1,145,000) is a transfer to the Capital Reserve Fund and is funded directly by the Fixed Asset Levy (which is a portion of municipal property tax that has been dedicated to addressing Anmore's long-term infrastructure deficit).

Fire service costs are not part of the Village budget but represent an additional cost for local taxpayers and replace potential taxing room for the Village. Including fire service costs in the analysis creates a **net fiscal benefit of \$700,000 per year from Anmore South.**

Acknowledging the many uncertainties that affect this type of analysis, the large margin of \$700,000 between the estimated revenue increase and the estimated cost increase should provide a high degree of confidence that the net impact of Anmore South is positive for the Village of Anmore.

APPENDIX: DETAILED ASSUMPTIONS

TABLE 6. DETAILED SUMMARY OF ANMORE SOUTH FISCAL IMPACT ANALYSIS

	2021 FINANCIAL PLAN	WITH ANMORE SOUTH	NET IMPACT OF ANMORE SOUTH	NOTE
REVENUE				
+ GENERAL MUNICIPAL TAXES	\$1,300,854			
+ FIXED ASSET LEVY	\$1,144,900			
GENERAL MUNICIPAL TAXES + FIXED ASSET LEVY	\$2,445,754	\$6,096,348	\$3,650,594	Based on proposed development plan and assessed value assumptions, with current residential and business tax rates held constant.
GRANTS IN LIEU	\$116,080	\$623,672	\$507,592	Per household at 100% of current per-household rate
PROVINCIAL GRANTS	\$350,000	\$417,901	\$67,901	Based on Provincial formula - grant amount increases until population crosses 5,000 before declining gradually - grant is also adjusted based on per capita assessment, which will decline in Anmore with Anmore South due to lower average assessed values of new units
GVTA MRN MAINTENANCE GRANT	\$253,000	\$253,000	\$0	No impact
OTHER GOVERNMENT GRANTS	\$0	\$0	\$0	No impact
PENALTIES & INTEREST	\$20,000	\$63,728	\$43,728	Per household at 50% of current per-household rate
REVENUE FROM COMMUNITY EVENTS	\$0	\$0	\$0	No impact
INCOME ON INVESTMENTS	\$135,000	\$135,000	\$0	No impact
SCHOOL TAX ADMINISTRATION FEE	\$4,560	\$4,560	\$0	No impact
BUILDING PERMIT FEES	\$83,240	\$83,240	\$0	No impact
SUBDIVISION FEE	\$10,200	\$10,200	\$0	No impact
DEVELOPER RECOVERABLE FEE	\$0	\$0	\$0	No impact
REZONING APPLICATION FEE	\$0	\$0	\$0	No impact
DEVELOPMENT VARIANCE FEE	\$0	\$0	\$0	No impact
DRIVEWAY ACCESS FEE	\$0	\$0	\$0	No impact
FIRE PERMIT FEE	\$1,000	\$1,000	\$0	No impact
BUSINESS LICENCE FEES	\$16,320	\$63,720	\$47,400	fill
MISCELLANEOUS DEVELOPMENT FEES	\$0	\$0	\$0	No impact
DOG LICENCE FEES	\$2,500	\$12,380	\$9,880	fill
FILMING PERMITS	\$0	\$0	\$0	No impact

	2021 FINANCIAL PLAN	WITH ANMORE SOUTH	NET IMPACT OF ANMORE SOUTH	NOTE
SOLID WASTE USER FEES	\$210,580	\$210,580	\$0	Assume that solid waste collection for Anmore South will be done through private contract or an alternative that is cost-neutral for the Village and applies the costs only to Anmore South residents and businesses.
SOLID WASTE CONTAINER FEE	\$0	\$0	\$0	No impact
SCHOOL SEWER COST RECOVERY	\$0	\$0	\$0	No impact
MISCELLANEOUS INCOME	\$15,000	\$31,465	\$16,465	Assume \$5 per new household (current average is \$6.80 per household).
MUNICIPAL TICKETS	\$0	\$0	\$0	No impact
TOTAL REVENUE (Not including current amortization)	\$3,724,834	\$8,006,794	\$4,281,960	

COSTS

GENERAL GOVERNMENT - COUNCIL	\$167,320	\$204,964	\$37,644	
REMUNERATION	\$138,290	\$171,395	\$33,105	Per capita at 10% of current per capita rate
CONVENTIONS	\$12,730	\$12,730	\$0	No impact
DUES & SUBSCRIPTIONS	\$2,660	\$2,660	\$0	No impact
MISC. TRAVEL	\$0	\$0	\$0	No impact
VOLUNTEER APPRECIATION	\$2,090	\$4,592	\$2,502	Per capita at 50% of current per capita rate
DR. HAL WEINBERG SCHOLARSHIP	\$1,000	\$1,000	\$0	No impact
COMMUNITY GRANTS	\$7,000	\$8,676	\$1,676	Per capita at 10% of current per capita rate
COUNCIL MEETINGS	\$2,040	\$2,040	\$0	No impact
ADVISORY COMMITTEE MEETINGS	\$510	\$632	\$122	Per capita at 10% of current per capita rate
YOUTH COMMITTEE	\$1,000	\$1,239	\$239	Per capita at 10% of current per capita rate
MISCELLANEOUS	\$0	\$0	\$0	No impact
GENERAL GOVERNMENT - CAO	\$272,624	\$272,624	\$0	
SALARIES & BENEFITS	\$261,134	\$261,134	\$0	No impact
CONSULTING	\$5,210	\$5,210	\$0	No impact
CONVENTIONS	\$4,590	\$4,590	\$0	No impact
DUES & SUBSCRIPTIONS	\$1,690	\$1,690	\$0	No impact
MISC. TRAVEL	\$0	\$0	\$0	No impact
MISCELLANEOUS	\$0	\$0	\$0	No impact
EMPLOYEE ON CALL	\$0	\$0	\$0	No impact
EMPLOYEE OVERTIME	\$0	\$0	\$0	No impact
EMPLOYEE BENEFITS	\$0	\$0	\$0	No impact
GENERAL GOVERNMENT - SUPPORT SERVICES	\$170,100	\$244,481	\$74,381	
ENVIRONMENTAL CONSULTANT	\$10,000	\$14,373	\$4,373	Per household at 10% of current per-household rate
ENGINEERING CONSULTANT	\$79,600	\$114,407	\$34,807	Per household at 10% of current per-household rate

	2021 FINANCIAL PLAN	WITH ANMORE SOUTH	NET IMPACT OF ANMORE SOUTH	NOTE
FINANCE CONSULTANT	\$45,000	\$64,678	\$19,678	Per household at 10% of current per-household rate
COMMUNICATIONS CONSULTANT	\$35,500	\$51,023	\$15,523	Per household at 10% of current per-household rate
SCHOOL SEWER COST	\$0	\$0	\$0	No impact
GENERAL GOVERNMENT - EVENTS	\$26,560	\$32,918	\$6,358	
EASTER EGG HUNT	\$530	\$657	\$127	Per capita at 10% of current per capita rate
MA MURRAY DAY	\$15,610	\$19,347	\$3,737	Per capita at 10% of current per capita rate
HALLOWEEN FIREWORKS	\$2,610	\$3,235	\$625	Per capita at 10% of current per capita rate
LIGHT UP SPIRIT PARK	\$7,810	\$9,680	\$1,870	Per capita at 10% of current per capita rate
GENERAL GOVERNMENT - HR	\$6,390	\$8,744	\$2,354	
STAFF TRAINING	\$5,100	\$6,979	\$1,879	Fixed percentage of Village salaries and benefits - currently 0.46%
STAFF APPRECIATION	\$1,290	\$1,765	\$475	Fixed percentage of Village salaries and benefits - currently 0.12%
GENERAL GOVERNMENT - MUNICIPAL HALL	\$201,440	\$289,525	\$88,085	
OFFICE EQUIPMENT	\$0	\$0	\$0	Per household at 10% of current per-household rate
INSURANCE	\$40,000	\$57,491	\$17,491	Per household at 10% of current per-household rate
MAINTENANCE	\$5,210	\$7,488	\$2,278	Per household at 10% of current per-household rate
ADVERTISING	\$2,610	\$3,751	\$1,141	Per household at 10% of current per-household rate
VILLAGE HALL TRAILER LEASE	\$33,460	\$48,091	\$14,631	Per household at 10% of current per-household rate. Clearly this will not always be a trailer lease, but this item is included to represent increased operational costs for Village Hall.
EQUIPMENT RENTAL	\$18,870	\$27,121	\$8,251	Per household at 10% of current per-household rate
CELL PHONES	\$7,650	\$10,995	\$3,345	Per household at 10% of current per-household rate
RECYCLING	\$3,650	\$5,246	\$1,596	Per household at 10% of current per-household rate
FIRE INSPECTIONS	\$2,720	\$3,909	\$1,189	Per household at 10% of current per-household rate
JANITORIAL	\$11,920	\$17,132	\$5,212	Per household at 10% of current per-household rate
LEGAL FEES	\$42,660	\$61,314	\$18,654	Per household at 10% of current per-household rate
OFFICE SUPPLIES	\$10,840	\$15,580	\$4,740	Per household at 10% of current per-household rate
POSTAGE & COURIER	\$6,250	\$8,983	\$2,733	Per household at 10% of current per-household rate

	2021 FINANCIAL PLAN	WITH ANMORE SOUTH	NET IMPACT OF ANMORE SOUTH	NOTE
PUBLICATIONS	\$530	\$762	\$232	Per household at 10% of current per-household rate
TELEPHONE	\$4,170	\$5,993	\$1,823	Per household at 10% of current per-household rate
HEAT & LIGHT	\$9,370	\$13,467	\$4,097	Per household at 10% of current per-household rate
LIBRARY SERVICES	\$1,530	\$2,199	\$669	Per household at 10% of current per-household rate
GENERAL GOVERNMENT - LEGISLATIVE SERVICES	\$143,010	\$204,627	\$61,617	
SALARIES & BENEFITS	\$116,610	\$167,601	\$50,991	Per household at 10% of current per-household rate
CONVENTIONS	\$1,460	\$1,460	\$0	No impact
DUES & SUBSCRIPTIONS	\$640	\$640	\$0	No impact
MISC. TRAVEL	\$0	\$0	\$0	No impact
RECORDS MANAGEMENT	\$1,720	\$2,472	\$752	Per household at 10% of current per-household rate
ELECTIONS - 2019 value is \$0 - this entry is based on a \$24,000 cost incurred every four years.	\$6,000	\$8,624	\$2,624	Village is showing \$24,000 as a cost every four years. For this analysis, the average annual cost is 1/4 of that, increased proportionally by households at 10% of the current per-household rate.
EMERGENCY PREPAREDNESS - SUPPLIES	\$16,580	\$23,830	\$7,250	Per household at 10% of current per-household rate
EMERGENCY PREPAREDNESS - CONSULTING	\$0	\$0	\$0	Per household at 10% of current per-household rate
GENERAL GOVERNMENT - FINANCE & IT	\$248,020	\$355,722	\$107,702	
SALARIES & BENEFITS	\$152,970	\$219,860	\$66,890	Per household at 10% of current per-household rate
SALARIES & BENEFITS - O/T	\$5,000	\$7,186	\$2,186	Per household at 10% of current per-household rate
AUDIT	\$29,730	\$42,730	\$13,000	Per household at 10% of current per-household rate
CONVENTIONS	\$1,460	\$1,460	\$0	No impact
DUES & SUBSCRIPTIONS	\$260	\$260	\$0	No impact
MISC. TRAVEL	\$0	\$0	\$0	No impact
REPAIRS & MAINTENANCE	\$26,860	\$38,605	\$11,745	Per household at 10% of current per-household rate
SOFTWARE LICENSES	\$31,740	\$45,619	\$13,879	Per household at 10% of current per-household rate
MATERIALS & EQUIPMENT	\$0	\$0	\$0	Per household at 10% of current per-household rate

	2021 FINANCIAL PLAN	WITH ANMORE SOUTH	NET IMPACT OF ANMORE SOUTH	NOTE
GENERAL GOVERNMENT - PLANNING & DEV.	\$136,010	\$194,618	\$58,608	Planning and development costs are primarily associated with new development and renovations. Once Anmore South is built, its impact will be modest as individual households within apartment buildings will have minimal involvement with Planning & Development compared to existing single-family homeowners.
SALARIES & BENEFITS	\$125,700	\$180,666	\$54,966	Per household at 10% of current per-household rate
DEVELOPMENT FEE RECOVERABLE	\$0	\$0	\$0	Per household at 10% of current per-household rate
CONVENTIONS	\$1,260	\$1,260	\$0	No impact
DUES & SUBSCRIPTIONS	\$720	\$720	\$0	No impact
MISC. TRAVEL	\$0	\$0	\$0	No impact
CONSULTING	\$8,330	\$11,973	\$3,643	Per household at 10% of current per-household rate
MISCELLANEOUS	\$0	\$0	\$0	Per household at 10% of current per-household rate
GENERAL GOVERNMENT - BUILDING & BYLAWS	\$240,550	\$345,121	\$104,571	
SALARIES & BENEFITS	\$239,140	\$343,711	\$104,571	Per household at 10% of current per-household rate
DOG CONTROL SERVICES	\$0	\$0	\$0	Per household at 10% of current per-household rate
CONVENTIONS	\$740	\$740	\$0	No impact
DUES & SUBSCRIPTIONS	\$670	\$670	\$0	No impact
MISC. TRAVEL	\$0	\$0	\$0	No impact
PUBLIC WORKS	\$238,550	\$295,656	\$57,106	
SALARIES & BENEFITS	\$220,050	\$272,727	\$52,677	Per capita at 10% of current per capita rate
ON CALL	\$18,500	\$22,929	\$4,429	Per capita at 10% of current per capita rate
SEASONAL	\$0	\$0	\$0	Per capita at 10% of current per capita rate
DUES & SUBSCRIPTIONS	\$0	\$0	\$0	Per capita at 10% of current per capita rate
MISC. TRAVEL	\$0	\$0	\$0	Per capita at 10% of current per capita rate
MISCELLANEOUS	\$0	\$0	\$0	Per capita at 10% of current per capita rate
PUBLIC WORKS - YARD	\$15,300	\$18,963	\$3,663	
REPAIRS & MAINTENANCE	\$2,600	\$3,222	\$622	Per capita at 10% of current per capita rate
SMALL EQUIPMENT PURCHASES	\$5,100	\$6,321	\$1,221	Per capita at 10% of current per capita rate
JANITORIAL	\$2,100	\$2,603	\$503	Per capita at 10% of current per capita rate
TELEPHONE	\$400	\$496	\$96	Per capita at 10% of current per capita rate
UTILITIES	\$5,100	\$6,321	\$1,221	Per capita at 10% of current per capita rate
MISCELLANEOUS	\$0	\$0	\$0	Per capita at 10% of current per capita rate
PUBLIC WORKS - VEHICLES & EQUIPMENT	-\$28,900	-\$5,919	\$22,981	

	2021 FINANCIAL PLAN	WITH ANMORE SOUTH	NET IMPACT OF ANMORE SOUTH	NOTE
EQUIPMENT RENTAL	\$0	\$0	\$0	Per capita at 10% of current per capita rate
SUPPLIES	\$16,000	\$19,830	\$3,830	Per capita at 10% of current per capita rate
TOOLS	\$16,000	\$19,830	\$3,830	Per capita at 10% of current per capita rate
SAFETY GEAR	\$5,500	\$6,817	\$1,317	Per capita at 10% of current per capita rate
FUEL	\$20,100	\$24,912	\$4,812	Per capita at 10% of current per capita rate
INSURANCE	\$15,000	\$18,591	\$3,591	Per capita at 10% of current per capita rate
MAINTENANCE & REPAIRS	\$23,400	\$29,002	\$5,602	Per capita at 10% of current per capita rate
INTERNAL RECOVERY	-\$124,900	-\$124,900	\$0	No impact
PUBLIC WORKS - LRN ROADS	\$84,900	\$105,224	\$20,324	
PAVEMENT MAINTENANCE	\$3,900	\$4,834	\$934	Per capita at 10% of current per capita rate
SHOULDERING	\$27,100	\$33,587	\$6,487	Per capita at 10% of current per capita rate
STREET LIGHTING	\$2,200	\$2,727	\$527	Per capita at 10% of current per capita rate
SIGNS	\$2,200	\$2,727	\$527	Per capita at 10% of current per capita rate
STREET CLEANING	\$0	\$0	\$0	Per capita at 10% of current per capita rate
SNOW AND ICE CONTROL	\$15,200	\$18,839	\$3,639	Per capita at 10% of current per capita rate
GRAVEL ROADS MAINTENANCE	\$5,400	\$6,693	\$1,293	Per capita at 10% of current per capita rate
PATHWAYS + PATHWAYS (CP)	\$28,900	\$35,818	\$6,918	Per capita at 10% of current per capita rate
LRN ROAD REHABILITATION	\$0	\$0	\$0	Per capita at 10% of current per capita rate
PUBLIC WORKS - DRAINAGE	\$13,500	\$16,732	\$3,232	
DRAINAGE & DITCHING	\$8,000	\$9,915	\$1,915	Per capita at 10% of current per capita rate
CATCH BASINS	\$5,500	\$6,817	\$1,317	Per capita at 10% of current per capita rate
PUBLIC WORKS - PARKS & TRAILS	\$51,500	\$63,828	\$12,328	
UTILITIES	\$200	\$248	\$48	Per capita at 10% of current per capita rate
MAINTENANCE	\$10,700	\$13,261	\$2,561	Per capita at 10% of current per capita rate
TRAILS + TRAIL UPGRADES (CP)	\$36,200	\$44,866	\$8,666	Per capita at 10% of current per capita rate
TREE TRIMMING	\$4,400	\$5,453	\$1,053	Per capita at 10% of current per capita rate
TRAIL IMPROVEMENTS	\$0	\$0	\$0	Per capita at 10% of current per capita rate
NEW PUBLIC WORKS COSTS - OFF-SITE	\$0	\$0	\$0	
SALARIES & BENEFITS	\$0	\$0	\$0	
EQUIPMENT AND OPERATING EXPENSES	\$0	\$0	\$0	
NEW PUBLIC WORKS COSTS - ON-SITE	\$0	\$161,782	\$161,782	Based on approximate 16% increase in the length of Anmore's roads and underground servicing.
SALARIES & BENEFITS	\$0	\$80,891	\$80,891	New public works costs for on-site infrastructure is evenly split between labour costs and equipment and other expenses.
EQUIPMENT AND OPERATING EXPENSES	\$0	\$80,891	\$80,891	See above.
PUBLIC WORKS - MRN ROADS	\$253,000	\$253,000	\$0	Any changes in maintenance costs for MRN roads assumed to be balanced by corresponding change in TransLink grant.
ADMINISTRATION	\$65,700	\$65,700	\$0	No impact

	2021 FINANCIAL PLAN	WITH ANMORE SOUTH	NET IMPACT OF ANMORE SOUTH	NOTE
PAVEMENT	\$105,700	\$105,700	\$0	No impact
SHOULDERING	\$12,800	\$12,800	\$0	No impact
DRAINAGE	\$18,600	\$18,600	\$0	No impact
PATHWAYS	\$5,400	\$5,400	\$0	No impact
STREET LIGHTING	\$4,300	\$4,300	\$0	No impact
SIGNAGE	\$4,300	\$4,300	\$0	No impact
STREET CLEANING	\$3,200	\$3,200	\$0	No impact
VEGETATION CONTROL	\$26,600	\$26,600	\$0	No impact
SNOW AND ICE CONTROL	\$6,400	\$6,400	\$0	No impact
FISCAL SERVICES (not including amortization)	\$2,700	\$3,881	\$1,181	
BANK CHARGES	\$2,700	\$3,881	\$1,181	Per household at 10% of current per-household rate
CASH OVER/SHORT	\$0	\$0	\$0	Per household at 10% of current per-household rate
AMORTIZATION - current assets	\$700,000	\$700,000	\$0	
SOLID WASTE	\$184,500	\$184,500	\$0	As noted under Revenues, assume new service for Anmore South has no net financial impact on the Village.
ADMINISTRATION	\$21,100	\$21,100	\$0	No impact
Police Service Costs	\$0	\$742,025	\$742,025	Based on Anmore's current policing costs of \$250,000 (which are not paid by the Village due to its population being under 5,000). This cost is expected to increase in proportion to population, plus a 25% premium on the per capita cost due to the addition of commercial spaces in Anmore that may require additional police resources. As Anmore's population will exceed 5,000 with Anmore South, the Village will become responsible for 70% of its policing costs.
AMORTIZATION (New Infrastructure Only)		\$716,700	\$716,700	See details in Table 4.
TOTAL COSTS	\$2,427,074	\$4,709,714	\$2,282,640	
Fire Service Costs (Annual Operating)	\$368,701	\$1,566,890	\$1,198,189	Anmore's current estimated per capita fire service cost is \$153. This is assumed to increase by 25% to reflect the additional complication of having higher buildings and possible additional staffing and/or training this will require.
Amortization of new Fire Service Assets	\$0	\$100,000	\$100,000	See Table 4.
Total Fire Service Costs (Operating + Amortization)	\$368,701	\$1,666,890	\$1,298,189	
Total Costs (including Fire Service)	\$2,795,775	\$6,376,604	\$3,580,829	

	2021 FINANCIAL PLAN	WITH ANMORE SOUTH	NET IMPACT OF ANMORE SOUTH	NOTE
NET (REVENUES LESS COSTS)				
NET OPERATING (not including Fire Service)	\$1,297,760	\$3,297,079	\$1,999,319	Does not include transfers to Reserve Accounts, which is why current operating budget is positive.
NET OPERATING (with Fire Service)	\$929,059	\$1,630,190	\$701,131	The key result is the net impact of Anmore South (of +\$0.7 million in this analysis).

APPENDIX K: Economic Impact Analysis

ECONOMIC IMPACT ANALYSIS PROPOSED ANMORE SOUTH DEVELOPMENT



Economic Impact of Proposed Anmore South Development

NOVEMBER 2021

Prepared by:

VANN STRUTH CONSULTING GROUP INC.

For:

Icona Properties

TABLE OF CONTENTS

Executive Summary	iii
1 Introduction	1
2 Employment Impacts	2
2.1 Current Situation	2
2.2 Anmore South Employment	4
2.3 Temporary Impacts from Construction	5
3 Amenities Impact	6
3.1 Food Stores	7
3.2 Recreation/Community Centres	8
3.3 Childcare Facilities	9
4 Demographic and Housing Impacts	10
4.1 Current Situation	10
4.2 Population Projections	10
4.3 Lifecycle Evolution of Housing Demand	11
4.4 Anmore Population Projections from Anmore South	12

EXECUTIVE SUMMARY

This report presents the results of an analysis of the economic impact of the proposed Anmore South development, located on a portion of the former loco lands in Anmore, BC.

The total developed area is expected to be 4 million square feet (SF) of primarily apartment and townhouse development, plus about 100,000 SF of ground floor commercial space and a recreation centre.

Employment Impacts

The Anmore South development will have an estimated local employment impact of about 580 jobs. This includes jobs based on the Anmore South site in the commercial units and recreation centre, plus home-based employment in the new housing units, as well as growth in local government and schools in the rest of Anmore to accommodate additional population and development.

There are several ways these new employment opportunities will complement Anmore's existing population and labour force:

- First, the creation of retail and services businesses will provide additional opportunities for entry-level and part-time work that would appeal to youth, students, parents of young children, or those in semi-retirement who are interested in flexible employment. This is also the demographic group that is least mobile and having those opportunities closer to home is a benefit.
- Anmore has a significantly higher rate of working from home than the regional average. The availability of office space at Anmore South may provide a useful alternative location for Anmore residents who would like to have external office space, but not to commute far from home.
- Overall, Anmore's labour force is much better-paid and higher-skilled than the regional average, so only a modest number of jobs in the new retail and services businesses, as well as the recreation centre, would fit with their existing employment needs. However, the office space may be a good fit for those residents who have their own business, including the cluster of health professionals that reside in the community.

Amenities Impact

Anmore South will include space for a range of commercial and public amenities that are not currently available in Anmore. These amenities will increase convenience for existing Anmore residents, who typically need to drive to Port Moody or beyond to access these services. Examples include:

- Food stores and other everyday retail outlets. Market analysis shows there are 50 food stores of various types and sizes in the Tri-Cities and each community has one store for every 4,000 to 7,000 residents, except Anmore.

- A recreation/community centre, which may include features like a gymnasium, playground, or indoor sports complex. Market analysis for the Tri-Cities shows there are currently 36 publicly accessible recreation or community facilities in the Tri-Cities with regular programming, but none in Anmore.
- Other amenities such as a restaurant/coffee shop, various small retailers, child care or health services facilities, and more could also be accommodated at Anmore South.

Demographic and Housing Impacts

Anmore currently has a population around 2,400 and like most communities, its population is aging. Current projections suggest the largest population increase will be in the age 65+ range.

The current housing stock is almost entirely comprised of large, high-cost, single-family housing that is a poor fit with typical housing demand over a lifetime. Both younger adults entering the housing market, as well as seniors who no longer wish to maintain a detached home, are much more likely to prefer apartment living. They do not currently have this option in Anmore.

Apartments at Anmore South will provide the opportunity for residents to stay in the community and find their preferred housing options over the course of their entire life. Population projections including Anmore South would lead to a very balanced population between senior citizens, younger and prime working-age adults, and children.

1 INTRODUCTION

This report presents the results of an analysis of the economic impact of the proposed Anmore South development, located on a portion of the former loco lands in Anmore, BC.

The report has three main components:

- 1. Employment impact.** Anmore South will support new employment opportunities in the commercial and public spaces on site, as well as through home-based employment, and includes significant construction-related employment during project development.
- 2. Amenities impact.** The development will host a variety of public and commercial amenities in Anmore that are currently accessible only by traveling to other communities.
- 3. Demographic and housing choice impact.** Anmore South will expand the range of housing options available in Anmore and support the ability of current residents to stay in the community over their entire lifetime.

Project Overview

Specific assumptions and data sources required for each type of analysis are specified in each section of the report. An overview of the planned development is shown in Table 1.

The total developed area is expected to be 4 million square feet (SF). Most development is residential, except for 100,000 SF of ground floor commercial uses (which may include retail shops, restaurant, brewery, farmers markets, or various support services) and a recreation centre that is still in the planning stage.

The composition of the development as outlined below is preliminary.

TABLE 1. ANMORE SOUTH DEVELOPMENT OVERVIEW

	COMMERCIAL	RESIDENTIAL	RECREATION CENTRE
Gross Developed Floor Area (square feet)		----- 4 million SF -----	
.... less Common Area Factor (hallways, entryways, mechanical rooms, other common areas)		----- 15% -----	
Net Floor Area	100,000 SF	3.3 million SF	To be determined
...Apartment Units Ranging from 1 to 3 bedrooms (average size of 950 SF)		~ 3,100 units (3.0 million SF)	
...Townhouse Units (average size of 2,000 SF)		~ 160 units (300,000 SF)	
...Ground Floor Non-Residential	100,000 SF		25,000 SF (assumed for analysis)

2 EMPLOYMENT IMPACTS

Rather than simply counting the number of new jobs associated with the Anmore South development, it is more useful to understand how new employment opportunities fit into the context of Anmore’s current employment situation.

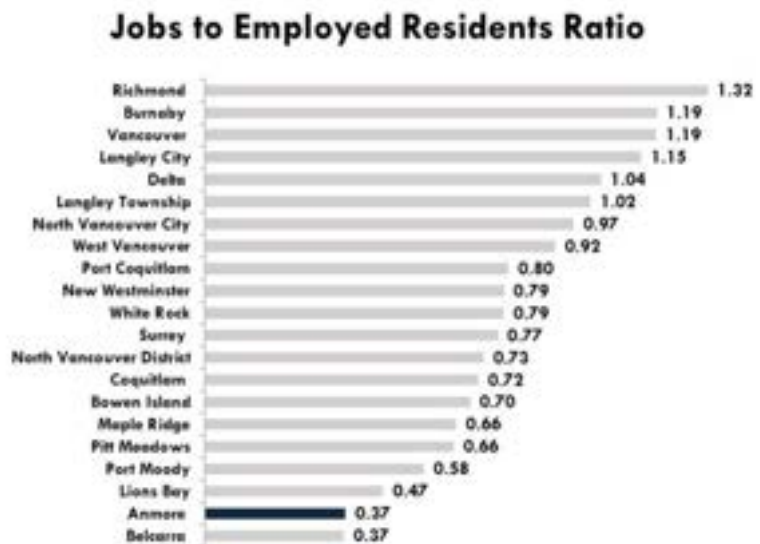
2.1 Current Situation

Total employment in Anmore was 465 as of the 2016 Census. This includes:

- 315 jobs with a “fixed place of work” in Anmore, of which 180 are Anmore residents who work at home. The other 135 jobs are spread across a small number of employment sites, such as the school, Village office, retail store, utility facilities, and regional park. It is likely, given the lack of commercial and industrial space in the community, that some home-based jobs also have additional staff working who are not resident to the home (such as staff of a home-based consulting company, maintenance or household staff within larger homes, etc.)
- 150 jobs held by employed Anmore residents with “no fixed place of work.” These are jobs that regularly move to different sites, such as construction, transportation, and various mobile service providers. These jobs are assigned to the home municipality of Anmore although in reality most of these people are likely spending most of their working days outside of the community.

The total of 465 jobs is contrasted to Anmore’s total of 1,255 employed residents. Anmore’s ratio of jobs to employed residents is 0.37, meaning the community is a net exporter of 63% of its workers to other locations.

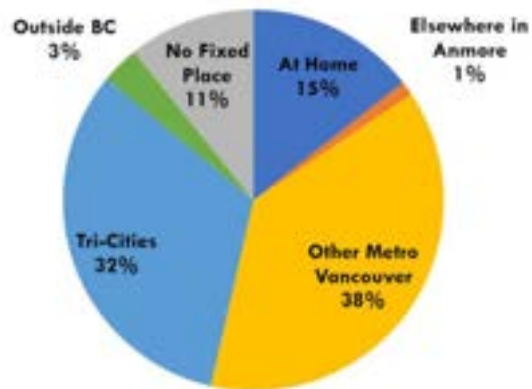
Anmore was never intended to function as a major employment centre in the region and there is no reason to expect a balance between local jobs and resident workers, but the current situation indicates that Anmore residents who might wish to work closer to home (such as students or seniors seeking part-time work) have limited opportunities.



Another way to look at the current situation is that out of 1,255 employed Anmore residents, less than 200 had a regular place of work in Anmore.

Nearly three out of four (70%) of Anmore’s working residents commute to another municipality in Metro Vancouver, including 32% to the Tri-Cities (Port Coquitlam, Port Moody and Coquitlam) and 38% to other municipalities (led by Vancouver and Burnaby).

Where Anmore Residents Work

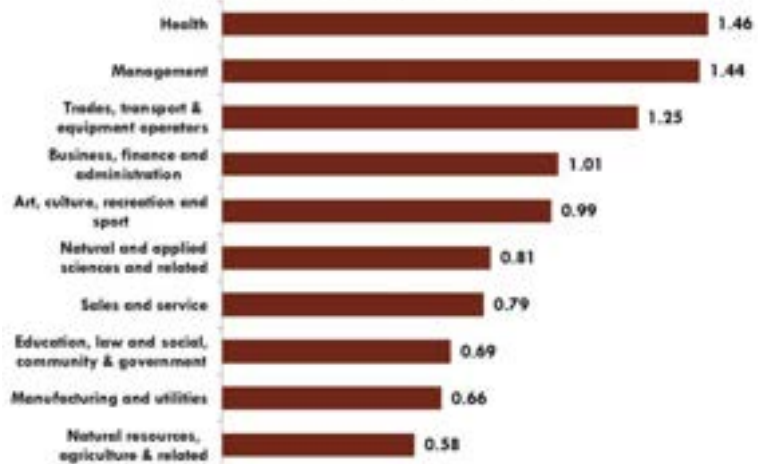


Most Anmore residents are commuters partly because they are highly paid (median employment income for an Anmore resident working full-time is 35% higher than the regional average) and are more likely to have senior positions (44% higher concentration of managers compared to the region), both of which suggest that some residents need to commute to where the high-paying jobs and large companies and institutions are located.

Anmore residents are also much more likely to work at home (14.3% compared to 8.2% in the region), which is consistent with having more well-educated professionals living in the community.

Based on broad occupational groups, the highest concentrations among Anmore residents are in health and management. Health occupations are 46% more concentrated among working Anmore residents compared to the regional average and management occupations are 44% more concentrated. Construction is also a prominent sector in Anmore as trades-related occupations are 25% more prevalent than the regional average.

Anmore Resident Occupations Relative to Metro Vancouver (1.00)



2.2 Anmore South Employment

The number and type of jobs that will be created in Anmore from the Anmore South development fit into several categories, as outlined in Table 2.

The first three categories - ground floor commercial, recreation centre, and home-based employment – are based on additional activity that will occur on the Anmore South site. The last two categories – local government and primary education – are based on estimated growth in local services that will be required to accommodate the additional population and development.

TABLE 2. ANMORE SOUTH EMPLOYMENT ESTIMATES

EMPLOYMENT SOURCE	GROWTH DRIVER	EMPLOYMENT RATIO	ESTIMATED EMPLOYMENT GROWTH	NOTE
Ground Floor Commercial	100,000 sf	1 job per 500 sf	200	Employment ranges based on various employment land studies in Metro Vancouver.
Recreation Centre	25,000 sf (Preliminary - For purposes of analysis)	1 job per 800 sf	31	
Home-based Employment	New housing units projected at 3,293	9 jobs per 100 units	296	Based on home working ratio in Port Moody, which is comparable given its existing multi-family housing development, and increased by 25% for COVID impacts.
Local Government	Municipal revenue projected to more than double	Assume proportional growth from baseline of 10 (2016 Census)	10	
Local Primary Education	Age 5 to 12 population projected to increase by 167%	Baseline is 50 jobs (2016 Census). Assume half are fixed, half are proportional to student count.	42	Anmore's age 5 to 12 population is an estimated 240 as of 2016
TOTAL			579	

In total, the estimated employment increase is around 580 jobs, which would more than double Anmore's current estimate of 460 jobs.

Projected employment in the ground-floor commercial space will be realized only if there are viable businesses or other employers willing to operate from this location. Proving the market viability of the site is not part of this study. However, the substantial on-site population of more than 5,700 people provides a high level of confidence that local-serving retailers and other businesses will be successful while also enhancing retail and service amenities available to the entire Anmore community.

With respect to Anmore's existing population and labour force, there are several areas of possible complementarity:

- First, the creation of retail and services businesses will provide additional opportunities for entry-level and part-time work that would appeal to youth, students, parents of young children, or those in semi-retirement who are interested in flexible employment. This is also the demographic group that is least mobile and having those opportunities closer to home is a benefit.
- Anmore has a significantly higher rate of working from home than the regional average. The availability of public spaces for meetings or temporary working (restaurants, coffee shops) will provide a useful service for work-from-home Anmore residents.
- Overall, Anmore's labour force is much better-paid and higher-skilled than the regional average, so only a modest number of jobs in the new retail and services businesses and the recreation centre would fit with existing employment needs. However, some of the commercial space could be a good fit for small offices that cater to the public, such as insurance, real estate, or health services (capitalizing on the cluster of health professionals that reside in the community).

2.3 Temporary Impacts from Construction

In addition to the ongoing impacts from a fully built-out Anmore South, there will also be significant employment generated by project construction. Cost estimates are preliminary at this stage but including everything from infrastructure development to building construction yields a total construction cost estimate (in current dollars) of about \$1.3 billion.

Using input-output multipliers from Statistics Canada, and assuming that at least 90% of the expenditure is carried out by Metro Vancouver firms, the **direct construction employment associated with the project is an estimated 2,800 person-years.**

Construction is one of the relative industrial strengths of the Tri-Cities region and a project of this size would provide significant employment and business opportunities for residents and business owners in Anmore and surrounding communities.

3 AMENITIES IMPACT

Anmore South will include space for a range of commercial and public amenities that are not currently available in Anmore. These amenities will increase convenience for existing Anmore residents, who typically need to drive to Port Moody or beyond to access these services.

There are three types of amenities highlighted in this section of the report, comparing the situation in Anmore to the three Tri-Cities (Port Moody, Port Coquitlam and Coquitlam) and showing on a map how these services are readily accessible to most residents living throughout the Tri-Cities.

Please note these are only examples of the types of amenities that could be found at Anmore South and other types of retail stores, service providers and community services may also locate onsite.

3.1 Food Stores

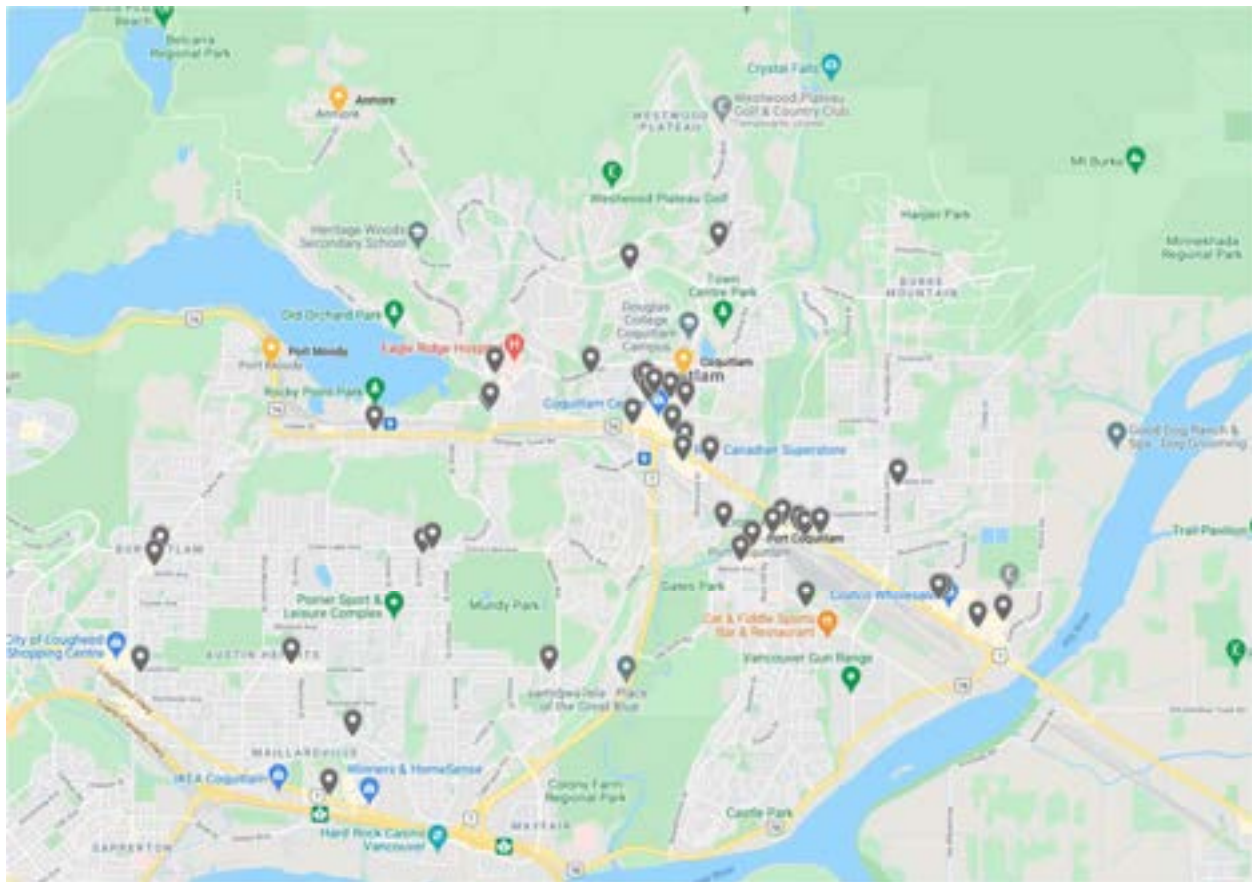
The first amenity is food stores, which includes full-service grocery stores and specialty food outlets, but excludes convenience stores. Anmore residents currently have no access to a full-service food store in their community, whereas nearly all Tri-Cities residents live within relatively close proximity.

There are 50 food stores of various types and sizes in the Tri-Cities and each community has one store for every 4,000 to 7,000 residents, except Anmore.

TABLE 3. FOOD STORE COMPARISON, ANMORE AND TRI-CITIES

	NUMBER OF ESTABLISHMENTS (FROM CANADA411.COM)	POPULATION (2020 BC STATS ESTIMATE)	POPULATION PER ESTABLISHMENT
Anmore	0	2,412	---
Port Moody	5	35,151	7,030
Port Coquitlam	16	63,508	3,969
Coquitlam	29	152,734	5,267

FIGURE 1. FOOD STORES IN THE TRI-CITIES



Source: Canada411.com data, Google Maps

3.2 Recreation/Community Centres

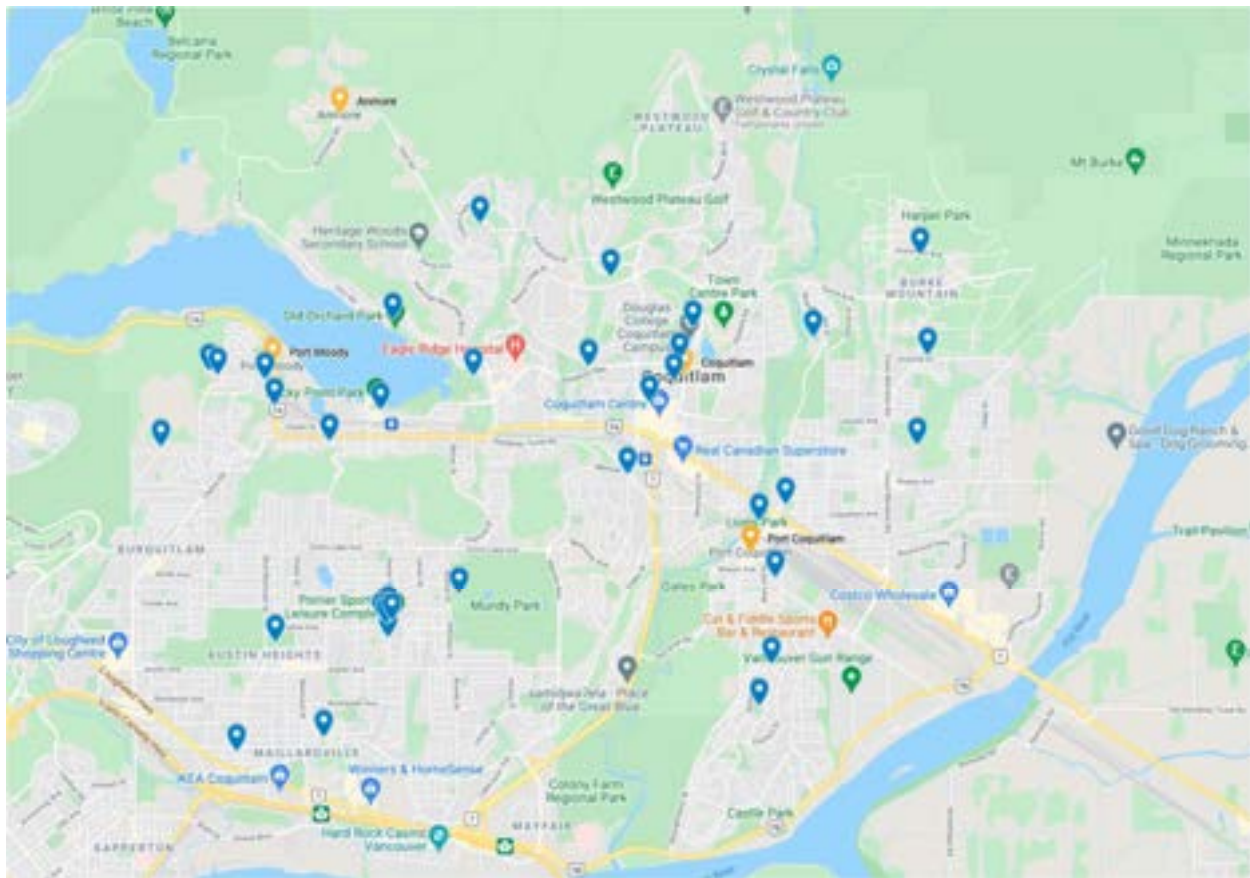
The next category to compare is recreation and community centres, which includes any publicly accessible recreation or community facility that has regular programming. There are 36 such facilities in the Tri-Cities, but none in Anmore.

Building a public recreation centre to fill this gap is part of the development plan for Anmore South. For example, it may include a gym, playground, or indoor sports complex.

TABLE 4. RECREATION/COMMUNITY CENTRE COMPARISON, ANMORE AND TRI-CITIES

	NUMBER OF ESTABLISHMENTS (FROM CANADA411.COM)	POPULATION (2020 BC STATS ESTIMATE)	POPULATION PER ESTABLISHMENT
Anmore	0	2,412	---
Port Moody	9	35,151	3,906
Port Coquitlam	7	63,508	9,073
Coquitlam	20	152,734	7,637

FIGURE 2. RECREATION/COMMUNITY CENTRES IN THE TRI-CITIES



Source: Canada411.com data, Google Maps

3.3 Childcare Facilities

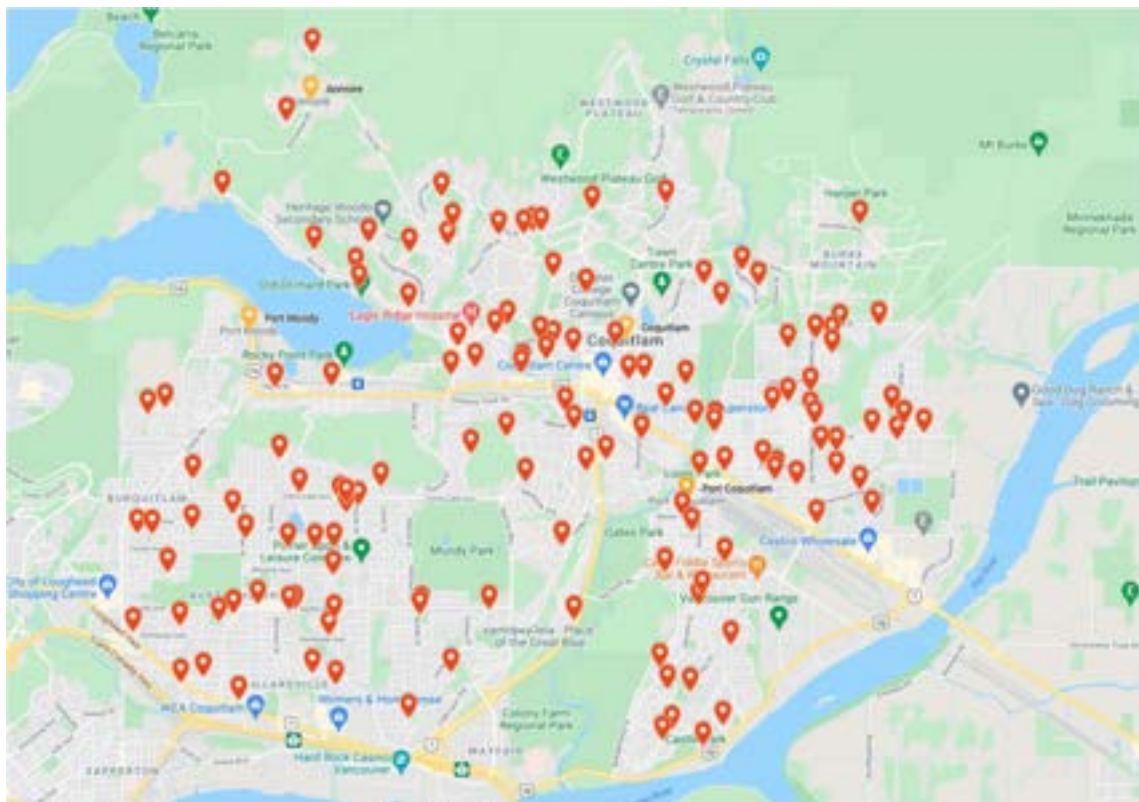
The final comparison is childcare facilities, for which data is available for both current establishments as well as 2016 employment. This is the only one of the analyzed amenities that already exists in Anmore, but much more childcare space would be required to accommodate the new population of Anmore South.

The comparisons shown in Table 5 are based on the population under age 10 (as of the 2016 Census). Anmore currently has a comparable level of child-care employment relative to its population of young children (all communities range from 15 to 21 young children per child care worker).

TABLE 5. CHILDCARE FACILITIES COMPARISON, ANMORE AND TRI-CITIES

	AGE 0-9 POPULATION (2016)	2016 CENSUS EMPLOYMENT	AGE 0-9 POPULATION PER JOB	NUMBER OF ESTABLISHMENTS (FROM CANADA411.COM)	AGE 0-9 POPULATION PER ESTABLISHMENT
Anmore	195	10	20	2	98
Port Moody	3,975	190	21	19	209
Port Coquitlam	6,350	410	15	50	127
Coquitlam	14,660	680	22	71	206

FIGURE 3. CHILD-CARE FACILITIES IN THE TRI-CITIES AND ANMORE



Source: Canada411.com data, Google Maps

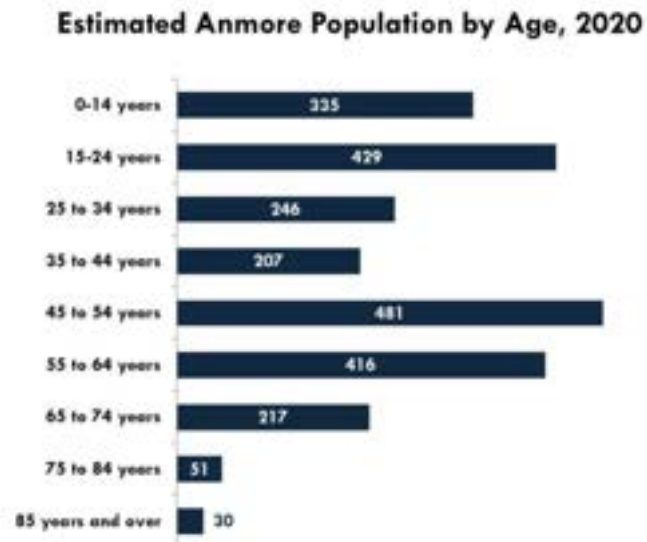
4 DEMOGRAPHIC AND HOUSING IMPACTS

4.1 Current Situation

According to BC Stats estimates, Anmore had a population of 2,412 in 2020.

A breakdown by age is not available but can be estimated based on the 2016 Census and adjusting for the net Census undercount by age (this is the people who are missed by the Census, which disproportionately undercounts young adults, especially men).

Anmore's current population has a high concentration in the 45 to 64 age range, as well as people under age 25 (most of which are likely the children of the 45 to 64-year-olds).



4.2 Population Projections

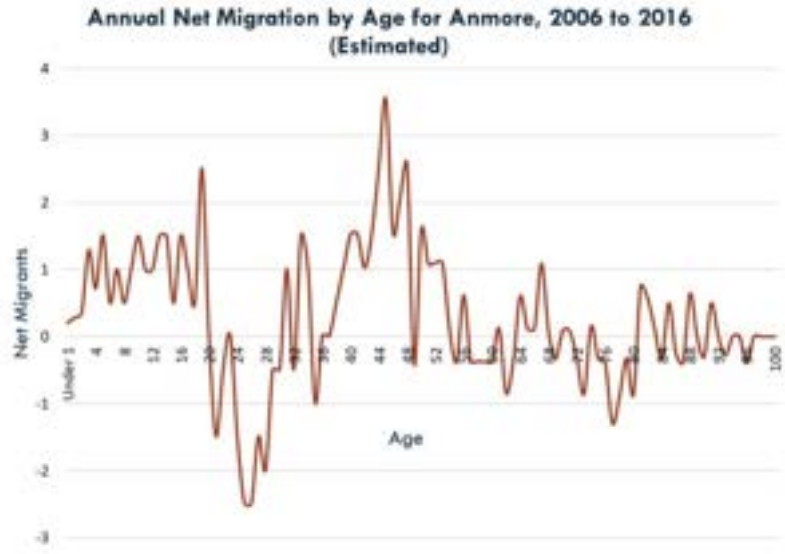
The Metro Vancouver regional government released baseline population projections for each municipality in late 2018. It shows Anmore's population increasing to 3,650 by 2036, which is a 2.6% annual growth rate from 2020 to 2036. Even though COVID has had a significant impact on short-term population dynamics, over the long term the region remains highly desirable as a place to live and pre-COVID projections should remain reliable.

Metro Vancouver does not release population projections by age, but they have been estimated for this study.¹ The projections rely on published fertility rates for the Coquitlam Local Health Area (adjusted for the age of the female population), published mortality rates for BC (adjusted for age and sex), and the recent pattern of migration in and out of Anmore.

As a small community, the net movement of people in and out of Anmore each year is modest, but over time is the most important factor in determining population growth.

¹ Vann Struth Consulting Group prepared the Anmore population projections and estimates by age in this study, using a cohort-component population model.

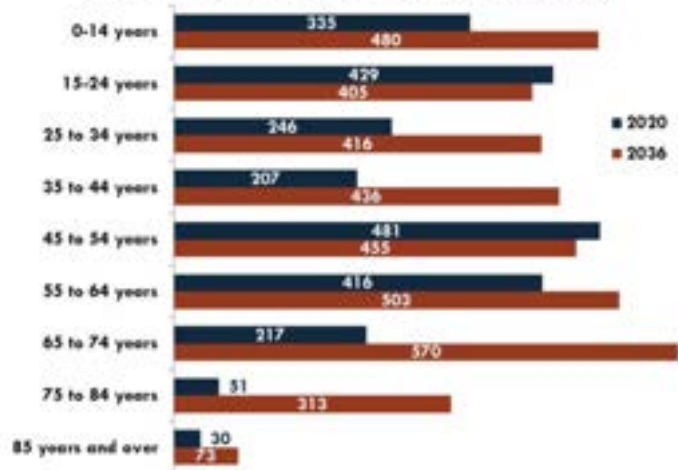
Average annual migration in Anmore from 2006 to 2016 is shown in the chart to the right. The biggest net inflow is people in their 40s, many of whom appear to be moving with children as there is a consistent net inflow of children each year as well. The most significant outflow is people in their 20s, as well as a smaller net outflow in the late 60s and early 70s.



Anmore’s population demographics for 2036 are determined by assuming future migration retains the same shape as the 2006 to 2016 period, although migration at every age is adjusted higher to match the Metro Vancouver projection of 3,650 total residents by 2036.

The results show the biggest population increase is for the 65+ population as the current bulge in Anmore’s 45 to 64 age range continues to age.

Anmore Population by Age, 2020 & 2036 (assuming Metro Vancouver total of 3,650)



There is still strong growth in the 25-44 age range, partly due to the strong in-migration at this age range.

Overall Anmore’s median age is projected to increase from the current 44 to 46 by 2036. This is the age at which half the population is younger and half is older.

4.3 Lifecycle Evolution of Housing Demand

Given the aging of Anmore’s population over the next 20 years, it is worth considering how the preferred type of housing changes over the course of a lifetime.

Statistics Canada defines a “household maintainer” as the person who is primarily responsible for paying the household bills. The percentage of the population who are household maintainers increases with age (young adults are much more likely to live with parents, roommates, etc.), but young adults who do maintain a household are most likely to live in an apartment.

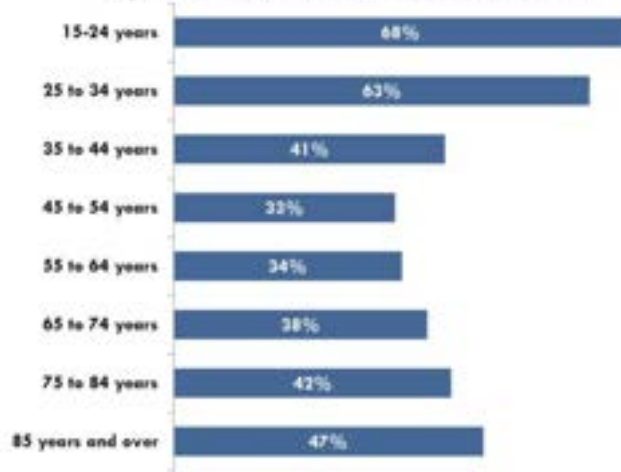
As they age into their 30s and 40s and are more likely to have children, the share of apartments declines. It starts rising again after age 55 and nearly half of household maintainers who are 85 or older are living in apartments.

There are currently no apartment buildings in Anmore. This means that as the existing population ages and some residents wish to move to an apartment to stay in the community, that option is not currently available.

Similarly, young adults who are looking to get into the housing market with an apartment are not able to do so in Anmore.

Apartments at Anmore South will provide the opportunity for residents to stay in the community and find their preferred housing options over the course of their entire life.

Share of Household Maintainers Living in Apartments, Metro Vancouver, 2016



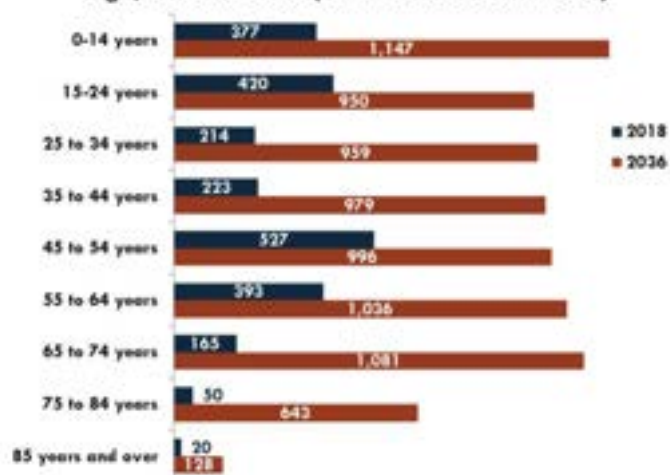
4.4 Anmore Population Projections from Anmore South

Rather than using the Metro Vancouver population projection of 3,650 for Anmore in 2036, a revised population projection that incorporates the Anmore South development would yield a total population of about 8,200 people upon full build-out.

The timeline has been extended to 2040 to allow 20 years for development (which is an approximation only).

Under this scenario, Anmore’s population demographics look like the chart to the right. There would be a more balanced population between senior citizens, younger and prime working-age adults, and children. The community’s median age would be virtually unchanged at 44.

Anmore Population Estimates and Projections by Age, 2018 & 2036 (with Burrard Commons)



The addition of more multi-family housing capacity attracts more younger and middle-aged adults to move to the community, and helps retain young people who grew up in Anmore by giving them an option for their own home.

APPENDIX L: Public Consultation Summary

anmore south

open house summary

OCP Amendment
May 4th, 2023



public consultation summary

Introduction

- Executive Summary 3
- Open House Representatives 4

Presentation materials

- List of Presentation Materials 5
- Public Notification 6
- Open House Boards 8

Feedback summary

- Survey 13
- Photos from Open House 16
- Feedback Breakdown 17

Appendices

- Open House Boards 22

Copyright © 2023
Placemark Design Studio Inc.

This document has been prepared by
and is the property of Placemark.

While the use of information contained herein
is welcomed, any reproduction in
part or whole must be requested in writing
and approved with written consent from
Placemark prior to any such action.

open house

introduction

anmore south OCP Amendment

Saturday, April 15th, 2023 | 1 - 3 PM

Anmore Elementary School
30 Elementary Road

executive summary

icona has engaged in extensive public engagement regarding the future of the Anmore South lands. Beginning in the summer of 2021, icona embarked on an engagement process designed to give Anmore residents multiple opportunities to provide input, ask questions and contribute in ways that were convenient and meaningful.

Through these consultations, icona directly engaged more than 500 Anmore residents, making this one of the most comprehensive community outreach initiatives on record. To date, icona has connected with more than 31% of Anmore residents - a level of participation and input unprecedented in the Village of Anmore.

These outreach activities included:

- Q+A sessions to gather input from specific neighborhoods and answer questions about the consultation process and timelines.
- A series of six interactive co-design workshops, led by the award-winning Co-Design Group, in which residents worked with a professional community consultation artist to visualize the possibilities for Anmore South in a series of sketches.
- A community vision showcase at Anmore Elementary school in which residents viewed the co-designs created by their neighbors and provided additional ideas and feedback. The showcase attracted and collected input from 150+ attendees.
- Stakeholder engagements focus groups with young people, sports and recreation groups, and women, in which priorities were discussed and integrated.
- An Open House for the OCP Amendment Application hosted at Anmore Elementary School on April 15, 2023, with over 150 people in attendance to review application information and meet with the project team. Over 50 public feedback surveys on the proposed OCP Amendment were collected at the event and online. The results of the survey have been compiled and summarized in the Public Consultation Summary.

Extensive public consultation will be completed as part of the future Neighbourhood Planning Process.

open house representatives

icona

Tony Cai
FOUNDER

Greg Moore
PRESIDENT + CEO

Laurie Schmidt
VICE PRESIDENT DEVELOPMENT

Ling Meng
DIRECTOR URBAN PLANNING

Michael Hind
DIRECTOR OF COMMUNITY RELATIONS

Madison Moore
COMMUNITY RELATIONS COORDINATOR

 **placemark**
DESIGN + DEVELOPMENT

Paul Fenske
PRINCIPAL

Theo Finseth
PARTNER

Barry Warren
PROJECT MANAGER

Chuck Brook
PRESIDENT
REAL ESTATE ADVISOR

open house

presentation materials

public notification

- Resident Notification Postcard
- Website Advertisement

open house boards

- welcome! | open house
- anmore south's team | leveraging professional experience
- anmore south | meeting the challenges of a changing region
- anmore today | a community + region in flux
- anmore south special study area | what's on the books
- a made-in-anmore future | which path to pursue?
- anmore history | a land of pioneering 1870 - 1960
- village of anmore history | an evolving community 1960 - today
- seeking sustainability | working with nature
- seeking sustainability | supporting local lifestyles
- seeking sustainability | living lightly
- understanding the land | anmore south context
- understanding the land | biophysical analysis
- understanding the land | environmental inventory
- understanding place | informing the design
- green network | protecting what's important
- community connections | linking the neighbourhood
- a home for everyone | housing diversity + community heart
- anmore south benefits | growth and change over 25 years
- regional services | servicing anmore south
- anmore south sketches | mixed-use village
- anmore south sketches | pedestrian-first neighbourhood street
- anmore south sketches | neighbourhood park + apartments
- anmore south sketches | community park
- anmore south sketches | multi-family homes + community trail
- thank you! | open house

public notification

resident postcard

anmore south

Open House | April 15th

icona

You are invited to join us for an open house that explores the evolving vision for Anmore South.

icona Properties invites Anmore residents to join us on Saturday, April 15th to learn more about the Official Community Plan (OCP) amendment application for the lands known as Anmore South.

This amendment reflects the vision icona developed in consultation with Anmore residents and lays the groundwork for housing diversity, dedicated parkland, all-access trails and pathways, recreational amenities and more.

icona is committed to a collaborative and transparent development process, and we welcome this opportunity to share the amendment process with you and introduce you to our project team, who will be on hand to answer questions, provide additional context and collect community input.

We look forward to connecting with you and taking this vital next step in the co-creation process.

Date: April 15th 2023
Time: 1 - 3 pm
Location: Anmore Elementary School
30 Elementary Road



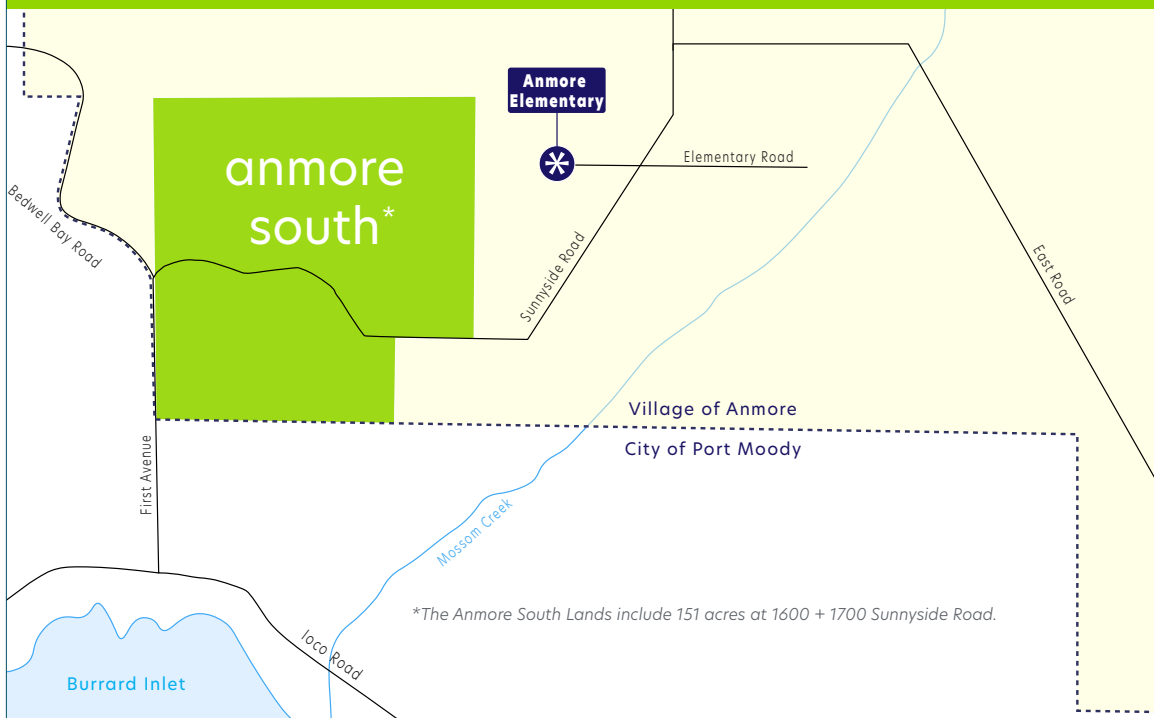
Scan this QR code to pre-register.
Drop-ins welcome.

For more information, please contact Mike Hind at Icona Properties.
E: mhind@iconaproperties.com
T: 778.860.3203

anmore south

Open House | April 15th

icona



public notification

website advertisement

The following Open House advertisement was posted in icona properties website
www.iconaproperties.com/anmore-south

The screenshot shows a website page for 'anmore south'. At the top left is the 'icona' logo. A navigation menu includes 'people', 'approach', 'insights', 'anmore south' (highlighted in green), 'ortus', and 'get in touch'. Below the navigation is a large image of a forest with the text 'anmore south' overlaid. The main content area features the heading 'Open House' and a vertical 'Join Us' sidebar. The text describes community engagement over two years and an upcoming open house. A video player thumbnail is shown at the bottom left, and a photograph of a man and woman on a porch is on the right.

icona

people approach insights **anmore south** ortus get in touch

anmore south

Open House


Join Us

Over the past two years, we have engaged with the community through visioning sessions, focus groups, and discussions to shape this vision together.

The open house will provide the community with an opportunity to become familiar with the proposed vision for Anmore South, which has been developed in consultation with Anmore residents. The OCP amendment encompasses diverse housing options, dedicated parkland, all-access trails and pathways, recreational amenities, and more.

See below the boards as well as the video that was presented. Please review and provide us with your thoughts through the survey.

Icona Properties Anmore South Open House Flyover



open house boards presentation materials

The following 26 Illustrated Panels were printed on 48" x 36" satin paper and mounted to Foamcore to further the community conversation regarding the Anmore South lands and the proposed OCP Amendment.

01 | P22

welcome! open house

Proposed Anmore South OCP Amendment

On behalf of Icona, Placemark welcomes you to our Open House - to further the community conversation regarding the Anmore South lands.

As a local planning firm with extensive experience working with communities, we are pleased to share the merits of changing the Anmore South Special Study Area designation to direct growth for the benefit of Anmore.

An application to amend the Village's Official Community Plan will be submitted in May 2023 to launch the Special Study Area process.

Anmore Planning Process

Icona Community Consultation | 2021-2022: Getting to know the community and conducting initial planning for the Anmore South Lands


we are here

Pre-Application | 2022-Present: Understanding the Anmore South lands, talking with the community, and confirming the Village of Anmore OCP process and planning priorities for the Special Study Area.

OCP Amendment | May 2023: Designing future land uses for the Anmore South Special Study Area, and considering future community benefits.

Neighbourhood Planning | 2023-2024: Detailing land use, servicing and transportation requirements to guide future planning approvals for the Anmore South lands.

Rezoning + Phased Development Agreement | 2024: Submitting rezoning and development permit applications based on a phased community build-out.



Icona | PLACEMARK.CA

02 | P23

anmore south's team leveraging professional experience

Assisting Icona in the preparation and submission of the proposed OCP Amendment requires a team of seasoned professionals bringing the required technical expertise, community planning, and public engagement skills for such a complex undertaking as Anmore South.

<p>placemark</p> <ul style="list-style-type: none"> Design + Development Lead Consultant + Project Management Community Planning and Design Community + Village Engagement 	<p>Bunt & Associates Traffic + Transportation</p> <ul style="list-style-type: none"> Preliminary Traffic Demand Management Study Transportation Planning Advisor 	<p>SLA Landscape Architects</p> <ul style="list-style-type: none"> Nature-based Landscape Architecture City-Nature Design Advisor
<p>AQUATERRA Environmental Consultants</p> <ul style="list-style-type: none"> Terrestrial Ecosystem + Habitat Mapping Preliminary Riparian Area Protection Regulation Watercourse Setbacks Guidance Preliminary Habitat Compensation Guidance 	<p>Intellowatash Archaeological Consultants</p> <ul style="list-style-type: none"> Desktop Archaeological Over-view Assessment (AOA) Archaeological Impact Mitigation Advisor 	<p>rCS+</p> <p>RC Strategies Community Amenity Consultant</p> <ul style="list-style-type: none"> Proposed Leisure Amenities Report Community Amenity Advisor
<p>GEOPACIFIC</p> <p>GeoPacific Geotechnical Engineer</p> <ul style="list-style-type: none"> Preliminary Geotechnical Report Geotechnical Hazard Mitigation Advisor 	<p>APLIN MARTIN</p> <p>Aplin & Martin Civil Engineering</p> <ul style="list-style-type: none"> Preliminary Infrastructure Servicing Concepts Civil Engineering Advisor 	<p>VANNSTRUTH Economics + Finance</p> <ul style="list-style-type: none"> Economic + Fiscal Impact Analysis Development Economic Advisor

Icona | PLACEMARK.CA

03 | P24

anmore south meeting the challenges of a changing region

Why does the application matter now?

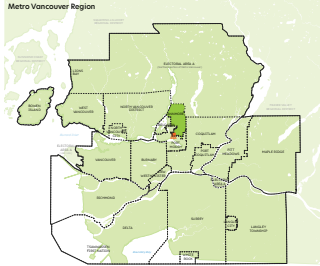
With a record number of people moving to the Metro Vancouver region every year, more homes are needed in our communities that are linked to jobs of work, services and recreation. The challenge is to do this in a way that does not diminish the natural environment.

Metro Vancouver's 2050 Regional Growth Strategy articulates a "collective vision for how growth will be managed to support the creation of complete, connected and resilient communities." As one of the 21 municipalities within Metro Vancouver, Anmore has a role to play in a sustainable future for the region.

What does the Special Study Area offer?

The Special Study Area is an opportunity identified by both Metro Vancouver and the Village's OCP to:

1. Accommodate change in a way that meets regional growth objectives - ensuring we all do our part; and
2. Protect Anmore's existing semi-rural character - by focusing future growth within the Special Study Area.



... It does not matter if you live in Vancouver or Anmore, we need all the communities to take part in it (providing more housing) ...

- Ravi Kohlon | BC Minister of Housing January 2023

Icona | PLACEMARK.CA

04 | P25

anmore today a community + region in flux

Village of Anmore Village Strengths

- Surrounded by 6,795 acres of natural green space
- Small-town character | 2,356 residents
- Close to destination parks | Sassarot + Bunten Lakes
- Semi-Rural Lifestyle
- Mixture of rural homes + acreages
- Local Elementary + Middle Schools
- New Village Hub Facility
- Near Regional Transit at Inlet Centre + Moody Centre Stations

Emerging Challenges

- The high cost of housing and lack of diversity for varying lifestyles, life-stages and incomes - including a lack of firefighter and affordable work-force housing
- Limited local recreation facilities, shops and services
- Car-oriented streets and unsafe pedestrian routes
- Extensive municipal infrastructure with limited tax base to support maintenance + improvements

Strategic Community Planning will play a key role in addressing emerging challenges and preserving Village character

Metro Vancouver Region Regional Strengths

- Surrounded by Supernatural Beauty
- Third Largest Metropolitan Centre in Canada
- Major Pacific Rim Economic + Tourism Centre
- Tapestry of Rich + Diverse Cultural Histories

Emerging Challenges

- Responding to Climate Change + Natural Hazards
- Accommodating Growth
- Rapid Transit Network
- Advancing Social Equity
- Building Healthy + Resilient communities
- Ensuring Housing for All
- Ensuring Resilience
- Supporting Economic Prosperity
- Ensuring Food Production + Security
- Protecting the Natural Environment

Metro 2050 Regional Growth Strategy is a plan with population targets to accommodate more people in a sustaining way



Icona | PLACEMARK.CA

05 | P26

anmore south special study area what's on the books

METRO 2050 | Regionally Recognized

Metro 2050 is the region's shared vision of how projected population, housing, and job growth will be managed over the next 30 years.

Metro 2050 designates Anmore South as a **Special Study Area** to accommodate future growth as part of the Urban Containment Boundary - enabling connection to the regional water and sanitary systems.

OCP 2014 | Municipally Mandated

The Village of Anmore's 2014 Official Community Plan acknowledges Metro 2050 designation of Anmore South as a **Special Study Area**.


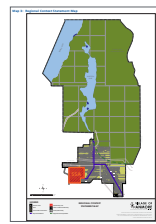
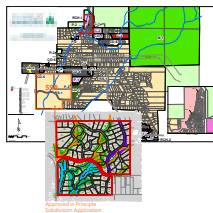
The OCP outlines the Village's requirement for any future development of these lands to be preceded by a **comprehensive neighbourhood plan** process with detailed technical analysis and extensive community engagement.

Current Zoning - RS1 | More Sprawl

Anmore South is currently zoned as RS1 - Residential One permitting 84 Large Rural Homes, resulting in:

- 95% Large Lot Development on private services
- 75% of the land cleared for development
- new additional public road
- Further demands on municipal water
- Privatized stream + riparian area
- no trail network
- 5% Dedicated park

Unless the community unlocks the Special Study Area through an OCP Amendment Application, the lands will be developed according to current zoning.

Icona | PLACEMARK.CA

06 | P27

a made-in-anmore future which path to pursue?

At present, the Anmore South lands are approved in principle for large single family lots, in accordance with the current RS-1 Zoning.

The proposed Special Study Area OCP Amendment offers an opportunity to provide greater benefits for the community, with a Made-in-Anmore future.

A Made-in-Anmore future begins with inviting the community to participate in a proposal to unlock the potential of the Special Study Area to benefit Anmore.

If adopted, the OCP Amendment does not confer development rights on the property - it establishes a new community vision for Anmore South, and serves as a statement of intent and guide to future rezoning and development approvals.

Each step in the development approval process includes the requirement for public engagement and an opportunity for the community to make their views known to the Village of Anmore.

PERMITTING PROCESS CURRENT ZONING

DCP 2014 - SPECIAL STUDY AREA - BUILDING PERMIT - CONSTRUCTION (3-5 YEARS)

PLANNING PROCESS ACTIVATING SPECIAL STUDY AREA

1. OCP AMENDMENT (General Land Use Designation, Public Parks + Recreation, Natural Environment, Cultural Community Servicing Policy)

2. METRO VAN UPDATES (Future Growth Study, Housing + Job Needs of Metro Vancouver, etc. Metro Van Update to Metro Vancouver to unlock the Anmore South lands from the Urban Containment Boundary)

3. NEIGHBOURHOOD PLAN

4. SUBDIVISION

5. BUILDING PERMIT

6. CONSTRUCTION (18-24 MONTHS)

7. FIELD STUDY

8. REZONING

9. DESIGN GUIDELINES (Community Vision Statement)

10. CONSTRUCTION

11. FIELD STUDY

Icona | PLACEMARK.CA

07 | P28

anmore history a land of pioneering | 1870 - 1960

investing in a growing region

For millennia, First Nations have occupied this area, maintaining its cultural and historical significance. With the arrival of Europeans, the region experienced transformations, yet the importance of Indigenous communities has continued to endure.

Pre-1774 | First Nations

Prior to contact with European explorers, First Nations groups lived and thrived on the lands around Burrard Inlet. The lands continue to be the traditional territory of local First Nations.



1860s-1870s | forestry
Sawmills are established and timber berths are granted on the shores of Burrard Inlet.



1903 | buntzen dam
The Burrard Powerhouse, Vancouver's first hydroelectric plant, is established on Trout Lake (now Buntzen Lake).



1915 | loco refinery
The Imperial Oil Company Refinery begins operation.



1922 | logging crew
Work starts on the new 'Sunnyside Road' beginning at the north end of First Avenue and traveling uphill to Anmore.



1925 | sunnyside road

1882 | CP rail
Canadian Pacific Railway completes construction of dock and train station at Port Moody Harbour.



1914 | anmore homesteading
Lots in the Burrard Valley (S.A. 'Sunnyside' and 'Anmore') are auctioned off as 'homesteads' by the Dominion Government of Canada.



1914 | anmore homesteading
This is the greatest speculative 'boom' offered this year.
Adapted from *Anmore: A History* by BC Security Survey | April 1909

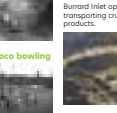
1919 | murray homestead clearing



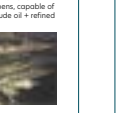
1919 | loco townsite
Land clearing for the loco townsite commences to provide much-needed housing for refinery employees.



1920 | loco car parade



1925 | trans mountain
The Trans Mountain Pipeline between Edmonton and Burrard Inlet opens, capable of transporting crude oil + refined products.



icona

PLACEMARK.CA

08 | P29

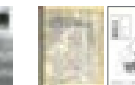
village of anmore history an evolving community | 1960 - today

retreating to rural

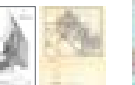
As industry declined and the region looked to develop the Anmore Valley, the Village incorporated to preserve its semi-rural lifestyle.



1961 | Burrard Thermal
BC Hydro commissions the first of six generating units at the Burrard Thermal Generating Station, with other units coming on-line over the next 12 years.



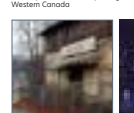
1978 | Anmore Development Plan
The CVRD prepares the Anmore Advance Development Plan to facilitate subdivision in Anmore and accommodate development for 15,000 new residents.



1987 | Port Moody's Expansion
The City of Port Moody extends its boundaries to include the loco Refinery + townsite - "the single largest source of Anmore's revenue"



1975 | loco in decline
The Imperial Oil Company builds the Strathcona Refinery in Edmonton, replacing older refineries in Western Canada.



1987 | Anmore's Incorporation
The Village of Anmore incorporates as a municipality.



1987 | Anmore's Incorporation

1995 | loco Refinery Shutdown
The loco refinery ceases operation and the loco industrial site is converted to a distribution facility.



icona

PLACEMARK.CA

09 | P30

seeking sustainability working with nature

Conserve Ecological Integrity

- Identify and protect both significant and sensitive terrestrial and aquatic habitats.
- Design an interconnected network of wildlife corridors to secure habitat and ensure functional ecology at a landscape scale.
- Minimize future disturbance of natural systems through comprehensive master planning.
- Promote stewardship of natural systems through interpretive programs and outdoor educational opportunities in cooperation with local stakeholder groups.

Create Networks of Parks + Natural Space

- Provide public parks and natural spaces that are accessible within a 5 minute walking distance of each home.
- Link neighbourhoods and natural areas with a pedestrian pathway network.
- Program active and passive community parks for gatherings and recreation.
- Create a variety of parks and natural spaces to accommodate different activities and age groups.

Celebrate Our Natural Heritage

- Promote active education and appreciation of west coast natural history.
- Incorporate First Nations landscape, design and wayfinding.
- Integrate community uses into the landscape, celebrating the unique views and vistas, landforms and natural character.
- Nurture community history and memorialize local people, places and events.
- Design public spaces that reflect the sense of place through use of native plants and local materials.



icona

PLACEMARK.CA

10 | P31

seeking sustainability supporting local lifestyles

Foster a Vibrant + Diverse Community

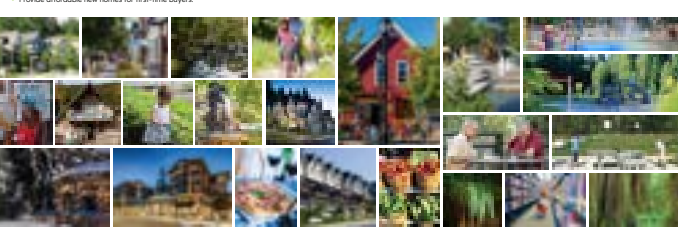
- Accommodate a range of lifestyles and life-stages.
- Provide a variety of housing choices, from duplexes and row houses to village apartments to ridge-top estates.
- Plan for "aging in place" through a variety of housing choices and encouraging the "Aging Home" standards in response to a maturing population.
- Promote a variety of housing tenures (i.e. fee simple, strata ownership, and purpose-built rental market, affordable and non-market rental).
- Provide a range of amenities for all age groups through the neighbourhood.
- Provide affordable new homes for first-time buyers.

Support an Economically Sound Community

- Create a walkable village centre serving as a focal point for employment, shopping, and social gathering.
- Incorporate residential density to support local businesses and community facilities.
- Plan compact neighbourhoods to reduce servicing networks and maintenance costs.
- Establish a mix of land uses, household types and building forms for a variety of residents.

Celebrate Local Art + Culture

- Incorporate a sense of place in the design of new developments.
- Design opportunities to live, work and play in the community.
- Interpret and highlight local cultural history for residents and visitors.
- Plan for the integration of art, theatre, and other local cultural activities into programming of gathering spaces.
- Infuse the spirit of the public realm, especially streets, parks, plazas for the celebration of local art and culture.



icona

PLACEMARK.CA

11 | P32

seeking sustainability living lightly

Design Compact, Walkable Neighbourhoods

- Create a sense of place within each neighbourhood.
- Provide a coherent neighbourhood pattern of streets + pathways with a variety of home & lot sizes.
- Design streets for people and create an enjoyable pedestrian environment.
- Encourage walking through the incorporation of amenities & parks within a 5-minute walking distance of each home.
- Promote neighbourhood safety by designing homes that address the public realm with "eyes on the street".

Create Networks of Parks + Natural Space

- Accommodate all modes of transport, especially walking, cycling and public transit.
- Provide dedicated neighbourhood bike and pedestrian pathways to link community destinations.
- Establish a transit-friendly street network, with future shuttles to transit centres.
- Reduce vehicle trips by providing local neighbourhood shops + services close to home.
- Explore future alternatives, such as community cars, to reduce auto-dependence.

Celebrate Our Natural Heritage

- Foster local food systems through farms and markets, greenhouses, community gardening and outdoor educational opportunities.
- Utilize innovative best practices for rainwater and stormwater management.
- Explore alternative energy solutions, such as geo-exchange and passive solar design.
- Design greener streets that minimize the visual, environmental and physical impacts from conventional roads.
- Promote native plantings in landscape design.

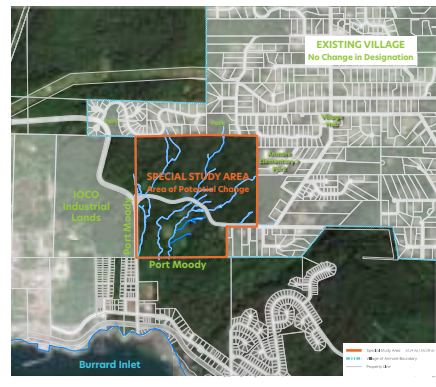


icona

PLACEMARK.CA

12 | P33

understanding the land anmore south context



- New Western Village Gateway**
Position: Lower southwest corner of Village, below surrounding neighbours
- Proximity:** 600m from Burrard Inlet waterfront and adjacent to Port Moody loco industrial lands
- Boundary:** Southwest municipal boundary with Port Moody
- Streets:** Bisected by historic Sunnyside Road on major road network at western Village gateway
- Frontage:** Legal frontage along both Sunnyside Road and First Avenue
- Civic:** Adjacent Anmore Elementary and municipal parks
- Forest:** Second + third growth forest following historic clearcut logging
- Streams:** Upper reaches of Doctor's and Schoolhouse Creek stream system
- Gun range:** Former shooting range south of Sunnyside Road
- Disconnected roads:** opportunity to connect to existing neighbourhood roads and complete street network
- Ownership:** Consolidated ownership allows for comprehensive planning + implementation
- Scale:** Significant land area of 151 acres
- Entitlements:** OCP designated for Hillside Residential development with RS-1 Zoning
- Development Rights:** 86 Single Family Homes approved in Principle

icona

PLACEMARK.CA

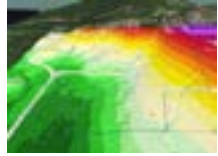
understanding the land biophysical analysis

Existing Conditions

The Biophysical analysis provides a detailed understanding of Anmore South's complexities and provides the foundation for the technical planning + design undertaken as part of the OCP Amendment Application.

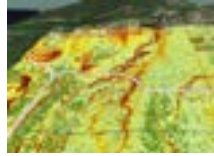
The 151-acre site includes a series of topographic features, from steep slopes + ravines, ridges + terraces - creating a distinctive landscape within the larger community of Anmore.

Landform | hillside basin



- The elevation range is significant - starting from 15m in the southwest and climbing to 165m in the northeast.
- The topography is structured into 3 'floors' - a lower (green), below Sunnyside; a middle (cream-yellow), the heart; and an upper (red), at Anmore Elementary School.

Slope + Geotech | incised hillside ravines



- The site is a consistent hillside with areas of steep slopes (>30%) generally related to Schoolhouse + Doctor's Creek ravines.
- The site requires hillside sensitivity in neighbourhood planning + design.
- Extensive gentle areas south of Sunnyside Road provide opportunities for programmed community recreation.

Aspect + Views | sunny southwest views



- The site's dominant southern and south-western aspects takes advantage of afternoon and evening sunlight.
- Opportunities for positive solar gain through building siting.
- Portions of the site offer views of Burnaby Mountain and Burrard Inlet.

understanding the land environmental inventory



Detailed Environmental Assessment

- Terrestrial Habitat Mapping identified four habitat types:
 - mature second/third growth coniferous forest
 - second/third growth mixed forest
 - regenerating forest
 - wetland
- Habitat assessments and surveys have confirmed use of the site by species typical to this landscape and region - from Black-tailed Deer and Black-bear to Northwestern Salamander.
- Fish-bearing and non-fish-bearing streams were identified - with protected riparian corridors.
- Observations of Species at Risk included Coastal Cutthroat Trout and Coastal Tailed Frog.
- Historic industrial logging, fish passage barriers, and invasive species provide ample opportunities for site habitat restoration + enhancement.
- Riparian areas are protected under Provincial Riparian Areas Protection Act, requiring detailed Riparian Area Protection Regulation Assessments.
- A year-long study of watercourses was undertaken to evaluate flow contribution and permanence (i.e., flow >6 months per year to determine potential candidates for compensation and habitat enhancement and consolidation).

understanding place informing the design



Opportunities Summary

Given the varied topography and position of the Anmore South lands, the following physical attributes have informed the planning in support of a more complete community.

- Landscape**
 - Hillside Condition 20-30%
 - Steep Slopes >30%
 - Streams + Riparian Areas
 - Major Landforms
- Experience**
 - Southwest Sun Exposure
 - Significant Mountain Views
 - 5-10 minute (400m) Walkable Scale
- Neighbours**
 - Anmore Elementary School
 - Village Parks + Trail
 - Residential Neighbourhoods
 - Village Hub
- Regulations + Infrastructure**
 - Geotechnical and Environmental Setbacks
 - Major Road Network, Buffers and Gateways
 - Neighbourhood Road and Trail Tie-ins



green network protecting what's important



Conservation + Recreation Framework

The proposed OCP Amendment Application provides the opportunity to protect ~50% of the land within publicly-dedicated Parks, Natural Areas + Greenways, with a connected trail network, forested buffers along streets and existing neighbourhoods, and 29 acres of public parks dedicated for community recreation and gathering.



community connections linking the neighbourhood



Liveable Streets + Trails
The proposed Anmore South Street Network has the potential to establish a pedestrian/cyclist-first public realm with a unified network of liveable streets + multi-use pathways to encourage a safe, connected community.



a home for everyone housing diversity + community heart



Vibrant Village Neighbourhood

A mix of housing - from ground-oriented duplex through to townhomes and 6-storey apartments provides a vibrant community experience, allowing for future growth with a range of lifestyles, life-stages and incomes. The plan's mixed-use village offers shops, services, and a community centre - all within a 5-minute walk of Anmore Elementary School. The phased build-out of Anmore South is anticipated to span 25+ years, accommodating long-term managed growth to benefit the Village.



anmore south benefits growth and change over 25 years

<p>HOUSING</p> <p>3,100 - 3,500 Units Mix of ground-oriented homes + apartments up to 6 storeys phased over ~25 years.</p>	<p>CIVIC FACILITIES</p> <p>25,000 sq Community Centre in Mixed-Use Village</p>	<p>HOUSING CHOICE</p> <p>Range of Housing Tenures including rental + below-market units, with Anmore-Resident-First policy.</p>	<p>PARK + TRAILS</p> <p>9.3 ac Neighbourhood Park</p> <p>>62 ac Protected + Dedicated Natural Areas</p> <p>>4 km Accessible Greenways + Trails</p>
<p>POPULATION</p> <p>5,100 - 6,700 Residents achieving 6-7% per year Regional Growth Target</p>	<p>SHOPS + SERVICES</p> <p>>4 ac Commercial Land -50,000 sq of Retail Space Across 2 Sites</p>	<p>FIRE DEPARTMENT</p> <p>15 Dedicated Units for SVFD Volunteer Firefighters</p>	<p>TRANSPORTATION</p> <p>Pedestrian-First Streets</p> <p>Potential Community Shuttle to Regional Transit Centre</p> <p>Safe Cycling Routes</p>
<p>STUDENT ESTIMATE</p> <p>430 Students Supporting Local School Catchment</p>	<p>JOBS</p> <p>580 Permanent Local Jobs generated by commercial lands, community centre, local government + schools</p>	<p>FINANCE</p> <p>Generates Positive Cash Flow for Local Government leveraging tax revenue, DCICs + CACs to ensure development pays for itself</p>	

regional services servicing anmore south

Anmore South Site Infrastructure

Aplin & Martin Engineering have provided preliminary concepts for municipal drinking water, sanitary, and drainage systems to confirm neighbourhood feasibility. To preserve the Village's current semi-rural character, new civil water, sanitary, and drainage infrastructure will be contained to Anmore South.

Detailed infrastructure servicing plans will be prepared as part of the future neighbourhood planning process. In compliance with OCP Policy, new Anmore South infrastructure will be paid for by development and will not burden existing taxpayers.

<p>Water safe municipal network</p> <ul style="list-style-type: none"> The Anmore South water system is expected to connect to regional water distribution at First Avenue, providing water across the site's 5 pressure zones. 	<p>Sanitary clean wastewater system</p> <ul style="list-style-type: none"> The Anmore South sanitary system collects wastewater from the Anmore South lands and connects to the regional sewer system at First Avenue. 	<p>Drainage layered rainwater management</p> <ul style="list-style-type: none"> The layered rainwater management system will slow release rainwater back to on-site streams and natural areas at multiple points following on-site retention and infiltration.
---	--	--

anmore south sketches mixed-use village



anmore south sketches pedestrian-first neighbourhood street



anmore south sketches neighbourhood park + apartments



anmore south sketches community park



anmore south sketches multi-family homes + community trail



icona

PLACEMARK.CA

thank you! open house

icona thanks you for participating in the Anmore South Open House

We value your input on the future of the Anmore South lands. The Anmore South OCP Amendment Application is intended to accommodate change for future generations while preserving the semi-rural character of the existing Village.



icona

Please complete a feedback form and return it to the project team before leaving the Open House. Working with the feedback we receive, the Project Team plans to submit the application to the Village of Anmore in May 2023 to launch the Special Study Area process.

We look forward to seeing you again at future Anmore South consultation events.

The Anmore South OCP Amendment Application will:

1. Accommodate change in a way that meets regional growth objectives - ensuring we all do our part; and
2. Protect Anmore's existing semi-rural character - by focusing future growth within the Special Study Area.

Opportunity for Future Public Engagement

Anmore Planning Process

Icona Community Consultation | 2021-2022
Getting to know the community and conducting initial planning for the Anmore South Lands

we are here

Pre-Application | 2022-Present

Understanding the Anmore South lands, talking with the community, and confirming the Village of Anmore OCP process and planning priorities for the Special Study Area.

OCP Amendment | May 2023

Designing future land uses for the Anmore South Special Study Area, and considering future community benefits.

Neighbourhood Planning | 2023-2024

Detailing land use, servicing and transportation requirements to guide future planning approvals for the Anmore South Lands.

Rezoning + Phased Development Agreement | 2024

Submitting rezoning and development permit applications based on a phased community build-out.

PLACEMARK.CA

feedback summary

survey

open house | survey

April 15th 2023

Anmore South OCP Amendment Application

Name (optional): _____

Information collected in this survey will be shared with the Village of Anmore.



1. Are you a current resident of Anmore?

Yes

No

If no, please specify municipality of residence:

If yes, what neighbourhood do you reside in?

Birch Wynde

Crystal Creek

Dogwood

Ridge Mountain

Uplands

Green Estates

Sunset Ridge

Other, please specify:

Ravenswood

Hemlock

Thomson

icona

open house | survey

Anmore South OCP Amendment Application

April 15th 2023

2. What are the most needed forms of housing in Anmore South?

Check all that apply

- Acreage (Rural) Single Family or Duplex Townhome Apartment

3. What are the most needed Park program features for Anmore South?

Check all that apply

- Play Fields Dog Park Multi-use Courts Community Garden
 Bike Pump Track Nature Playground Walkable from Home Other, please Specify:
-

4. What are the most needed Community Centre program features for Anmore South?

Check all that apply

- Daycare Art Studio Learning Centre Splash Park
 Seniors' Activity Centre Youth Activity Centre Performance Space Other, please Specify:
-

5. What are the most needed Shops + Service program features for Anmore South?

Check all that apply

- Health Centre Cafe Grocery Store Banking
 Professional Offices Restaurant/Pub Farmer's Market Other, please Specify:
-

open house | survey

Anmore South OCP Amendment Application

April 15th 2023

6. What are the most needed Natural Area program features for Anmore South?

Check all that apply

- | | | | |
|--|--|--|--|
| <input type="checkbox"/> Hiking Trails | <input type="checkbox"/> Accessible Paths | <input type="checkbox"/> Viewpoints | <input type="checkbox"/> Cultural Monumentation |
| <input type="checkbox"/> Environmental Restoration + Enhancement | <input type="checkbox"/> Ecological Reserves | <input type="checkbox"/> Educational Signage | <input type="checkbox"/> Other, please Specify:
_____ |

7. What are the most needed features for Liveable Streets in Anmore South?

Check all that apply

- | | | | |
|--|---|--|--|
| <input type="checkbox"/> Street Trees | <input type="checkbox"/> Parking | <input type="checkbox"/> Bioswales | <input type="checkbox"/> Avoiding Steep Roads |
| <input type="checkbox"/> Separated Sidewalks | <input type="checkbox"/> Safe Bicycle Paths | <input type="checkbox"/> Limiting Paved Surfaces | <input type="checkbox"/> Other, please Specify:
_____ |

8. What do you like about the proposed Anmore South Neighbourhood?

9. What are your concerns regarding the proposed Anmore South Neighbourhood?

10. Please share any other comments on the proposed Anmore South Neighbourhood:

Thank you for your feedback!

Please leave your completed survey with the Project Team before you leave.

icona

feedback summary

event photos

The Open House was hosted on April 15th, 2023 in Anmore Elementary School from 1 - 3 pm.



Taken during the Open House, these pictures capture the community engagement event.



feedback summary

feedback breakdown

The following provides a breakdown of the comments received through completed surveys.



66
Surveys
Submitted

Are you a current resident of Anmore?		
Yes	51	77%
No	15	23%

23% of the attendees currently live outside of Anmore - the majority of them in Port Moody. Other answers were Belcarra, Coquitlam and New Westminster.

If yes, what neighbourhood do you reside in?		
Birch Wynde	6	13%
Uplands	1	2%
Ravenswood	3	6%
Crystal Creek	1	2%
Green Estates	3	6%
Hemlock	4	8%
Dogwood	2	4%
Sunset Ridge	0	0%
Thomson	1	2%
Ridge Mountain	0	0%
Other, please specify:	27	57%

The 57% of the attendees that reside in another neighbourhood responded as follows:

23% - Countryside

- 11% - Sunnyside
- 8% - East Road
- 6% - Strong Road
- 2% - Summerwood Lane
- 2% - Elementary Road
- 2% - Leggett
- 2% - Not specified

The majority of the Open House attendees reside in Countryside.

What are the most needed forms of housing in Anmore South?

Check all that apply:

Acreage (rural)	14	22%
Single-Family or Duplex	50	79%
Townhome	46	73%
Apartment	21	33%



Single-Family + Duplex were identified as most needed housing forms, followed by Townhome.

What are the most needed Park program features for Anmore South? Check all that apply:

Play Fields	33	55%
Bike Pump Track	17	28%
Dog Park	23	38%
Multi-use Courts	22	37%
Community Garden	20	33%
Nature Playground	44	73%
Walkable from Home	29	48%
Other (please specify)	9	15%



Play Fields and Walkable from Home were identified as most needed program park features for Anmore South.

Others identified natural areas, picnic benches, gazebos, indoor walking track, hiking, running and mountain bike trails as important features.

What are the most needed Community Centre program features for Anmore South? Check all that apply:

Daycare	36	65%
Art Studio	13	24%
Learning Centre	20	36%
Splash Park	20	36%
Senior Activity Centre	28	51%
Youth Activity Centre	34	62%
Performance Space	13	24%
Other (please specify)	11	20%



Daycare and Youth and Senior Activity Centres were identified as most needed Community Centre program features for Anmore South.

Others identified outdoor workout space, recreation centre, co-working space, turf field, pool and skating rink as important features.

What are the most needed Shops + Services program features for Anmore South? Check all that apply:

Health Centre	25	43%
Café	45	78%
Grocery Store	30	52%
Banking	8	14%
Professional Offices	6	10%
Restaurant / Pub	29	50%
Farmer's Market	28	48%
Other (please specify)	15	26%



A Café was identified as most needed, followed by Grocery Store, Restaurant / Pub and Farmer's Market.

Others identified co-working space, gallery, recreation centre, bakery, and a gym as important features. Some attendees mentioned that no shops are needed, because Port Moody is close enough.

What are the most needed Natural Area program features for Anmore South? Check all that apply:

Hiking Trails	46	78%
Accessible Paths	39	66%
Viewpoints	25	42%
Cultural Monumentation	9	15%
Environmental Restoration + Enhancement	33	56%
Ecological Reserves	30	51%
Educational Signage	15	25%
Other (please specify)	5	8%

Hiking Trails and Accessible Paths were identified as most needed, followed by Environmental Restoration + Enhancement and Ecological Reserve.

Others identified cycling paths and educational signage with reference to indigenous activity as important features.

One attendee mentioned that the area already has nice trails, while others identified the need for better/safer trails. .



What are the most needed features for Liveable Streets in Anmore South? Check all that apply:

Street Trees	39	66%
Parking	18	31%
Bioswales	14	24%
Avoiding Steep Roads	14	24%
Separated Sidewalks	28	47%
Safe Bike Paths	45	76%
Limiting Paved Surfaces	14	24%
Other (please specify)	6	10%



Safe Bike Paths and Street Trees identified as most needed, followed by Separated Sidewalks.

Others identified dark skies, and controlled neighbourhood parking as important features.

open house survey summary

Responses to questions 8, 9 and 10, regarding the proposed Anmore South Neighbourhood (likes, concerns, and general comments) are summarized as follows:

key areas of support

COMPLETE COMMUNITY

27% of respondents liked that the project would create a better sense of community in Anmore.

HOUSING DIVERSITY

17.5% of respondents liked that the project would provide diverse housing opportunities for all.

PROTECTED NATURAL AREAS

Respondents expressed support for the amount of nature/ forest that would be protected and retained in this project. Trail networks that are accessible to all abilities

SERVICING

Support was expressed for bringing sewer and water connections to Anmore.

AMENITIES

Support was expressed about the commercial and amenity opportunities.

key areas of concern

TRAFFIC

57% of respondents had two main concerns regarding traffic

2 roads in and out: there are currently only two roads that go in and out of Anmore. There is a possibility for a third road (David Connector) that is being pursued.

General traffic as Anmore is located near 3 popular outdoor locations. With increased population, more traffic is expected but may be worse during peak recreation time.

POPULATION GROWTH

Some concern was expressed about the total population of the development.

HOUSING FORMS

Some residents prefer single-family homes/ duplexes over townhomes and apartments.

The verbatim responses can be provided to the Village of Anmore upon request.

appendices

open house boards

welcome! open house

Proposed Anmore South OCP Amendment

On behalf of icona, Placemark welcomes you to our Open House - to further the community conversation regarding the Anmore South lands.

As a local planning firm with extensive experience working with communities, we are pleased to share the merits of changing the Anmore South Special

Study Area designation to direct growth for the benefit of Anmore.

An application to amend the Village's Official Community Plan will be submitted in May 2023 to launch the Special Study Area process.

Anmore Planning Process

icona Community Consultation | 2021-2022

Getting to know the community and conducting initial planning for the Anmore South Lands

we are here

Pre-Application | 2022-Present

Understanding the Anmore South lands, talking with the community, and confirming the Village of Anmore OCP process and planning priorities for the Special Study Area.

OCP Amendment | May 2023

Designing future land uses for the Anmore South Special Study Area, and considering future community benefits.

Neighbourhood Planning | 2023-2024

Detailing land use, servicing and transportation requirements to guide future planning approvals for the Anmore South lands.

Rezoning + Phased Development Agreement | 2024

Submitting rezoning and development permit applications based on a phased community build-out.



icona

PLACEMARK.CA

anmore south's team leveraging professional experience

Assisting icona in the preparation and submission of the proposed OCP Amendment requires a team of seasoned professionals bringing the required technical expertise, community planning, and public engagement skills for such a complex undertaking as Anmore South.



Placemark | Design + Development

- Lead Consultant + Project Management
- Community Planning and Design
- Community + Village Engagement



Bunt & Associates | Traffic + Transportation

- Preliminary Traffic Demand Management Study
- Transportation Planning Advisor



SLA | Landscape Architects

- Nature-based Landscape Architecture
- City-Nature Design Advisor



Aquaterra | Environmental Consultants

- Terrestrial Ecosystem + Habitat Mapping
- Preliminary Riparian Area Protection Regulation Watercourse Setbacks Guidance
- Preliminary Habitat Compensation Guidance



Inlailawatash | Archaeological Consultants

- Desktop Archaeological Overview Assessment (AOA).
- Archaeological Impact Mitigation Advisor



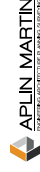
RC Strategies | Community Amenity Consultant

- Proposed Leisure Amenities Report
- Community Amenity Advisor



GeoPacific | Geotechnical Engineer

- Preliminary Geotechnical Report
- Geotechnical Hazard Mitigation Advisor



Aplin & Martin | Civil Engineering

- Preliminary Infrastructure Servicing Concepts
- Civil Engineering Advisor



Vann Struth | Economics + Finance

- Economic + Fiscal Impact Analysis
- Development Economic Advisor

anmore south meeting the challenges of a changing region

Why does the application matter now?

With a record number of people moving to the Metro Vancouver region every year, more homes are needed in our communities that are linked to places of work, services and recreation. The challenge is to do this in a way that does not diminish the natural environment.

Metro Vancouver's 2050 Regional Growth Strategy articulates a "collective vision for how growth will be managed to support the creation of complete, connected and resilient communities."

As one of the 21 municipalities within Metro Vancouver, Anmore has a role to play in a sustainable future for the region.



... It does not matter if you live in Vancouver or Anmore, we need all the communities to take part in it (providing more housing) ...

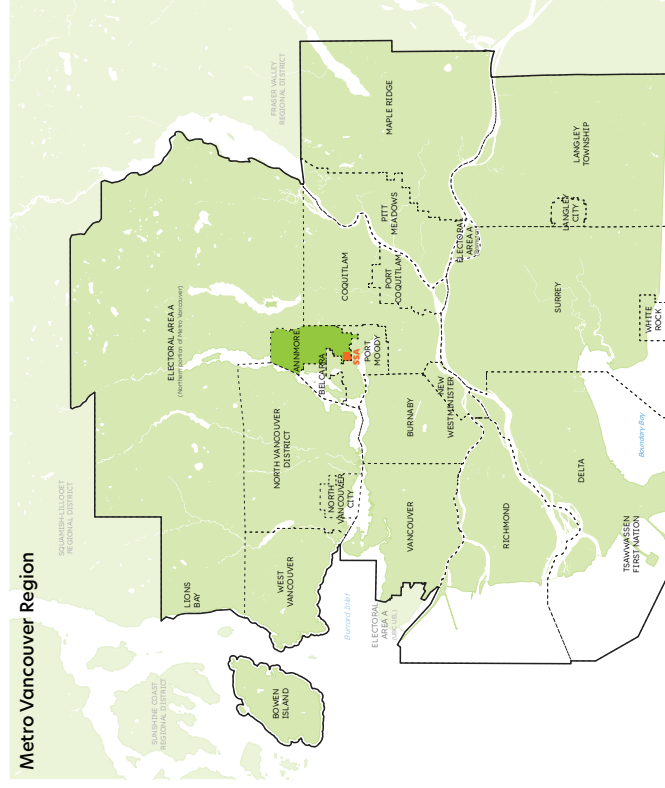
- Ravi Kahlon | BC Minister of Housing
January 2023

icona

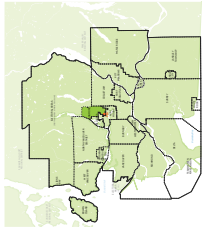
What does the Special Study Area offer?

The Special Study Area is an opportunity identified by both Metro Vancouver and the Village's OCP to:

1. **Accommodate change** in a way that meets regional growth objectives - ensuring we all do our part; and
2. **Protect Anmore's existing semi-rural character** - by focusing future growth within the Special Study Area.



anmore today a community + region in flux



Village of Anmore

Village Strengths

- Surrounded by 6,795 acres of natural green space
- Small-town character | 2,356 residents
- Close to destination parks | Sasamat + Buntzen Lakes
- Semi-Rural lifestyle
- Mixture of rural homes + acreages
- Local Elementary + Middle Schools
- New Village Hub Facility
- Near Regional Transit at Inlet Centre + Moody Centre Stations

Emerging Challenges

- The high cost of housing and lack of diversity for varying lifestyles, life-stages and incomes - including a lack of firefighter and affordable work-force housing
- Limited local recreation facilities, shops and services
- Car-oriented streets and unsafe pedestrian routes
- Extensive municipal infrastructure with limited tax base to support maintenance + improvements

Strategic Community Planning will play a key role in addressing emerging challenges and preserving Village character

Metro Vancouver Region

Regional Strengths

- Surrounded by Supernatural Beauty
- Third Largest Metropolitan Centre in Canada
- Major Pacific Rim Economic + Tourism Centre
- Tapestry of Rich + Diverse Cultural Histories

Emerging Challenges

- Responding to Climate Change + Natural Hazards
- Accommodating Growth
- Rapid Transit Network
- Advancing Social Equity
- Building Healthy + Resilient communities
- Ensuring Housing for All
- Ensuring Resilience
- Supporting Economic Prosperity
- Ensuring Food Production + Security
- Protecting the Natural Environment

Metro 2050 Regional Growth Strategy is a plan with population targets to accommodate more people in a sustaining way

anmore south special study area what's on the books

METRO 2050 | Regionally Recognized

Metro 2050 is the region's shared vision of how projected population, housing, and job growth will be managed over the next 30 years.

Metro 2050 designates Anmore South as a **Special Study Area** to accommodate future growth as part of the **Urban Containment Boundary** - enabling connection to the regional water and sanitary systems.

OCP 2014 | Municipally Mandated

The Village of Anmore's 2014 Official Community Plan acknowledges Metro 2050 designation of Anmore South as a **Special Study Area**.

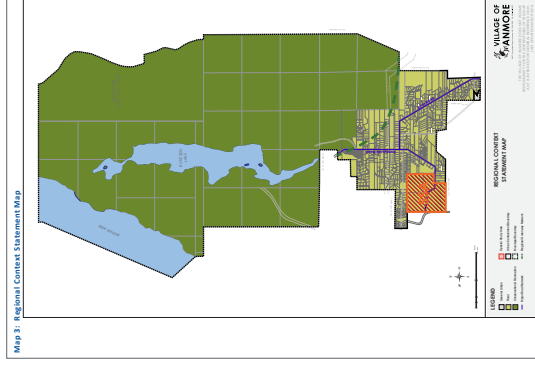
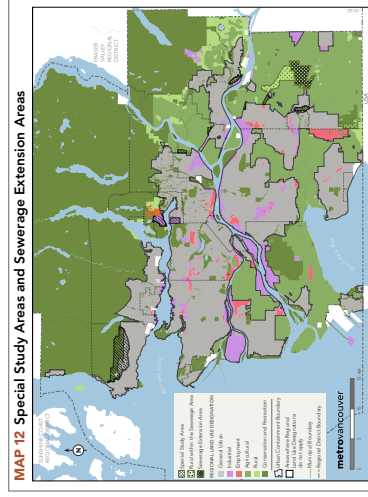
The OCP outlines the Village's requirement for any future development of these lands to be preceded by a **comprehensive neighbourhood plan** process with detailed technical analysis and extensive community engagement.

Current Zoning - RS1 | More Sprawl

Anmore South is currently zoned as RS1 - Residential One permitting 86 Large Rural Homes, resulting in:

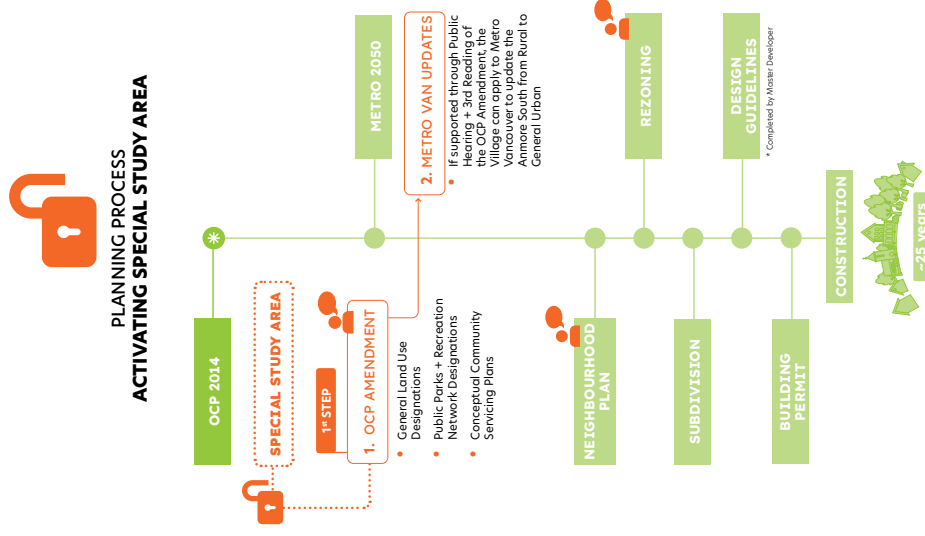
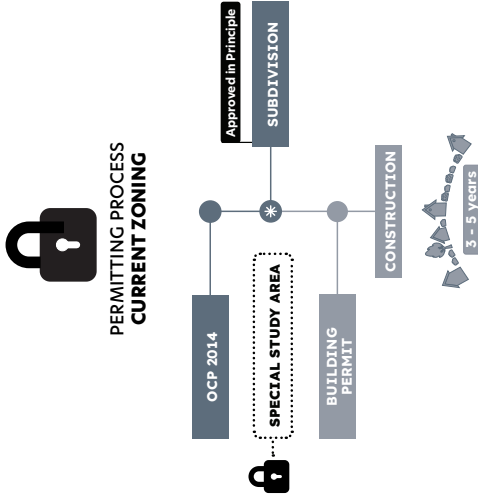
- 95% Large Lot Development on private services
- 75% of the land cleared for development
- new additional public road
- Further demands on municipal water
- Privatized stream + riparian area
- no trail network
- 5% Dedicated park

Unless the community unlocks the Special Study Area through an OCP Amendment Application, the lands will be developed according to current zoning.



a made-in-anmore future which path to pursue?

- At present, the Anmore South lands are approved in principle for large single family lots, in accordance with the current RS-1 Zoning
- The proposed Special Study Area OCP Amendment offers an opportunity to provide greater benefits for the community, with a Made-in-Anmore future
- A Made-in-Anmore future begins with inviting the community to participate in a proposal to unlock the potential of the Special Study Area to benefit Anmore
- If adopted, the OCP Amendment does not confer development rights on the property - it establishes a new community vision for Anmore South, and serves as a statement of intent and guide to future rezoning and development approvals
- Each step in the development approval process includes the requirement for public engagement and an opportunity for the community to make their views known to the Village of Anmore



= Opportunity for Public Engagement

icona

PLACEMARK.CA

anmore history a land of pioneering | 1870 - 1960

investing in a growing region

For millennia, First Nations have occupied this area, maintaining its cultural and historical significance. With the arrival of Europeans, the region experienced transformations, yet the importance of Indigenous communities has continued to endure.

Pre-1774 | First Nations

Prior to contact with European explorers, First Nations groups lived and thrived on the lands around Burrard Inlet. The lands continue to be the traditional territory of local First Nations.



1860s-1870s | forestry

Sawmills are established and timber berths are granted on the shores of Burrard Inlet.



1903 | buntzen dam

The Buntzen Powerhouse, Vancouver's first hydroelectric plant, is established on Trout Lake (now Buntzen Lake).



1915 | ioco refinery

The Imperial Oil Company Refinery begins operation.



1922 | logging crew



1925 | sunnyside road

Work starts on the new 'Sunnyside Road,' beginning at the north end of First Avenue and traveling uphill to Anmore.

1882 | CP rail

Canadian Pacific Railway completes construction of dock and train station at Port Moody Harbour.



1914 | anmore homesteading

Lots in the Buntzen Valley (a.k.a.) 'Sunnyside' and 'Anmore' are auctioned off as 'Homesteads' by the Dominion Government of Canada.



This is the greatest speculative 'snap' offered this year "

Advertisement for Sunnyside Lots
BC Saturday Sunset | April 1909

1919 | murray homestead clearing



1919 | ioco townsite

Land clearing for the Ioco Townsite commences to provide much-needed housing for refinery employees.



1915 | sunnyside road



1920 | ioco car parade



1935 loco bowling



1953 | trans mountain

The Trans Mountain Pipeline between Edmonton and Burrard Inlet opens, capable of transporting crude oil + refined products.



village of anmore history | 1960 - today

retreating to rural

As industry declined and the region looked to develop the Anmore Valley, the Village incorporated to preserve its semi-rural lifestyle.



1961 | Burrard Thermal

BC Hydro commissions the first of six generating units at the Burrard Thermal Generating Station, with other units coming on-line over the next 12 years



1978 | Anmore Development Plan

The GVRD prepares the Anmore Advance Development Plan to facilitate subdivision in Anmore and accommodate development for 15,000 new residents



1987 | Anmore's Incorporation

The Village of Anmore incorporates as a municipality.



1975 | loco in Decline

The Imperial Oil Company builds the Strathcona Refinery in Edmonton, replacing older refineries in Western Canada



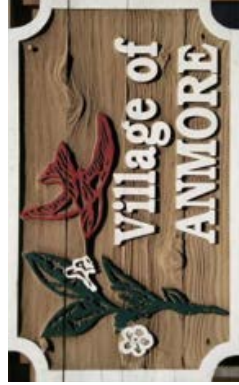
1987 | Port Moody's Expansion

The City of Port Moody extends its boundaries to include the loco Refinery + Townsite - "the single largest source of Anmore's revenue"



1995 | loco Refinery Shutdown

The loco refinery ceases operation and the loco industrial site is converted to a distribution facility



seeking sustainability working with nature

Conserve Ecological Integrity

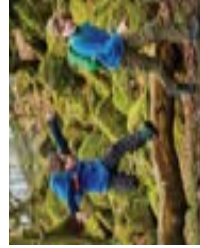
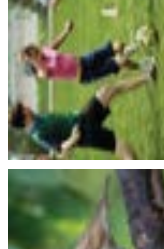
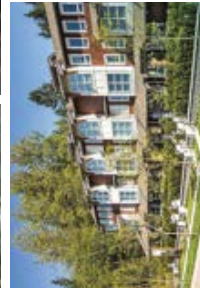
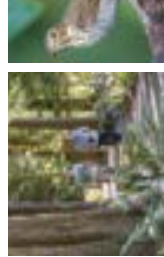
- Identify and protect both significant and sensitive terrestrial and aquatic habitats.
- Design an interconnected network of wildlife corridors to secure habitat and ensure functional ecology at a landscape scale.
- Minimize future disturbance of natural systems through comprehensive master-planning.
- Promote stewardship of natural systems through interpretive programs and outdoor educational opportunities in cooperation with local stakeholder groups.

Create Networks of Parks + Natural Space

- Provide public parks and natural spaces that are accessible within a 5 minute walking distance of each home.
- Link neighbourhoods and natural areas with a pedestrian pathway network.
- Program active and passive community parks for gatherings and recreation.
- Create a variety of parks and natural spaces to accommodate different activities and age groups.

Celebrate Our Natural Heritage

- Promote active education and appreciation of west coast natural history.
- Incorporate First Nations landscape, design and wayfinding.
- Integrate community uses into the landscape, celebrating the unique views and vistas, landforms and natural character.
- Nurture community history and memorialize local people, places and events.
- Design public spaces that reflect the sense of place through use of native plants and local materials.



seeking sustainability living lightly

Design Compact, Walkable Neighbourhoods

- Create a sense of place within each neighbourhood.
- Provide a coherent neighbourhood pattern of streets + pathways with a variety of home & lot sizes.
- Design streets for people and create an enjoyable pedestrian environment.
- Encourage walking through the incorporation of amenities & parks within a 5-minute walking distance of each home.
- Promote neighbourhood safety by designing homes that address the public realm with “eyes on the street.”

Create Networks of Parks + Natural Space

- Accommodate all modes of transport, especially walking, cycling and public transit.
- Provide dedicated neighbourhood bike and pedestrian pathways to link community destinations.
- Establish a transit-friendly street network, with future shuttles to transit centres.
- Reduce vehicle trips by providing local neighbourhood shops + services close to home.
- Explore future alternatives, such as community cars, to reduce auto-dependence.

Celebrate Our Natural Heritage

- Foster local food systems through farms and markets, greenhouses, community gardening and outdoor educational opportunities.
- Utilize innovative best practices for rainwater and stormwater management.
- Explore alternative energy solutions, such as geo-exchange and passive solar design.
- Design greener streets that minimize the visual, environmental and physical impacts from conventional roads.
- Promote native plantings in landscape design.



icona

PLACEMARK.CA

understanding the land anmore south context



New Western Village Gateway

- **Position:** Lower southwest corner of Village, below surrounding neighbours
- **Proximity:** 600m from Burrard Inlet waterfront and adjacent to Port Moody loco industrial lands
- **Boundary:** Southwest municipal boundary with Port Moody
- **Streets:** Bisected by historic Sunnyside Road on major road network at western Village gateway
- **Frontage:** Legal frontage along both Sunnyside Road and First Avenue
- **Civic:** Adjacent Anmore Elementary and municipal parks
- **Forest:** Second + third growth forest following historic clearcut logging
- **Streams:** Upper reaches of Doctor's and Schoolhouse Creek stream system
- **Gun range:** Former shooting range south of Sunnyside Road
- **Disconnected roads:** opportunity to connect to existing neighbourhood roads and complete street network
- **Ownership:** Consolidated ownership allows for comprehensive planning + implementation
- **Scale:** Significant land area of 151 acres
- **Entitlements:** OCP designated for Hillside Residential development with RS-1 Zoning
- **Development Rights:** 86 Single Family Homes approved in Principle

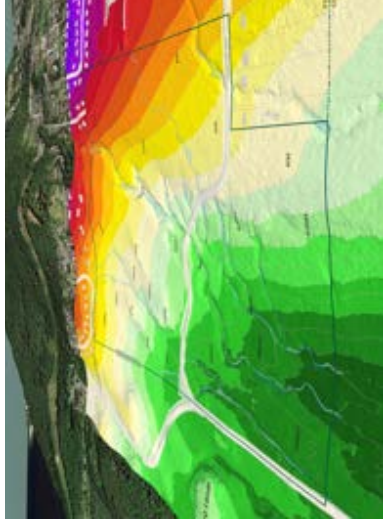
understanding the land biophysical analysis

Existing Conditions

The Biophysical analysis provides a detailed understanding of Anmore South's complexities and provides the foundation for the technical planning + design undertaken as part of the OCP Amendment Application.

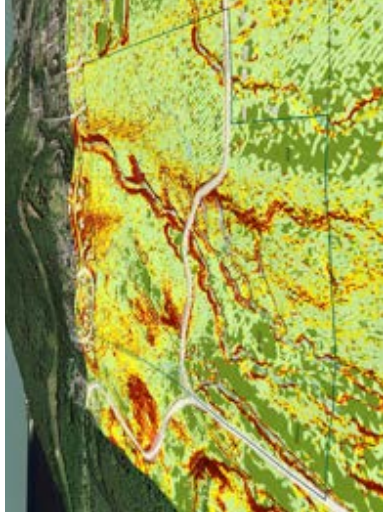
The 151-acre site includes a series of topographic features, from steep slopes + ravines, ridges + terraces - creating a distinctive landscape within the larger community of Anmore.

Landform | hillside basin



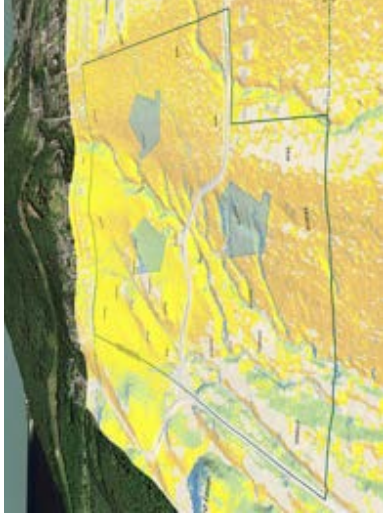
- The elevation range is significant - starting from 15m in the southwest and climbing to 165m in the northeast.
- The topography is structured into 3 'floors' - a lower (green), below Sunnyside; a middle (cream-yellow), the heart; and an upper (red), at Anmore Elementary School.

Slope + Geotech | incised hillside ravines



- The site is a consistent hillside with areas of steep slopes (>30%) generally related to Schoolhouse + Doctor's Creek ravines.
- The site requires hillside sensitivity in neighbourhood planning + design.
- Extensive gentle areas south of Sunnyside Road provide opportunities for programmed community recreation.

Aspect + Views | sunny southwest views



- The site's dominant southern and south-western aspect takes advantage of afternoon and evening sunlight.
- Opportunities for positive solar gain through building siting.
- Portions of the site offer views of Burnaby Mountain and Burrard Inlet.

understanding the land environmental inventory



Detailed Environmental Assessment

- Terrestrial Habitat Mapping identified four habitat types:
 - mature second/third growth coniferous forest
 - second/third growth mixed forest
 - regenerating forest
 - wetland
- Habitat assessments and surveys have confirmed use of the site by species typical to this landscape and region - from Black-tailed Deer and Black-bear to Northwestern Salamander.
- Fish-bearing and non-fish-bearing streams were identified - with protected riparian corridors.
- Observations of Species at Risk included Coastal Cutthroat Trout and Coastal Tailed Frog.
- Historic industrial logging, fish passage barriers, and invasive species provide ample opportunities for site habitat restoration + enhancement.
- Riparian areas are protected under *Provincial Riparian Areas Protection Act*, requiring detailed Riparian Area Protection Regulation Assessments.
- A year-long study of watercourses was undertaken to evaluate flow contribution and permanence (i.e., flow >6 months per year to determine potential candidates for consolidation and habitat enhancement and compensation).



understanding place informing the design



Opportunities Summary

Given the varied topography and position of the Anmore South lands, the following physical attributes have informed the planning in support of a more complete community.

Landscape

- Hillside Condition 20-30%
- Steep Slopes >30%
- Streams + Riparian Areas
- Major Landforms

Experience

- Southwest Sun Exposure
- Significant Mountain Views
- 5-10 minute (400m) Walkable Scale

Neighbours

- Anmore Elementary School
- Village Parks + Trail
- Residential Neighbourhoods
- Village Hub

Regulations + Infrastructure

- Geotechnical and Environmental Setbacks
- Major Road Network, Buffers and Gateways
- Neighbourhood Road and Trail Tie-ins

green network protecting what's important



Conservation + Recreation Framework
 The proposed OCP Amendment Application provides the opportunity to **protect ~50% of the land within publicly-dedicated Parks, Natural Areas + Greenways**, with a connected trail network, forested buffers along streets and existing neighbourhoods, and >9 acres of public parks dedicated for community recreation and gathering.



community connections linking the neighbourhood



Liveable Streets + Trails

The proposed Anmore South Street Network has the potential to establish a **pedestrian/cyclist-first public realm with a unified network of liveable streets + multi-use pathways** to encourage a safe connected community.



a home for everyone housing diversity + community heart



Vibrant Village Neighbourhood

A mix of housing - from ground-oriented duplex through to townhomes and 6-storey apartments - provides a vibrant community experience, allowing for future growth with a range of lifestyles, life-stages and incomes. The plan's mixed-use village offers shops, services, and a community centre - all within a 5-minute walk of Anmore Elementary School.

The phased build-out of Anmore South is anticipated to span 25+ years, accommodating long-term managed growth to benefit the Village.



anmore south benefits growth and change over 25 years

HOUSING



3,100 - 3,500 Units
Mix of ground-oriented homes
+ apartments up to 6 storeys
phased over ~25 years

CIVIC FACILITIES




25,000 sf
Community Centre
in Mixed-Use Village

HOUSING CHOICE




Range of Housing Tenures
including rental + below-market units,
with Anmore-Resident-First policy


PARK + TRAILS



9.3 ac
Neighbourhood
Park




>62 ac
Protected +
Dedicated
Natural Areas




>4 km
Accessible
Greenways + Trails

POPULATION



5,100 - 6,700
Residents
achieving 6-7% per year
Regional Growth Target

SHOPS + SERVICES




>4 ac
Commercial Land
~50,000 sf Retail Space
Across 2 Sites

FIRE DEPARTMENT




15
Dedicated Units
for SVFD Volunteer Firefighters


STUDENT ESTIMATE



230
Elementary



100
Middle



100
Secondary

430
Students
Supporting Local
School Catchment

JOBS




580
Permanent Local Jobs
generated by commercial lands,
community centre,
local government + schools

FINANCE




Generates
Positive Cash Flow
for Local Government
leveraging tax revenue, DCCs + CACs
to ensure development pays for itself


TRANSPORTATION



Pedestrian-First
Streets



Potential
Community Shuttle
to Regional Transit Centre



Safe Cycling
Routes

regional services servicing anmore south

Anmore South Site Infrastructure

Aplin & Martin Engineering have provided preliminary concepts for municipal drinking water, sanitary, and drainage systems to confirm neighbourhood feasibility. To preserve the Village's current semi-rural character, new civil water, sanitary, and drainage infrastructure will be contained to Anmore South.

Detailed infrastructure servicing plans will be prepared as part of the future neighbourhood planning process. In compliance with OCP Policy, new Anmore South infrastructure will be paid for by development and will not burden existing taxpayers.

Water | safe municipal network



- The Anmore South water system is expected to connect to regional water distribution at First Avenue, providing water across the site's 5 pressure zones.

Sanitary | clean wastewater system



- The Anmore South sanitary system collects wastewater from the Anmore South lands and connects to the regional sewer system at First Avenue.

Drainage | layered rainwater management



- The layered rainwater management system will slow release rainwater back to on-site streams and natural areas at multiple points following on-site retention and infiltration.

anmore south sketches mixed-use village



icona

PLACEMARK.CA

anmore south sketches pedestrian-first neighbourhood street



anmore south sketches neighbourhood park + apartments



icona

PLACEMARK.CA

anmore south sketches community park



icona

PLACEMARK.CA

anmore south sketches multi-family homes + community trail



icona

PLACEMARK.CA

thank you! open house

icona thanks you for participating in the Anmore South Open House

We value your input on the future of the Anmore South lands. The Anmore South OCP Amendment Application is intended to accommodate change for future generations while preserving the semi-rural character of the exiting Village.



Please complete a feedback form and return it to the project team before leaving the Open House. Working with the feedback we receive, the Project Team plans to submit the application to the Village of Anmore in May 2023 to launch the Special Study Area process.

We look forward to seeing you again at future Anmore South consultation events.

The Anmore South OCP Amendment Application will:

- 1. Accommodate change** in a way that meets regional growth objectives - ensuring we all do our part; and
- 2. Protect Anmore's existing semi-rural character** - by focusing future growth within the Special Study Area.



= Opportunity for future Public Engagement

Anmore Planning Process

icona Community Consultation | 2021-2022

Getting to know the community and conducting initial planning for the Anmore South Lands

we are here

Pre-Application | 2022-Present

Understanding the Anmore South lands, talking with the community, and confirming the Village of Anmore OCP process and planning priorities for the Special Study Area.

OCP Amendment | May 2023

Designing future land uses for the Anmore South Special Study Area, and considering future community benefits.

Neighbourhood Planning | 2023-2024

Detailing land use, servicing and transportation requirements to guide future planning approvals for the Anmore South lands.

Rezoning + Phased Development Agreement | 2024

Submitting rezoning and development permit applications based on a phased community build-out.

APPENDIX M: Site Profile, Title Search and Topographic Survey

SCHEDULE 1 Site Profile

Version 4.0

Introduction

Under section 40 of the *Environmental Management Act*, a person who knows or reasonably should know that a site has been used or is used for industrial or commercial purposes or activities must in certain circumstances provide a site profile.

Schedule 2 of the Contaminated Sites Regulation sets out the types of industrial or commercial purposes or activities to which site profile requirements apply.

If section 40 of the Environmental Management Act applies to you and you know or reasonably should know that the site has been used or is used for one of the purposes or activities found in Schedule 2 of the Contaminated Sites Regulation, you may be required to complete the attached site profile.

Notes/Instructions:

Persons preparing a site profile *must* complete Section I, II and III, answer all questions in sections IV through IX, and sign section XI. If the site profile is not satisfactorily completed, it will not be processed under the *Environmental Management Act* and the Contaminated Sites Regulation. Failure to complete the site profile satisfactorily may result in delays in approval of relevant applications and in the postponement of decisions respecting the property.

The person completing this site profile is responsible for the accuracy of the answers. Questions must be answered *to the best of your knowledge*.

Section 27 (1) of the *Freedom of Information and Protection of Privacy Act* requires that provision of personal information concerning an individual must be authorized by that individual. Persons completing the site profile on behalf of the site owner must be authorized by the site owner.

One (1) site profile may be completed for a site comprised of more than one titled or untitled parcel, but individual parcels must be identified.

The latitude and longitude (accurate to 0.5 of a second using North American Datum established in 1983) of the centre of the site must be provided. Also, please attach an accurate map, containing latitude, longitude and datum references, which shows the boundaries of the site in question. Please use the largest scale map available.

If the property is legally surveyed, titled and registered, then all PID numbers (**P**arcel **I**dentifiers – Land Title Registry system) must be provided for *each* parcel as well as the appropriate legal description.

If the property is untitled Crown land (no PID number), then the appropriate PIN numbers (**P**arcel **I**dentification **N**umbers – Crown Land registry system) for each parcel with the appropriate land description should be supplied.

If available, the Crown Land File Number for the site should also be supplied.

Anything submitted in relation to this site profile will become part of the public record and may be made available to the public through the Site Registry as established under the *Environmental Management Act*.

Under section 43 of the *Environmental Management Act*, corporate and personal information contained in the site profile may be made available to the public through the Site Registry. If you have questions concerning the collection of this information, contact the Site Registrar, at site@gov.bc.ca. For questions on site profiles, please send a message to siteprofiles@gov.bc.ca.

I CONTACT IDENTIFICATION

A. Name of Site Owner:

Last _____ First _____ Middle Initial(s) _____ (and/or, if applicable)

Company loco AM Land Holdings Ltd

Owner's Civic Address 1200-200 Burrard Street

City Vancouver Province/State BC

Country Canada Postal Code/ZIP V6C 3L6

B. Person Completing Site Profile (Leave blank if same as above):

Last Schmidt First Laurie Middle Initial(s) W (and/or, if applicable)

Company icona Properties Ltd.

C. Person to Contact Regarding the Site Profile:

Last Schmidt First Laurie Middle Initial(s) W (and/or, if applicable)

Company icona Properties Ltd.

Mailing Address 900-1111 W. Hastings Street

City Vancouver Province/State BC

Country Canada Postal Code/ZIP V6E 2J3

Telephone (778) 900 - 1323 Fax (_____) _____ - _____

II SITE IDENTIFICATION

Please attach a site location map

All Property

Coordinates (using the North American Datum 1983 convention) for the centre of the site:

Latitude: Degrees _____ Minutes _____ Seconds _____

Longitude: Degrees _____ Minutes _____ Seconds _____

Please attach a map of appropriate scale showing the boundaries of the site.

For Legally Titled, Registered Property

Site Street Address (if applicable) 600, 1605 & 1755 Sunnyside Road

City Village of Anmore Postal Code _____

PID numbers and associated legal descriptions. *Attach an additional sheet if necessary.*

<u>PID</u>	<u>Legal Description</u>
031-060-447	Lot 1 DL 269 Gr 1 NWD District Plan EPP99431
031-060-455	Lot 2 DL 269 Gr 1 NWD District Plan EPP99431
031-060-463	Lot 3 DL 269 Gr 1 NWD District Plan EPP99431

Total number of titled parcels represented by this site profile is: 3

For Untitled Crown Land

PIN numbers and associated Land Description. *Attach an additional sheet if necessary.*

<u>PIN</u>	<u>Land Description</u>

Total number of untitled crown land parcels represented by this site profile is: _____

(and, if available)

Crown land file numbers. *Attach an additional sheet if necessary.*

III COMMERCIAL AND INDUSTRIAL PURPOSES OR ACTIVITIES

Please indicate below, in the format of the example provided, which of the industrial and commercial purposes and activities from Schedule 2 have occurred or are occurring on this site.

EXAMPLE

<u>Schedule 2 Reference</u>	<u>Description</u>
E1	appliance, equipment or engine repair, reconditioning, cleaning or salvage
F10	solvent manufacturing or wholesale bulk storage

Please print legibly. Attach an additional sheet if necessary

<u>Schedule 2 Reference</u>	<u>Description</u>

IV AREAS OF POTENTIAL CONCERN			
	Is there currently or to the best of your knowledge has there previously been on the site any (please mark the appropriate column opposite the question):	YES	NO
A.	Petroleum, solvent or other polluting substance spills to the environment greater than 100 litres?		✗
B.	Residue left after removal of piled materials such as chemicals, coal, ore, smelter slag, air quality control system baghouse dust?		✗
C.	Discarded barrels, drums or tanks?		✗
D.	Contamination resulting from migration of substances from other properties?		✗
V FILL MATERIALS			
	Is there currently or to the best of your knowledge has there previously been on the site any deposit of (please mark the appropriate column opposite the question):	YES	NO
A.	Fill dirt, soil, gravel, sand or like materials from a contaminated site or from a source used for any of the activities listed under Schedule 2?		✗
B.	Discarded or waste granular materials such as sand blasting grit, asphalt paving or roofing material, spent foundry casting sands, mine ore, waste rock or float?		✗
C.	Dredged sediments, or sediments and debris materials originating from locations adjacent to foreshore industrial activities, or municipal sanitary or stormwater discharges?		✗
VI WASTE DISPOSAL			
	Is there currently or to the best of your knowledge has there previously been on the site any landfilling, deposit, spillage or dumping of the following materials (please mark the appropriate column opposite the question):	YES	NO
A.	Materials such as household garbage, mixed municipal refuse, or demolition debris?		✗
B.	Waste or byproducts such as tank bottoms, residues, sludge, or flocculation precipitates from industrial processes or wastewater treatment?		✗
C.	Waste products from smelting or mining activities, such as smelter slag, mine tailings, or cull materials from coal processing?		✗
D.	Waste products from natural gas and oil well drilling activities, such as drilling fluids and muds?		✗
E.	Waste products from photographic developing or finishing laboratories; asphalt tar manufacturing; boilers, incinerators or other thermal facilities (e.g. ash); appliance, small equipment or engine repair or salvage; dry cleaning operations (e.g. solvents); or from the cleaning or repair of parts of boats, ships, barges, automobiles or trucks, including sandblasting grit or paint scrapings?		✗

VII TANKS OR CONTAINERS USED OR STORED, OTHER THAN TANKS USED FOR RESIDENTIAL HEATING FUEL			
	Are there currently or to the best of your knowledge have there been previously on the site any (please mark the appropriate column opposite the question):	YES	NO
A.	Underground fuel or chemical storage tanks other than storage tanks for compressed gases?		✗
B.	Above ground fuel or chemical storage tanks other than storage tanks for compressed gases?		✗
VIII HAZARDOUS WASTES OR HAZARDOUS SUBSTANCES			
	Are there currently or to the best of your knowledge have there been previously on the site any (please mark the appropriate column opposite the question):	YES	NO
A.	PCB-containing electrical transformers or capacitors either at grade, attached above ground to poles, located within buildings, or stored?		✗
B.	Waste asbestos or asbestos containing materials such as pipe wrapping, blown-in insulation or panelling buried?		✗
C.	Paints, solvents, mineral spirits or waste pest control products or pest control product containers stored in volumes greater than 205 litres?		✗
IX LEGAL OR REGULATORY ACTIONS OR CONSTRAINTS			
	To the best of your knowledge are there currently any of the following pertaining to the site (please mark the appropriate column opposite the question):	YES	NO
A.	Government orders or other notifications pertaining to environmental conditions or quality of soil, water, groundwater or other environmental media?		✗
B.	Liens to recover costs, restrictive covenants on land use, or other charges or encumbrances, stemming from contaminants or wastes remaining onsite or from other environmental conditions?		✗
C.	Government notifications relating to past or recurring environmental violations at the site or any facility located on the site?		✗
X ADDITIONAL COMMENTS AND EXPLANATIONS			
<p>(Note 1: Please list any past or present government orders, permits, approvals, certificates and notifications pertaining to the environmental condition, use or quality of soil, surface water, groundwater or biota at the site.</p> <p>Note 2: If completed by a consultant, receiver or trustee, please indicate the type and degree of access to information used to complete this site profile. Attach extra pages, if necessary):</p> <hr/> <hr/> <hr/> <hr/>			

XI SIGNATURES

The person completing the site profile states that the above information is true based on the person's current knowledge as of the date completed.

L Schmidt
Signature of person completing site profile

22-03-18
Date completed: (YY-MM-DD)

XII OFFICIAL USE

Local Government Authority

Reason for submission *(Please check one or more of the following)* Soil removal
 Subdivision application Zoning application Development permit Variance permit Demolition permit

Date received:	<u>Local Government contact :</u> Name _____ Agency _____ Address _____ _____ Telephone _____ Fax _____	Date submitted to Site Registrar:	Date forwarded to Director of Waste Management:
----------------	--	-----------------------------------	---

Director of Waste Management

Reason for submission *(Please check one or more of the following)*
 Under Order Site decommissioning Foreclosure

Date received:	<u>Assessed by:</u> Name _____ Region _____ Telephone _____ Fax _____ If site profile entered, SITE ID # _____	Investigation Required? YES NO	Decision date:
----------------	--	---------------------------------------	----------------

Site Registrar

Date received:	<u>Entered onto Site Registry by:</u>	SITE ID #:	Entry date:
----------------	---------------------------------------	------------	-------------

TITLE SEARCH PRINT

2022-01-28, 09:08:21

File Reference: 21-1116

Requestor: Stephen Hallingham

****CURRENT INFORMATION ONLY - NO CANCELLED INFORMATION SHOWN****

Title Issued Under SECTION 98 LAND TITLE ACT

Land Title District NEW WESTMINSTER
 Land Title Office NEW WESTMINSTER

Title Number CA8088191
 From Title Number CA7578000
 FB520948

Application Received 2020-03-13

Application Entered 2020-04-01

Registered Owner in Fee Simple
 Registered Owner/Mailing Address: IOCO AM LAND HOLDINGS LTD., INC.NO. BC1017304
 1200 - 200 BURRARD STREET
 P.O. BOX 48600
 VANCOUVER, BC
 V7X 1T2

Taxation Authority Anmore, Village of

Description of Land
 Parcel Identifier: 031-060-447
 Legal Description:
 LOT 1 DISTRICT LOT 269 GROUP 1 NEW WESTMINSTER DISTRICT PLAN EPP99431

Legal Notations
 NOTICE OF INTEREST, BUILDERS LIEN ACT (S.3(2)), SEE CA5368724
 FILED 2016-07-25

TITLE SEARCH PRINT

2022-01-28, 09:08:21

File Reference: 21-1116

Requestor: Stephen Hallingham

****CURRENT INFORMATION ONLY - NO CANCELLED INFORMATION SHOWN****

Title Issued Under	SECTION 98 LAND TITLE ACT
Land Title District Land Title Office	NEW WESTMINSTER NEW WESTMINSTER
Title Number From Title Number	CA8088191 CA7578000 FB520948
Application Received	2020-03-13
Application Entered	2020-04-01
Registered Owner in Fee Simple Registered Owner/Mailing Address:	IOCO AM LAND HOLDINGS LTD., INC.NO. BC1017304 1200 - 200 BURRARD STREET P.O. BOX 48600 VANCOUVER, BC V7X 1T2
Taxation Authority	Anmore, Village of
Description of Land Parcel Identifier: Legal Description:	031-060-447 LOT 1 DISTRICT LOT 269 GROUP 1 NEW WESTMINSTER DISTRICT PLAN EPP99431
Legal Notations	NOTICE OF INTEREST, BUILDERS LIEN ACT (S.3(2)), SEE CA5368724 FILED 2016-07-25

TITLE SEARCH PRINT

2022-01-28, 09:08:21

File Reference: 21-1116

Requestor: Stephen Hallingham

Charges, Liens and Interests

Nature:	RESTRICTIVE COVENANT
Registration Number:	CA4167322
Registration Date and Time:	2015-01-06 14:41
Remarks:	INTER ALIA APPURTENANT TO LOT 7 PLAN 13859; PARCEL A (REFERENCE PLAN 2891) OF PARCEL K (REFERENCE PLAN 1756) DISTRICT LOT 256 GROUP 1 NEW WESTMINSTER DISTRICT; PARCEL C (REFERENCE PLAN 2360) OF DISTRICT LOT 256 GROUP 1 NEW WESTMINSTER DISTRICT; PARCEL "K" (REFERENCE PLAN 1756) DISTRICT LOT 256 GROUP 1 EXCEPT: PART 13.1 ACRES (REFERENCE PLAN 2891) NEW WESTMINSTER DISTRICT; PARCEL "ONE" (REFERENCE PLAN 1709) DISTRICT LOT 256 GROUP 1 EXCEPT: PARCEL "C" (REFERENCE PLAN 2360); LOT 2 DISTRICT LOTS 219 AND 256 GROUP 1 NEW WESTMINSTER DISTRICT PLAN 18279

Nature:	COVENANT
Registration Number:	CA8088194
Registration Date and Time:	2020-03-13 16:09
Registered Owner:	VILLAGE OF ANMORE
Remarks:	INTER ALIA

Duplicate Infeasible Title NONE OUTSTANDING

Transfers NONE

Pending Applications NONE

TITLE SEARCH PRINT

2022-01-28, 09:08:54

File Reference: 21-1116

Requestor: Stephen Hallingham

****CURRENT INFORMATION ONLY - NO CANCELLED INFORMATION SHOWN****

Title Issued Under SECTION 98 LAND TITLE ACT

Land Title District NEW WESTMINSTER
Land Title Office NEW WESTMINSTER

Title Number CA8088192
From Title Number CA7578000
FB520948

Application Received 2020-03-13

Application Entered 2020-04-01

Registered Owner in Fee Simple
Registered Owner/Mailing Address: IOCO AM LAND HOLDINGS LTD., INC.NO. BC1017304
1200 - 200 BURRARD STREET
P.O. BOX 48600
VANCOUVER, BC
V7X 1T2

Taxation Authority Anmore, Village of

Description of Land
Parcel Identifier: 031-060-455
Legal Description:
LOT 2 DISTRICT LOT 269 GROUP 1 NEW WESTMINSTER DISTRICT PLAN EPP99431

Legal Notations
NOTICE OF INTEREST, BUILDERS LIEN ACT (S.3(2)), SEE CA5368724
FILED 2016-07-25

TITLE SEARCH PRINT

2022-01-28, 09:08:54

File Reference: 21-1116

Requestor: Stephen Hallingham

Charges, Liens and Interests

Nature:	RESTRICTIVE COVENANT
Registration Number:	CA4167322
Registration Date and Time:	2015-01-06 14:41
Remarks:	INTER ALIA APPURTENANT TO LOT 7 PLAN 13859; PARCEL A (REFERENCE PLAN 2891) OF PARCEL K (REFERENCE PLAN 1756) DISTRICT LOT 256 GROUP 1 NEW WESTMINSTER DISTRICT; PARCEL C (REFERENCE PLAN 2360) OF DISTRICT LOT 256 GROUP 1 NEW WESTMINSTER DISTRICT; PARCEL "K" (REFERENCE PLAN 1756) DISTRICT LOT 256 GROUP 1 EXCEPT: PART 13.1 ACRES (REFERENCE PLAN 2891) NEW WESTMINSTER DISTRICT; PARCEL "ONE" (REFERENCE PLAN 1709) DISTRICT LOT 256 GROUP 1 EXCEPT: PARCEL "C" (REFERENCE PLAN 2360); LOT 2 DISTRICT LOTS 219 AND 256 GROUP 1 NEW WESTMINSTER DISTRICT PLAN 18279

Nature:	COVENANT
Registration Number:	CA8088194
Registration Date and Time:	2020-03-13 16:09
Registered Owner:	VILLAGE OF ANMORE
Remarks:	INTER ALIA

Nature:	COVENANT
Registration Number:	CA8088196
Registration Date and Time:	2020-03-13 16:09
Registered Owner:	VILLAGE OF ANMORE
Remarks:	PART IN PLAN EPP99432

Duplicate Infeasible Title NONE OUTSTANDING

Transfers NONE

Pending Applications NONE

TITLE SEARCH PRINT

2022-01-28, 09:07:19

File Reference: 21-1116

Requestor: Stephen Hallingham

****CURRENT INFORMATION ONLY - NO CANCELLED INFORMATION SHOWN****

Title Issued Under	SECTION 98 LAND TITLE ACT
Land Title District Land Title Office	NEW WESTMINSTER NEW WESTMINSTER
Title Number From Title Number	CA8088193 FB520948
Application Received	2020-03-13
Application Entered	2020-04-01
Registered Owner in Fee Simple Registered Owner/Mailing Address:	IOCO AM LAND HOLDINGS LTD., INC.NO. BC1017304 1200 - 200 BARRARD STREET P.O. BOX 48600 VANCOUVER, BC V7X 1T2
Taxation Authority	Anmore, Village of
Description of Land Parcel Identifier: Legal Description:	031-060-463 LOT 3 DISTRICT LOT 269 GROUP 1 NEW WESTMINSTER DISTRICT PLAN EPP99431
Legal Notations	NOTICE OF INTEREST, BUILDERS LIEN ACT (S.3(2)), SEE CA5368724 FILED 2016-07-25

TITLE SEARCH PRINT

2022-01-28, 09:07:19

File Reference: 21-1116

Requestor: Stephen Hallingham

Charges, Liens and Interests

Nature:	RESTRICTIVE COVENANT
Registration Number:	CA4167322
Registration Date and Time:	2015-01-06 14:41
Remarks:	INTER ALIA APPURTENANT TO LOT 7 PLAN 13859; PARCEL A (REFERENCE PLAN 2891) OF PARCEL K (REFERENCE PLAN 1756) DISTRICT LOT 256 GROUP 1 NEW WESTMINSTER DISTRICT; PARCEL C (REFERENCE PLAN 2360) OF DISTRICT LOT 256 GROUP 1 NEW WESTMINSTER DISTRICT; PARCEL "K" (REFERENCE PLAN 1756) DISTRICT LOT 256 GROUP 1 EXCEPT: PART 13.1 ACRES (REFERENCE PLAN 2891) NEW WESTMINSTER DISTRICT; PARCEL "ONE" (REFERENCE PLAN 1709) DISTRICT LOT 256 GROUP 1 EXCEPT: PARCEL "C" (REFERENCE PLAN 2360); LOT 2 DISTRICT LOTS 219 AND 256 GROUP 1 NEW WESTMINSTER DISTRICT PLAN 18279

Nature:	COVENANT
Registration Number:	CA8088194
Registration Date and Time:	2020-03-13 16:09
Registered Owner:	VILLAGE OF ANMORE
Remarks:	INTER ALIA

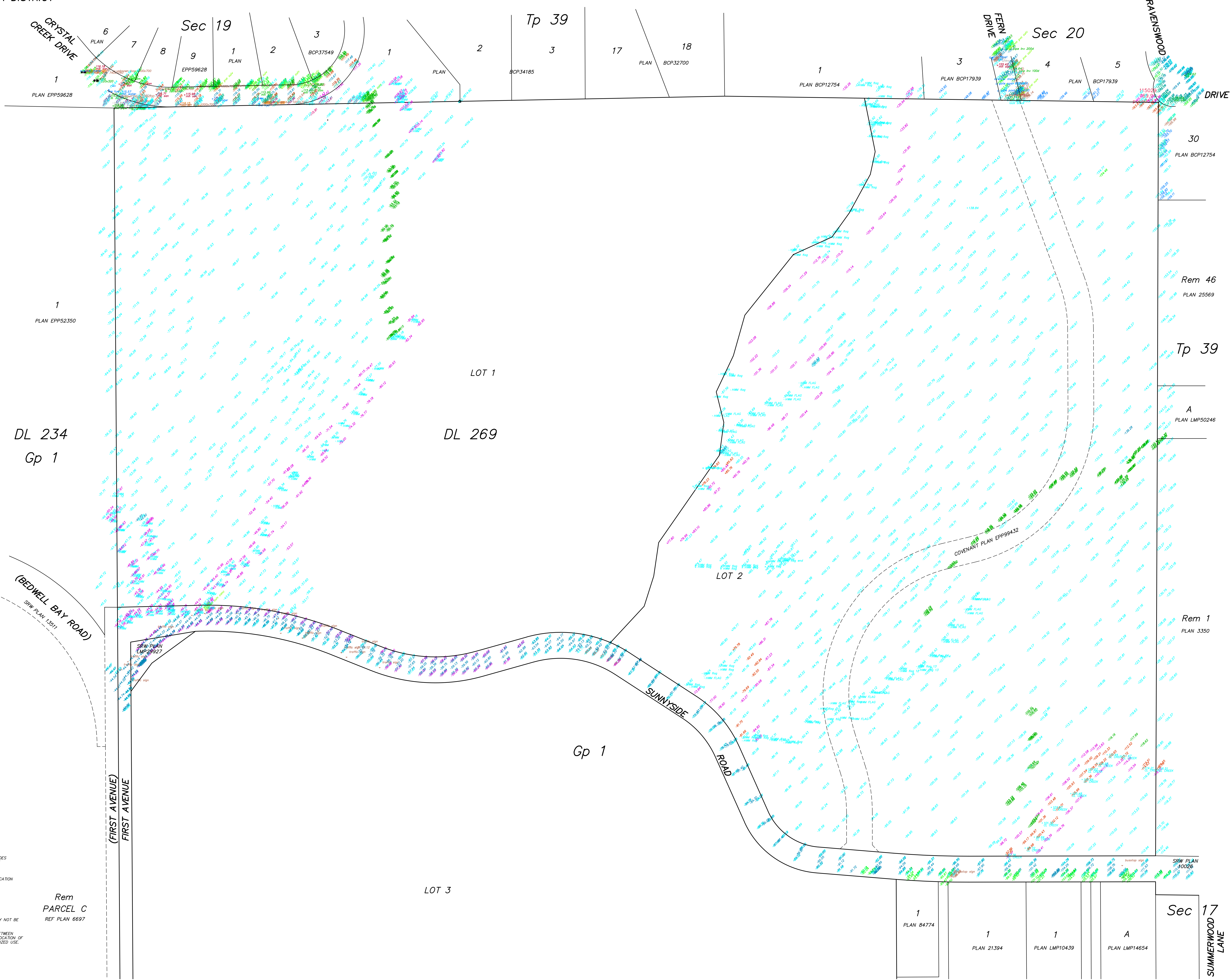
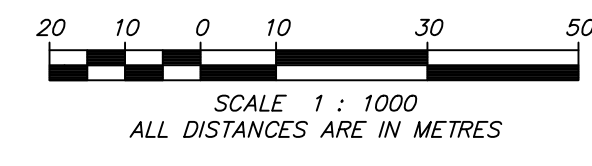
Duplicate Infeasible Title NONE OUTSTANDING

Transfers NONE

Pending Applications NONE

SKETCH SHOWING TOPOGRAPHIC SURVEY PLAN OF PORTIONS OF LOT 1, DISTRICT LOT 269 GROUP 1 PLAN EPP99431 AND LOT 2 DISTRICT LOT 269 GROUP 1 PLAN EPP99431, BOTH OF NEW WESTMINSTER DISTRICT

PID: 031-060-447
031-060-455
CIVIC ADDRESS: 1600 SUNNYSIDE RD
ANMORE, BC

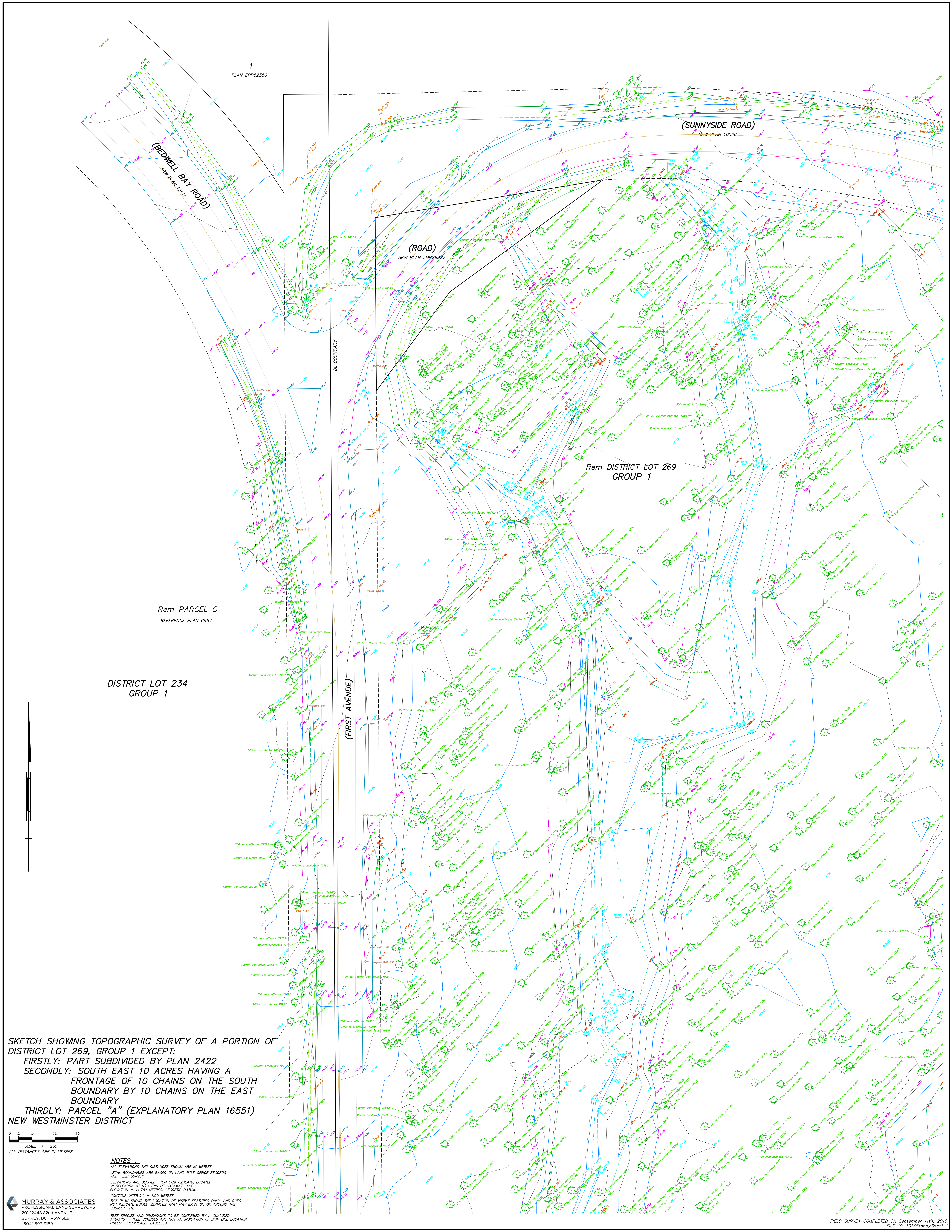


NOTE:
THIS PROPERTY MAY BE SUBJECT TO THE FOLLOWING CHARGES:
RESTRICTIVE COVENANT 0448222
COVENANT C4008184 VILLAGE OF ANMORE
COVENANT C4008186 VILLAGE OF ANMORE

NOTES:
ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES.
LEGAL BOUNDARIES ARE BASED ON LAND TITLE OFFICE RECORDS AND FIELD SURVEY.
ELEVATIONS ARE DERIVED FROM GCM 0202418, LOCATED IN BELCARRA AT NLY END OF SASAMAT LAKE
ELEVATION = 44.784 METRES, GEODETIC DATUM.

THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY, AND DOES NOT INDICATE BURIED SERVICES THAT MAY EXIST ON OR AROUND THE SUBJECT SITE.
TREE SPECIES AND DIMENSIONS TO BE CONFIRMED BY A QUALIFIED ARBORIST. TREE SYMBOLS ARE NOT AN INDICATION OF DRIP LINE LOCATION UNLESS SPECIFICALLY LABELLED.

© 2021 COPYRIGHT RESTRICTION
THIS PLAN IS THE EXCLUSIVE PROPERTY OF APLIN & MARTIN AND MAY NOT BE ALTERED OR REPRODUCED WITHOUT WRITTEN CONSENT OF SAME.
THIS PLAN IS PREPARED SOLELY FOR A LIMITED CONTRACTUAL USE BETWEEN APLIN & MARTIN AND OUR CLIENT. IT IS NOT TO BE USED FOR THE LOCATION OF PROPERTY LINES. WE ACCEPT NO RESPONSIBILITY FOR ANY UNAUTHORIZED USE.



Rem PARCEL C
REFERENCE PLAN 6697

DISTRICT LOT 234
GROUP 1

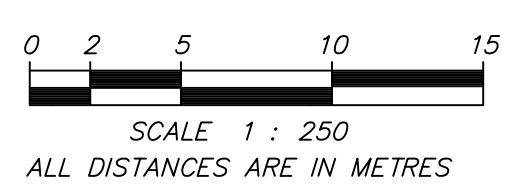
(FIRST AVENUE)

(SUNBYSIDE ROAD)
SRW PLAN 10026

(ROAD)
SRW PLAN LMP29927

Rem DISTRICT LOT 269
GROUP 1

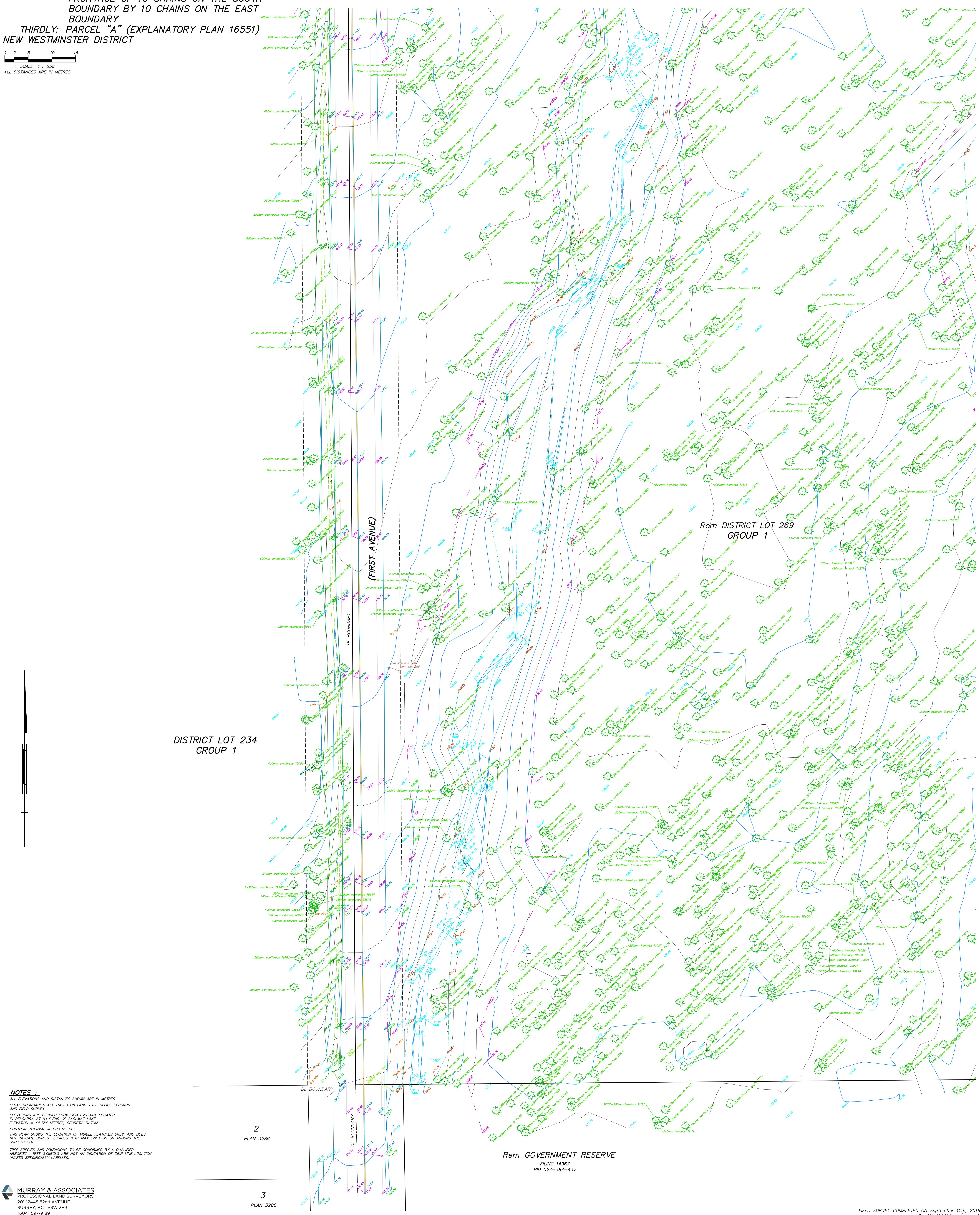
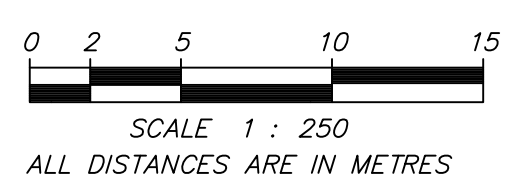
SKETCH SHOWING TOPOGRAPHIC SURVEY OF A PORTION OF DISTRICT LOT 269, GROUP 1 EXCEPT:
 FIRSTLY: PART SUBDIVIDED BY PLAN 2422
 SECONDLY: SOUTH EAST 10 ACRES HAVING A FRONTAGE OF 10 CHAINS ON THE SOUTH BOUNDARY BY 10 CHAINS ON THE EAST BOUNDARY
 THIRDLY: PARCEL "A" (EXPLANATORY PLAN 16551)
 NEW WESTMINSTER DISTRICT



NOTES :
 ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES.
 LEGAL BOUNDARIES ARE BASED ON LAND TITLE OFFICE RECORDS AND FIELD SURVEY.
 ELEVATIONS ARE DERIVED FROM DCM 02H2418, LOCATED IN BELCARRA AT THE END OF SUSSEX LAKE, ELEVATION = 44.784 METRES, GEODETIC DATUM.
 CONTOUR INTERVAL = 1.00 METRES.
 THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY, AND DOES NOT INDICATE BURIED SERVICES THAT MAY EXIST ON OR AROUND THE SUBJECT SITE.
 TREE SPECIES AND DIMENSIONS TO BE CONFIRMED BY A QUALIFIED ARBORIST. TREE SYMBOLS ARE NOT AN INDICATION OF DRIP-LINE LOCATION UNLESS SPECIFICALLY LABELLED.

SKETCH SHOWING TOPOGRAPHIC SURVEY OF A PORTION OF DISTRICT LOT 269, GROUP 1 EXCEPT:

- FIRSTLY: PART SUBDIVIDED BY PLAN 2422
- SECONDLY: SOUTH EAST 10 ACRES HAVING A FRONTAGE OF 10 CHAINS ON THE SOUTH BOUNDARY BY 10 CHAINS ON THE EAST BOUNDARY
- THIRDLY: PARCEL "A" (EXPLANATORY PLAN 16551)

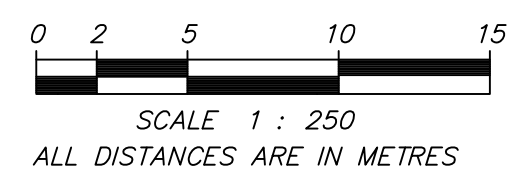


NOTES :
 ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES.
 LEGAL BOUNDARIES ARE BASED ON LAND TITLE OFFICE RECORDS AND FIELD SURVEY.
 ELEVATIONS ARE DERIVED FROM OCM 02H2418, LOCATED IN BELCARRA AT NLY END OF SASMAT LAKE.
 ELEVATION = 44.784 METRES, GEODETIC DATUM.
 CONTOUR INTERVAL = 1.00 METRES.
 THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY, AND DOES NOT INDICATE BURIED SERVICES THAT MAY EXIST ON OR AROUND THE SUBJECT SITE.
 TREE SPECIES AND DIMENSIONS TO BE CONFIRMED BY A QUALIFIED ARBORIST. TREE SYMBOLS ARE NOT AN INDICATION OF DRIP LINE LOCATION UNLESS SPECIFICALLY LABELLED.

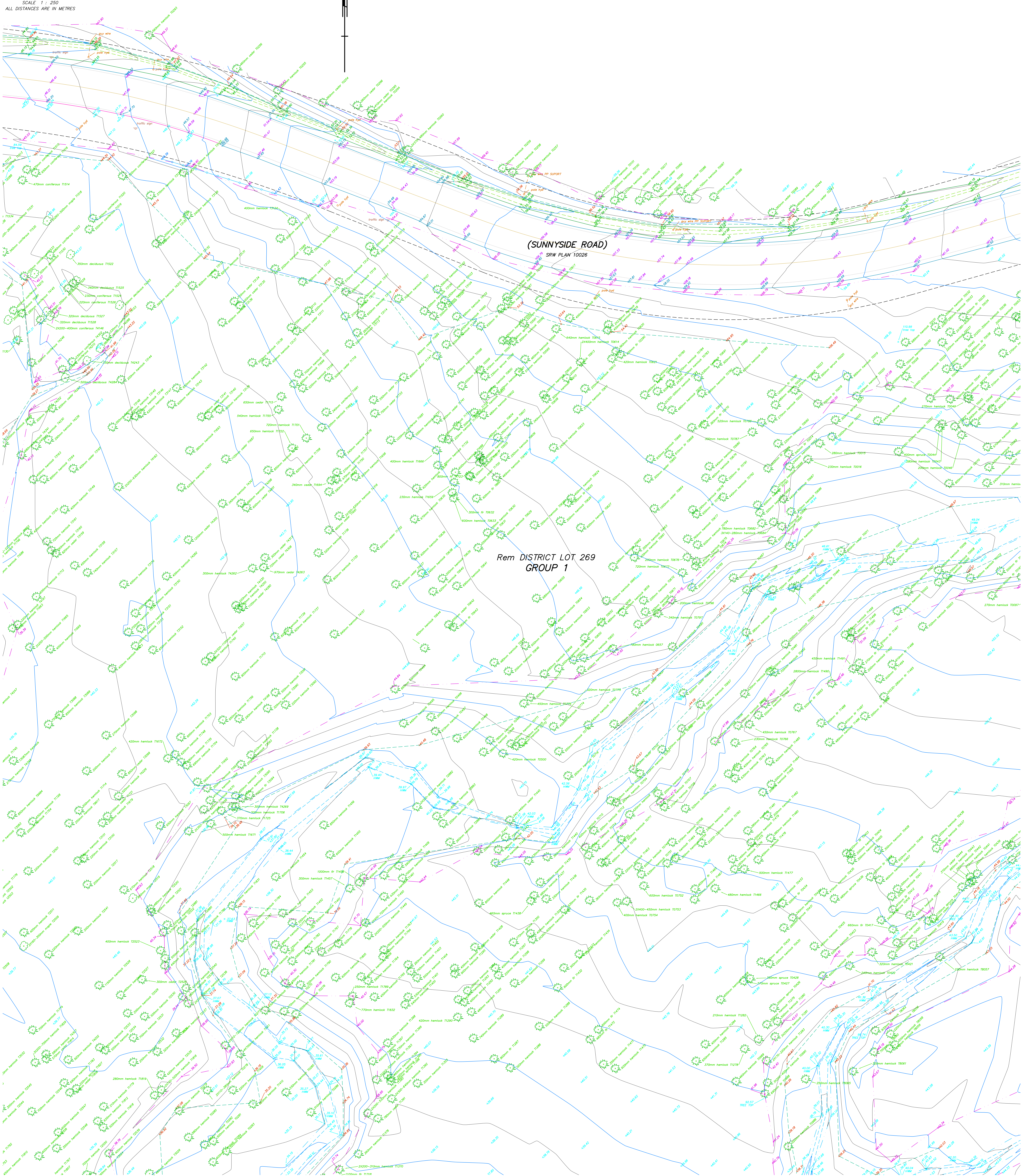
SKETCH SHOWING TOPOGRAPHIC SURVEY OF A PORTION OF DISTRICT LOT 269, GROUP 1 EXCEPT:

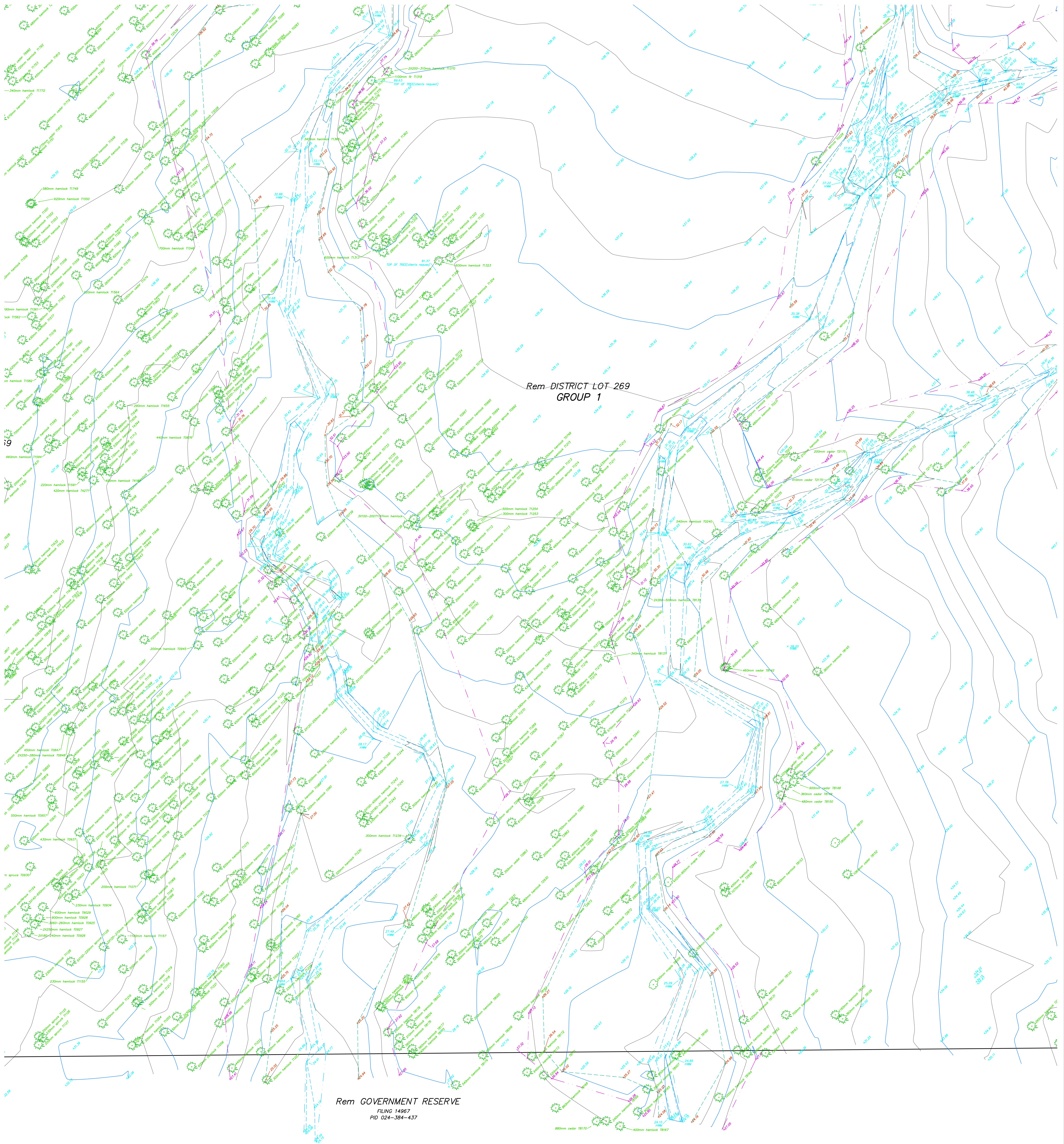
- FIRSTLY: PART SUBDIVIDED BY PLAN 2422
- SECONDLY: SOUTH EAST 10 ACRES HAVING A FRONTAGE OF 10 CHAINS ON THE SOUTH BOUNDARY BY 10 CHAINS ON THE EAST BOUNDARY

THIRDLY: PARCEL "A" (EXPLANATORY PLAN 16551) NEW WESTMINSTER DISTRICT



NOTES :
ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES.
LEGAL BOUNDARIES ARE BASED ON LAND TITLE OFFICE RECORDS AND FIELD SURVEY.
ELEVATIONS ARE DERIVED FROM OCM 02H2416, LOCATED IN BELCARRA AT NLY END OF SASAMAT LAKE
ELEVATION = 44.784 METRES, GEODETIC DATUM.
CONTOUR INTERVAL = 1.00 METRES
THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY, AND DOES NOT INDICATE BURIED SERVICES THAT MAY EXIST ON OR AROUND THE SUBJECT SITE.
TREE SPECIES AND DIMENSIONS TO BE CONFIRMED BY A QUALIFIED ARBORIST. TREE SYMBOLS ARE NOT AN INDICATION OF DRIP-LINE LOCATION UNLESS SPECIFICALLY LABELLED.



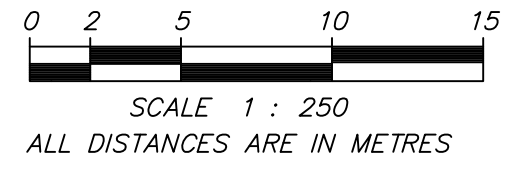


19

Rem DISTRICT LOT 269
GROUP 1

Rem GOVERNMENT RESERVE
FILING 14967
PID 024-384-437

SKETCH SHOWING TOPOGRAPHIC SURVEY OF A PORTION OF DISTRICT LOT 269, GROUP 1 EXCEPT:
FIRSTLY: PART SUBDIVIDED BY PLAN 2422
SECONDLY: SOUTH EAST 10 ACRES HAVING A FRONTAGE OF 10 CHAINS ON THE SOUTH BOUNDARY BY 10 CHAINS ON THE EAST BOUNDARY
THIRDLY: PARCEL "A" (EXPLANATORY PLAN 16551) NEW WESTMINSTER DISTRICT



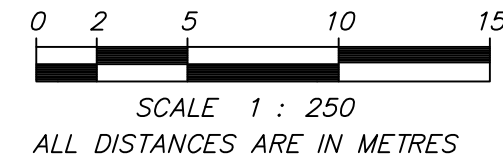
NOTES :
ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES.
LEGAL BOUNDARIES ARE BASED ON LAND TITLE OFFICE RECORDS AND FIELD SURVEY.
ELEVATIONS ARE DERIVED FROM DCM 02H2418, LOCATED IN BELCARRA AT THE END OF SASUMAT LAKE. ELEVATION = 44.784 METRES, GEODETIC DATUM.
CONTOUR INTERVAL = 1.00 METRES.
THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY, AND DOES NOT INDICATE BURIED SERVICES THAT MAY EXIST ON OR AROUND THE SUBJECT SITE.
TREE SPECIES AND DIMENSIONS TO BE CONFIRMED BY A QUALIFIED ARBORIST. TREE SYMBOLS ARE NOT AN INDICATION OF DRIP LINE LOCATION UNLESS SPECIFICALLY LABELLED.

MURRAY & ASSOCIATES
PROFESSIONAL LAND SURVEYORS
201-12448 82nd AVENUE
SURREY, BC V3W 3E9
(604) 597-9189

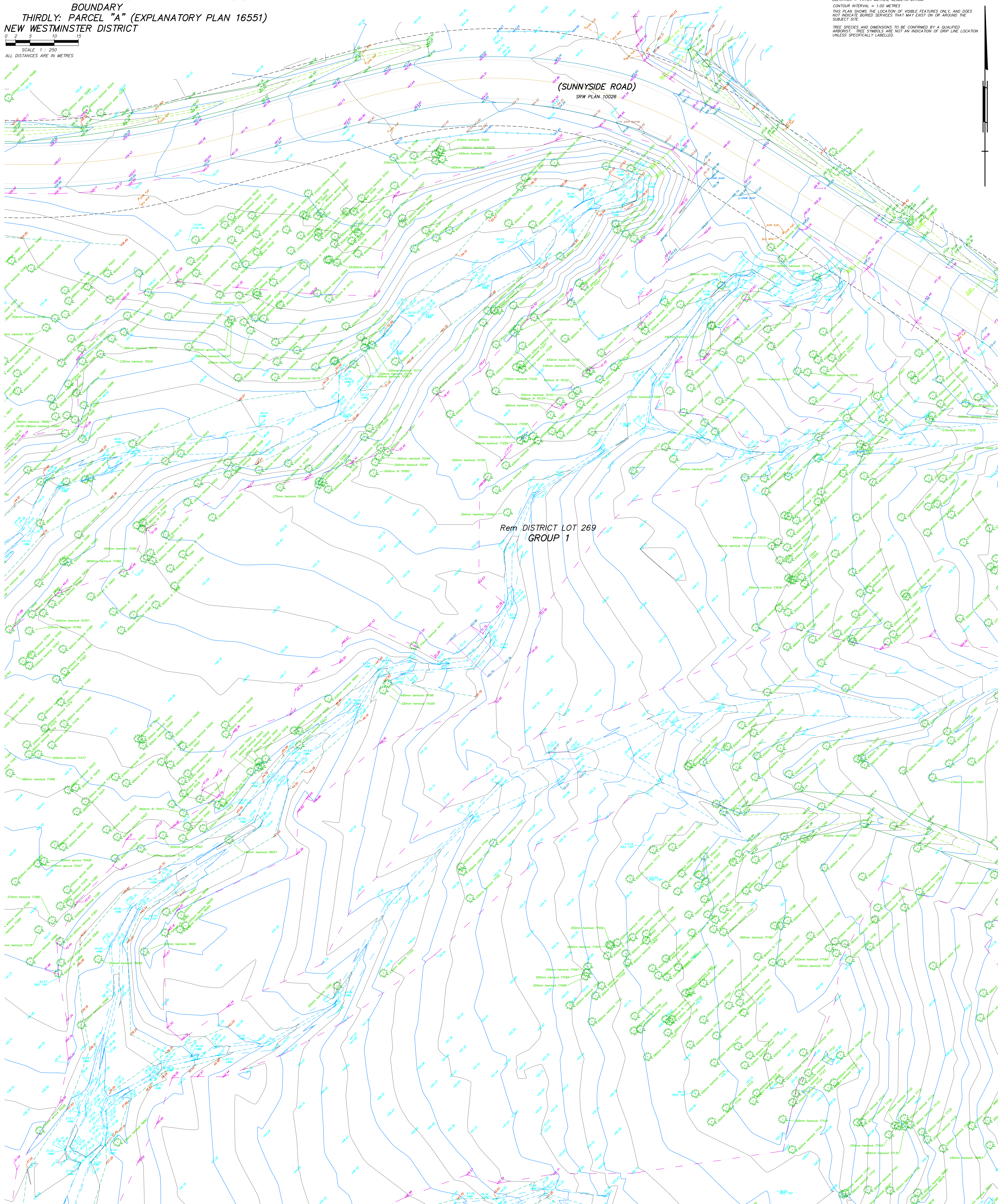
SKETCH SHOWING TOPOGRAPHIC SURVEY OF A PORTION OF DISTRICT LOT 269, GROUP 1 EXCEPT:

- FIRSTLY: PART SUBDIVIDED BY PLAN 2422
- SECONDLY: SOUTH EAST 10 ACRES HAVING A FRONTAGE OF 10 CHAINS ON THE SOUTH BOUNDARY BY 10 CHAINS ON THE EAST BOUNDARY
- THIRDLY: PARCEL "A" (EXPLANATORY PLAN 16551)

NEW WESTMINSTER DISTRICT



NOTES -
ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES.
LEGAL BOUNDARIES ARE BASED ON LAND TITLE OFFICE RECORDS AND FIELD SURVEY.
ELEVATIONS ARE DERIVED FROM OCM 02H2418, LOCATED IN BELCARRA AT NELY END OF SASKIAT LAKE. ELEVATION = 44.784 METRES, GEODETIC DATUM.
CONTOUR INTERVAL = 1.00 METRES.
THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY, AND DOES NOT INDICATE BURIED SERVICES THAT MAY EXIST ON OR AROUND THE SUBJECT SITE.
TREE SPECIES AND DIMENSIONS TO BE CONFIRMED BY A QUALIFIED ARBORIST. TREE SYMBOLS ARE NOT AN INDICATION OF DRIP LINE LOCATION UNLESS SPECIFICALLY LABELLED.

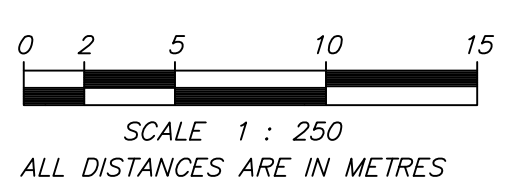


Rem DISTRICT LOT 269
GROUP 1

Rem A
Ex PLAN 16551

Rem GOVERNMENT RESERVE
FLING 14967
PID 024-364-437

SKETCH SHOWING TOPOGRAPHIC SURVEY OF A PORTION OF DISTRICT LOT 269, GROUP 1 EXCEPT:
FIRSTLY: PART SUBDIVIDED BY PLAN 2422
SECONDLY: SOUTH EAST 10 ACRES HAVING A FRONTAGE OF 10 CHAINS ON THE SOUTH BOUNDARY BY 10 CHAINS ON THE EAST BOUNDARY
THIRDLY: PARCEL "A" (EXPLANATORY PLAN 16551)
NEW WESTMINSTER DISTRICT



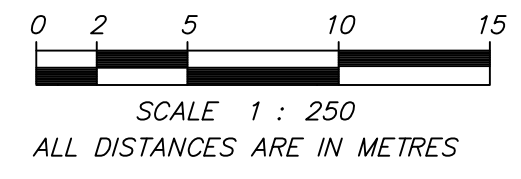
NOTES :
ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES.
LEGAL BOUNDARIES ARE BASED ON LAND TITLE OFFICE RECORDS AND FIELD SURVEY
ELEVATIONS ARE DERIVED FROM DCM 02H2418, LOCATED IN BELCARRA AT THE END OF GASSIMAT LAKE
ELEVATION = 44.784 METRES, GEODETIC DATUM.
CONTOUR INTERVAL = 1.00 METRES.

THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY, AND DOES NOT INDICATE BURIED SERVICES THAT MAY EXIST ON OR AROUND THE SUBJECT SITE.
TREE SPECIES AND DIMENSIONS TO BE CONFIRMED BY A QUALIFIED ARBORIST. TREE SYMBOLS ARE NOT AN INDICATION OF DRIP LINE LOCATION UNLESS SPECIFICALLY LABELLED.

SKETCH SHOWING TOPOGRAPHIC SURVEY OF A PORTION OF DISTRICT LOT 269, GROUP 1 EXCEPT:

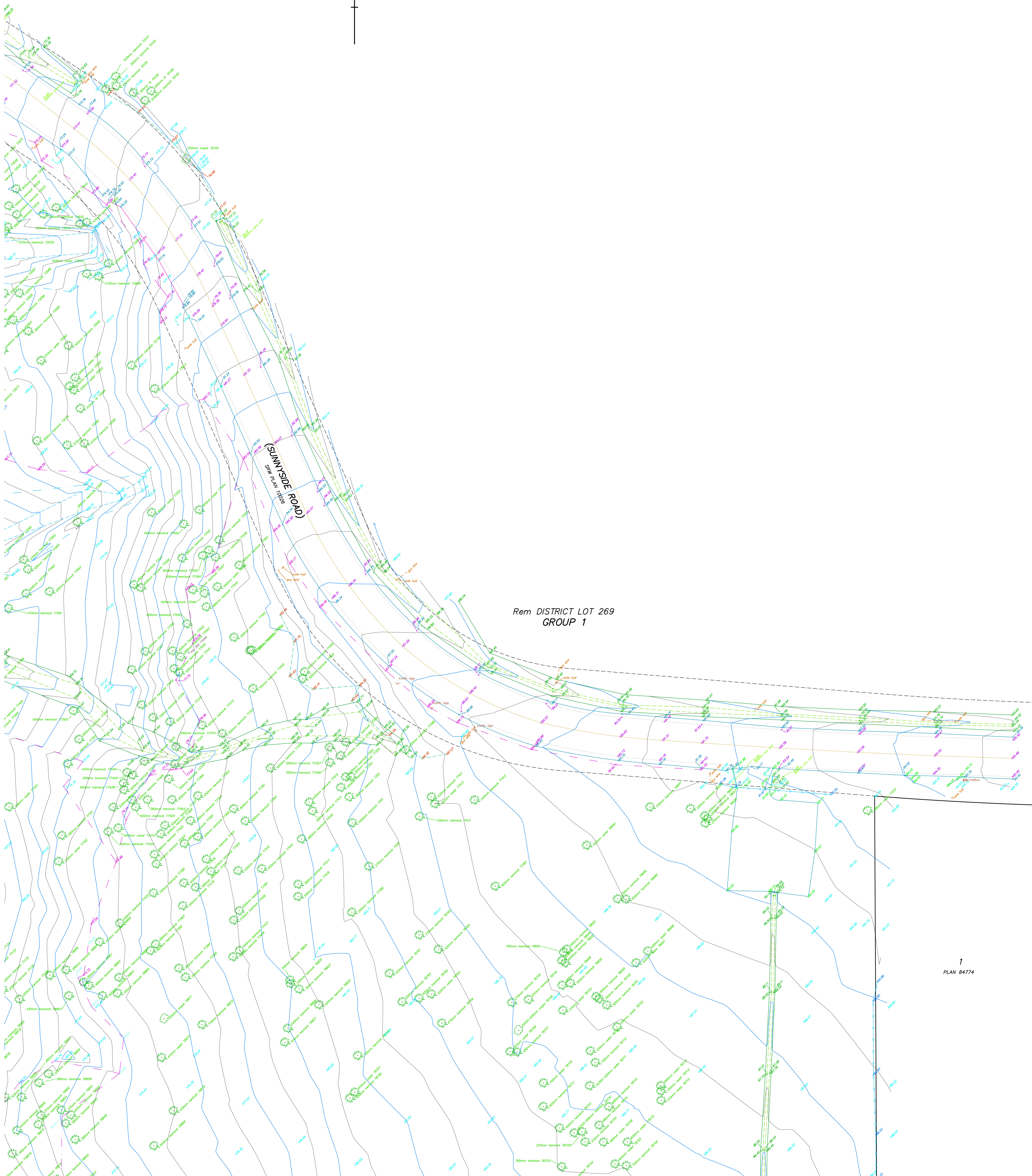
- FIRSTLY: PART SUBDIVIDED BY PLAN 2422
- SECONDLY: SOUTH EAST 10 ACRES HAVING A FRONTAGE OF 10 CHAINS ON THE SOUTH BOUNDARY BY 10 CHAINS ON THE EAST BOUNDARY

THIRDLY: PARCEL "A" (EXPLANATORY PLAN 16551) NEW WESTMINSTER DISTRICT

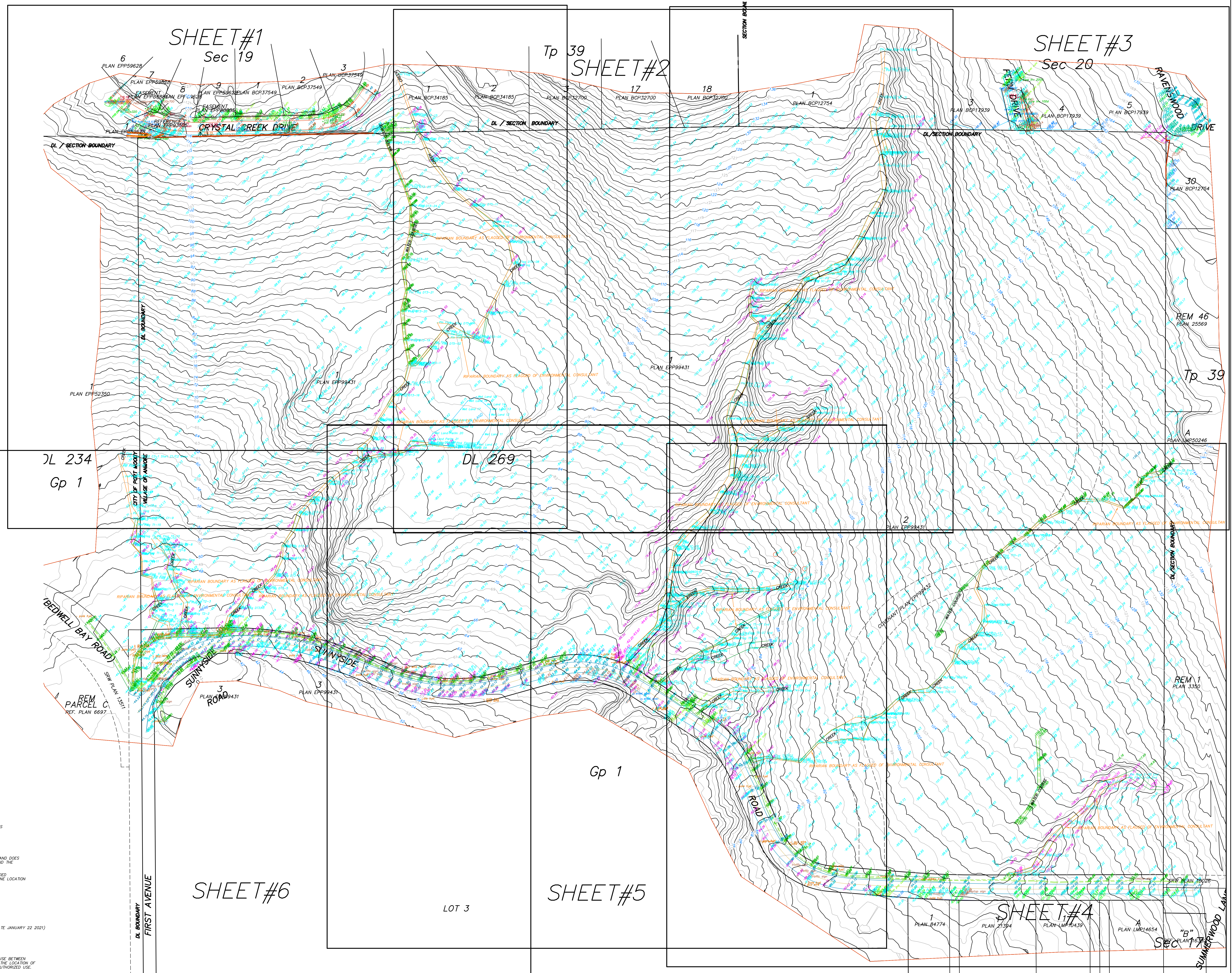


NOTES :

ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES.
LEGAL BOUNDARIES ARE BASED ON LAND TITLE OFFICE RECORDS AND FIELD SURVEY.
ELEVATIONS ARE DERIVED FROM OCM 02H2416, LOCATED IN BELCARRA AT NLY END OF SASAMAT LAKE
ELEVATION = 44.784 METRES, GEODETIC DATUM.
CONTOUR INTERVAL = 1.00 METRES
THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY, AND DOES NOT INDICATE BURIED SERVICES THAT MAY EXIST ON OR AROUND THE SUBJECT SITE.
TREE SPECIES AND DIMENSIONS TO BE CONFIRMED BY A QUALIFIED ARBORIST. TREE SYMBOLS ARE NOT AN INDICATION OF DRIP-LINE LOCATION UNLESS SPECIFICALLY LABELLED.



Rem DISTRICT LOT 269
GROUP 1



NOTES:

THIS PROPERTY MAY BE SUBJECT TO THE FOLLOWING CHARGES:
RESTRICTIVE COVENANT C4416752
COVENANT C4088194 VILLAGE OF ANMORE
COVENANT C4088196 VILLAGE OF ANMORE

ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES.
LEGAL BOUNDARIES ARE BASED ON LAND TITLE OFFICE RECORDS AND FIELD SURVEY.
ELEVATIONS ARE DERIVED FROM GCM 0202418, LOCATED IN BELCARRA AT NELY END OF SASAMAT LAKE. ELEVATION = 44.784 METRES, GEODETIC DATUM.

THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY, AND DOES NOT INDICATE BURIED SERVICES THAT MAY EXIST ON OR AROUND THE SUBJECT SITE.

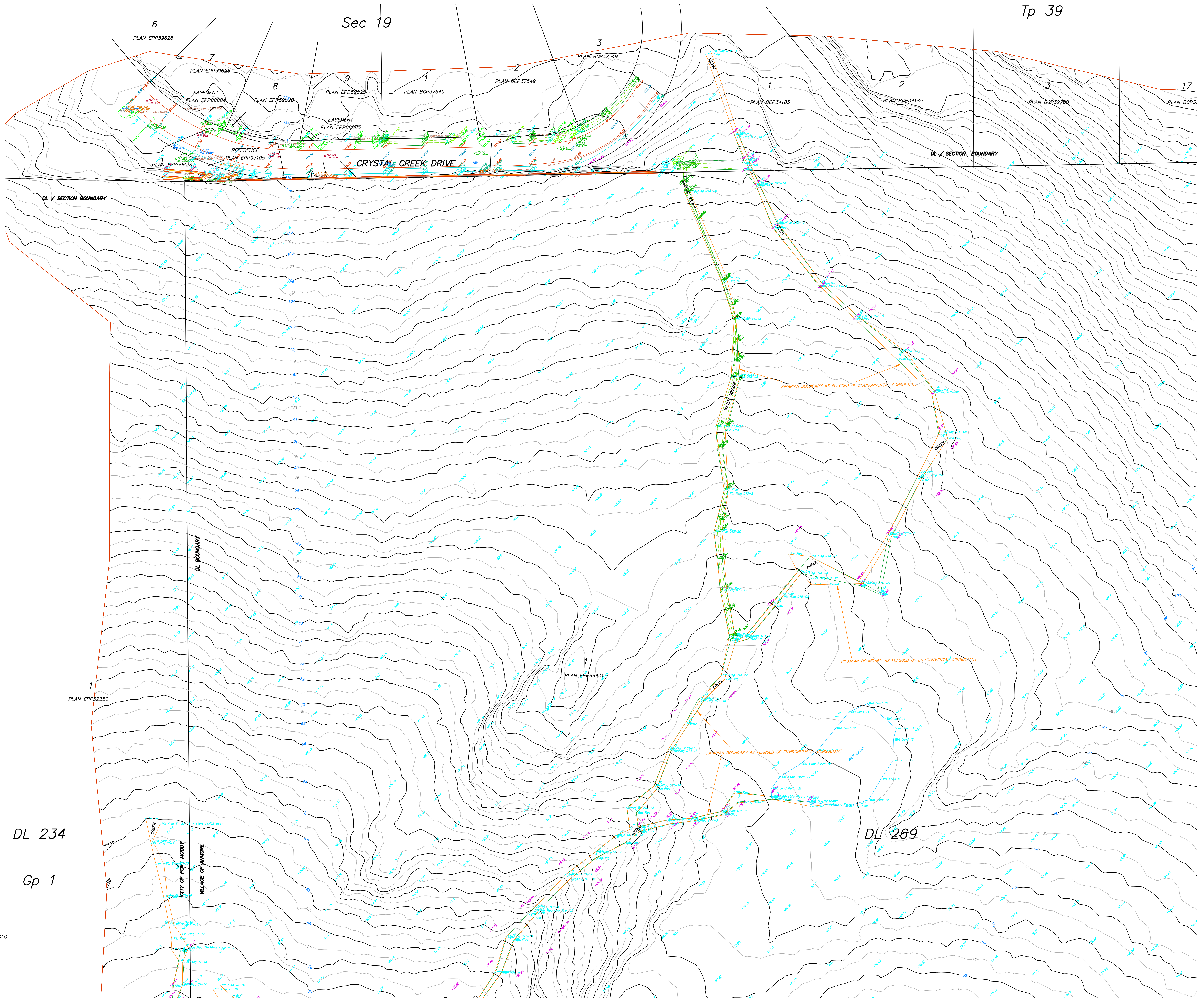
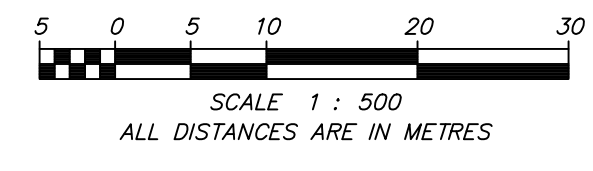
TREE SPECIES AND DIMENSIONS TO BE CONFIRMED BY A QUALIFIED ARBORIST. TREE SYMBOLS ARE NOT AN INDICATION OF DRIP LINE LOCATION UNLESS SPECIFICALLY LABELLED.

©APLIN & MARTIN 2022. ALL RIGHTS RESERVED.
NO PERSON MAY COPY, REPRODUCE, REPUBLISH, TRANSMIT OR ALTER THIS DOCUMENT, IN WHOLE OR IN PART, WITHOUT THE EXPRESS WRITTEN CONSENT OF APLIN & MARTIN.
CONTOUR INTERVAL = 1.00 METRES.
CONTOURS DERIVED FROM LIDAR DATA (EAGLE MAPPING LTD, DATE JANUARY 22 2021) AND FIELD SURVEY DATA.
RIPARIAN FLAGGING SURVEY COMPLETED ON FEBRUARY 23 2021 FROM AQUA TERRA ENVIRONMENTAL.

THIS PLAN IS PREPARED SOLELY FOR A LIMITED CONTRACTUAL USE BETWEEN APLIN & MARTIN AND OUR CLIENT. IT IS NOT TO BE USED FOR THE LOCATION OF PROPERTY LINES. WE ACCEPT NO RESPONSIBILITY FOR ANY UNAUTHORIZED USE.

TOPOGRAPHIC SURVEY PLAN OF PORTIONS OF
 LOT 1, DISTRICT LOT 269 GROUP 1 PLAN EPP99431 AND
 LOT 2 DISTRICT LOT 269 GROUP 1 PLAN EPP99431,
 BOTH OF NEW WESTMINSTER DISTRICT

PID: 031-000-447
 031-060-455
 CIVIC ADDRESS: 1600 SUNNYSIDE RD
 ANMORE, BC



NOTES:
 THIS PROPERTY MAY BE SUBJECT TO THE FOLLOWING CHARGES:
 RESTRICTIVE COVENANT 044167522
 COVENANT CAR088194 VILLAGES OF ANMORE
 COVENANT CAR088196 VILLAGES OF ANMORE

ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES.
 LEGAL BOUNDARIES ARE BASED ON LAND TITLE OFFICE RECORDS
 AND FIELD SURVEY
 ELEVATIONS ARE DERIVED FROM GCM 0202418, LOCATED
 IN BELCARRA AT NELY END OF SASAMAT LAKE
 ELEVATION = 44.784 METRES, GEODETIC DATUM.

THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY, AND DOES
 NOT INDICATE BURIED SERVICES THAT MAY EXIST ON OR AROUND THE
 SUBJECT SITE
 TREE SPECIES AND DIMENSIONS TO BE CONFIRMED BY A QUALIFIED
 ARBORIST. TREE SYMBOLS ARE NOT AN INDICATION OF DRIP LINE LOCATION
 UNLESS SPECIFICALLY LABELLED.

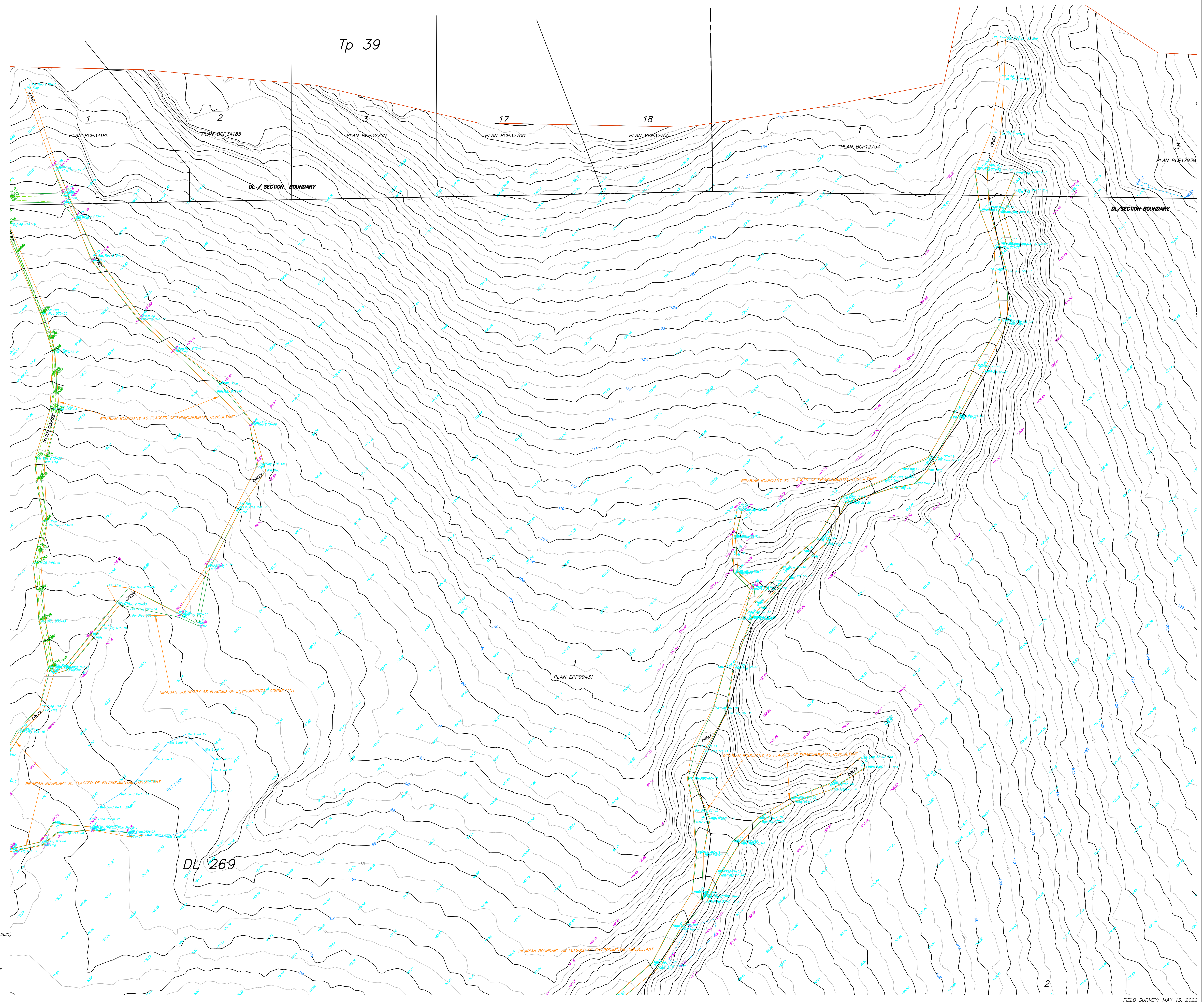
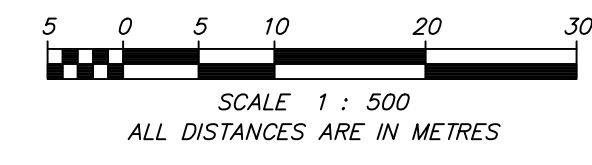
©APLIN & MARTIN 2022 ALL RIGHTS RESERVED
 NO PERSON MAY COPY, REPRODUCE, REPUBLISH, TRANSMIT
 OR ALTER THIS DOCUMENT, IN WHOLE OR IN PART, WITHOUT
 THE EXPRESS WRITTEN CONSENT OF APLIN & MARTIN

CONTOUR INTERVAL = 1.00 METRES
 CONTOURS DERIVED FROM LIDAR DATA (EAGLE MAPPING LTD, DATE JANUARY 22 2021)
 AND FIELD SURVEY DATA.
 RIPARIAN FLAGGING SURVEY COMPLETED ON FEBRUARY 23 2021
 FROM AQUA TERRA ENVIRONMENTAL

THIS PLAN IS PREPARED SOLELY FOR A LIMITED CONTRACTUAL USE BETWEEN
 APLIN & MARTIN AND OUR CLIENT. IT IS NOT TO BE USED FOR THE LOCATION OF
 PROPERTY LINES. WE ACCEPT NO RESPONSIBILITY FOR ANY UNAUTHORIZED USE.

TOPOGRAPHIC SURVEY PLAN OF PORTIONS OF
 LOT 1, DISTRICT LOT 269 GROUP 1 PLAN EPP99431 AND
 LOT 2 DISTRICT LOT 269 GROUP 1 PLAN EPP99431,
 BOTH OF NEW WESTMINSTER DISTRICT

PID: 031-000-447
 031-060-455
 CIVIC ADDRESS: 1600 SUNNYSIDE RD
 ANMORE, BC



NOTES:
 THIS PROPERTY MAY BE SUBJECT TO THE FOLLOWING CHARGES:
 RESTRICTIVE COVENANT C44167322
 COVENANT CAR088194 VILLAGE OF ANMORE
 COVENANT CAR088196 VILLAGE OF ANMORE

ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES.
 LEGAL BOUNDARIES ARE BASED ON LAND TITLE OFFICE RECORDS
 AND FIELD SURVEY

ELEVATIONS ARE DERIVED FROM GCM 0202418, LOCATED
 IN BELCARRA AT NLY END OF SASAMAT LAKE
 ELEVATION = 44.784 METRES, GEODETIC DATUM.

THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY, AND DOES
 NOT INDICATE BURIED SERVICES THAT MAY EXIST ON OR AROUND THE
 SUBJECT SITE

TREE SPECIES AND DIMENSIONS TO BE CONFIRMED BY A QUALIFIED
 ARBORIST. TREE SYMBOLS ARE NOT AN INDICATION OF DRIP LINE LOCATION
 UNLESS SPECIFICALLY LABELLED.

© APLIN & MARTIN 2022 ALL RIGHTS RESERVED
 NO PERSON MAY COPY, REPRODUCE, REPUBLISH, TRANSMIT
 OR ALTER THIS DOCUMENT, IN WHOLE OR IN PART, WITHOUT
 THE EXPRESS WRITTEN CONSENT OF APLIN & MARTIN

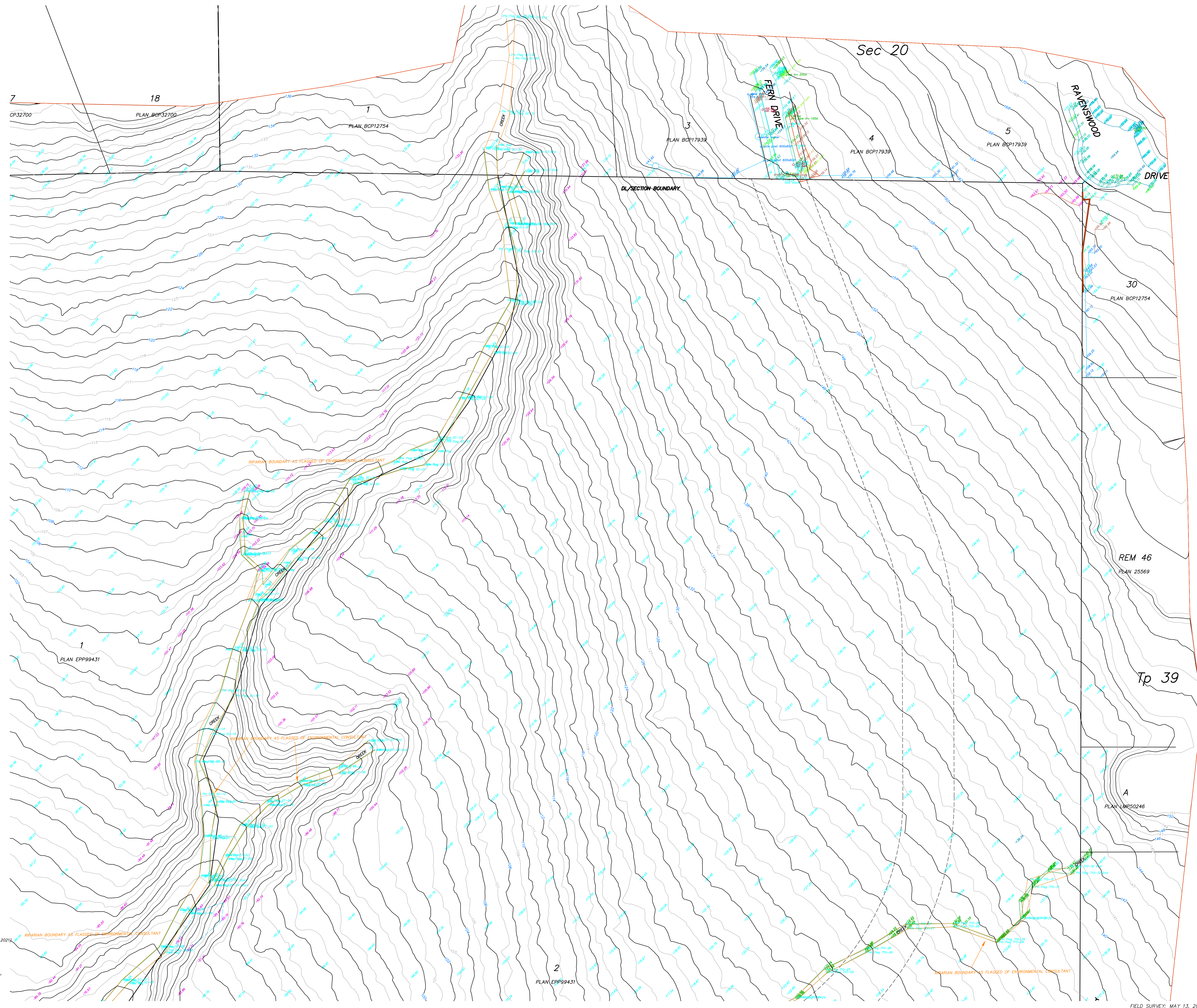
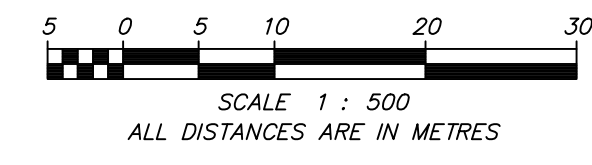
CONTOUR INTERVAL = 1.00 METRES
 CONTOURS DERIVED FROM LIDAR DATA (EAGLE MAPPING LTD, DATE JANUARY 22 2021)
 AND FIELD SURVEY DATA.

RIPARIAN FLAGGING SURVEY COMPLETED ON FEBRUARY 23 2021
 FROM AQUA TERRA ENVIRONMENTAL.

THIS PLAN IS PREPARED SOLELY FOR A LIMITED CONTRACTUAL USE BETWEEN
 APLIN & MARTIN AND OUR CLIENT. IT IS NOT TO BE USED FOR THE LOCATION OF
 PROPERTY LINES. WE ACCEPT NO RESPONSIBILITY FOR ANY UNAUTHORIZED USE.

TOPOGRAPHIC SURVEY PLAN OF PORTIONS OF
 LOT 1, DISTRICT LOT 269 GROUP 1 PLAN EPP99431 AND
 LOT 2 DISTRICT LOT 269 GROUP 1 PLAN EPP99431,
 BOTH OF NEW WESTMINSTER DISTRICT

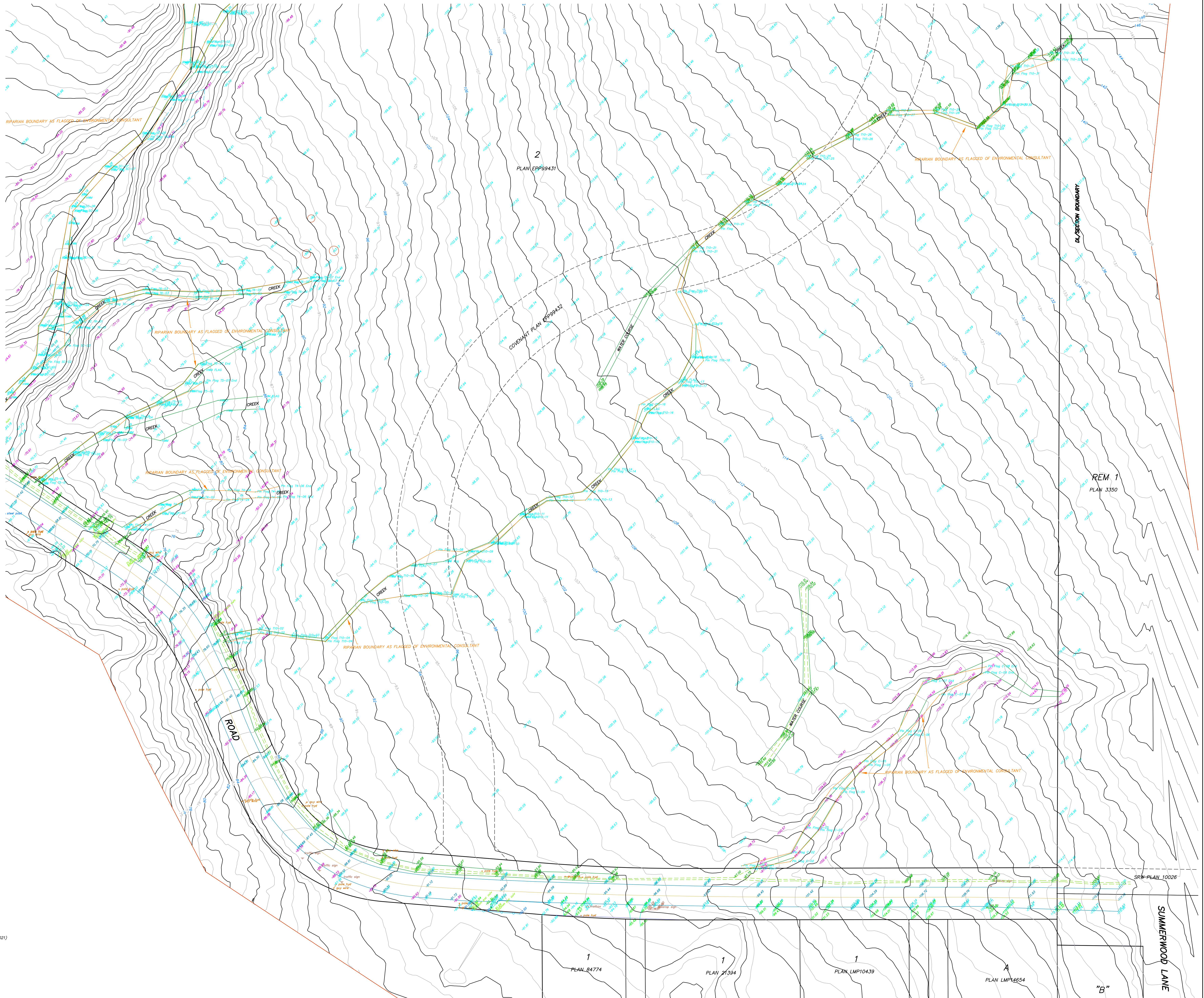
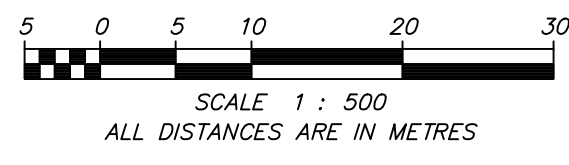
PID: 031-000-447
 031-060-455
 CIVIC ADDRESS: 1600 SUNNYSIDE RD
 ANMORE, BC



NOTES:
 THIS PROPERTY MAY BE SUBJECT TO THE FOLLOWING CHARGES:
 RESTRICTIVE COVENANT C44167522
 COVENANT C4808194 VILLAGE OF ANMORE
 COVENANT C4808196 VILLAGE OF ANMORE
 ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES.
 LEGAL BOUNDARIES ARE BASED ON LAND TITLE OFFICE RECORDS
 AND FIELD SURVEY
 ELEVATIONS ARE DERIVED FROM GCM 0202418, LOCATED
 IN BELCARRA AT NELY END OF SASAMAT LAKE
 ELEVATION = 44.784 METRES, GEODETIC DATUM.
 THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY, AND DOES
 NOT INDICATE BURIED SERVICES THAT MAY EXIST ON OR AROUND THE
 SUBJECT SITE.
 TREE SPECIES AND DIMENSIONS TO BE CONFIRMED BY A QUALIFIED
 ARBORIST. TREE SYMBOLS ARE NOT AN INDICATION OF DRIP LINE LOCATION
 UNLESS SPECIFICALLY LABELLED.
 © APLIN & MARTIN 2022 ALL RIGHTS RESERVED
 NO PERSON MAY COPY, REPRODUCE, REPUBLISH, TRANSMIT
 OR ALTER THIS DOCUMENT, IN WHOLE OR IN PART, WITHOUT
 THE EXPRESS WRITTEN CONSENT OF APLIN & MARTIN
 CONTOUR INTERVAL = 1.00 METRES
 CONTOURS DERIVED FROM LIDAR DATA (EAGLE MAPPING LTD, DATE JANUARY 22 2021)
 AND FIELD SURVEY DATA.
 RIPARIAN FLAGGING SURVEY COMPLETED ON FEBRUARY 23 2021
 FROM AQUA TERRA ENVIRONMENTAL
 THIS PLAN IS PREPARED SOLELY FOR A LIMITED CONTRACTUAL USE BETWEEN
 APLIN & MARTIN AND OUR CLIENT. IT IS NOT TO BE USED FOR THE LOCATION OF
 PROPERTY LINES. WE ACCEPT NO RESPONSIBILITY FOR ANY UNAUTHORIZED USE.

TOPOGRAPHIC SURVEY PLAN OF PORTIONS OF
 LOT 1, DISTRICT LOT 269 GROUP 1 PLAN EPP99431 AND
 LOT 2 DISTRICT LOT 269 GROUP 1 PLAN EPP99431,
 BOTH OF NEW WESTMINSTER DISTRICT

PID: 031-000-447
 031-060-455
 CIVIC ADDRESS: 1600 SUNNYSIDE RD
 ANMORE, BC



NOTES:

THIS PROPERTY MAY BE SUBJECT TO THE FOLLOWING CHARGES:
 RESTRICTIVE COVENANT C44167522
 COVENANT CAR808194 VILLAGE OF ANMORE
 COVENANT CAR808196 VILLAGE OF ANMORE

ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES.
 LEGAL BOUNDARIES ARE BASED ON LAND TITLE OFFICE RECORDS
 AND FIELD SURVEY

ELEVATIONS ARE DERIVED FROM GCM 02/02/18, LOCATED
 IN BELCARRA AT NLY END OF SASAMAT LAKE
 ELEVATION = 44.784 METRES, GEODETIC DATUM.

THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY, AND DOES
 NOT INDICATE BURIED SERVICES THAT MAY EXIST ON OR AROUND THE
 SUBJECT SITE

TREE SPECIES AND DIMENSIONS TO BE CONFIRMED BY A QUALIFIED
 ARBORIST. TREE SYMBOLS ARE NOT AN INDICATION OF DRIP LINE LOCATION
 UNLESS SPECIFICALLY LABELLED.

© APLIN & MARTIN 2022 ALL RIGHTS RESERVED
 NO PERSON MAY COPY, REPRODUCE, REPUBLISH, TRANSMIT
 OR ALTER THIS DOCUMENT, IN WHOLE OR IN PART, WITHOUT
 THE EXPRESS WRITTEN CONSENT OF APLIN & MARTIN

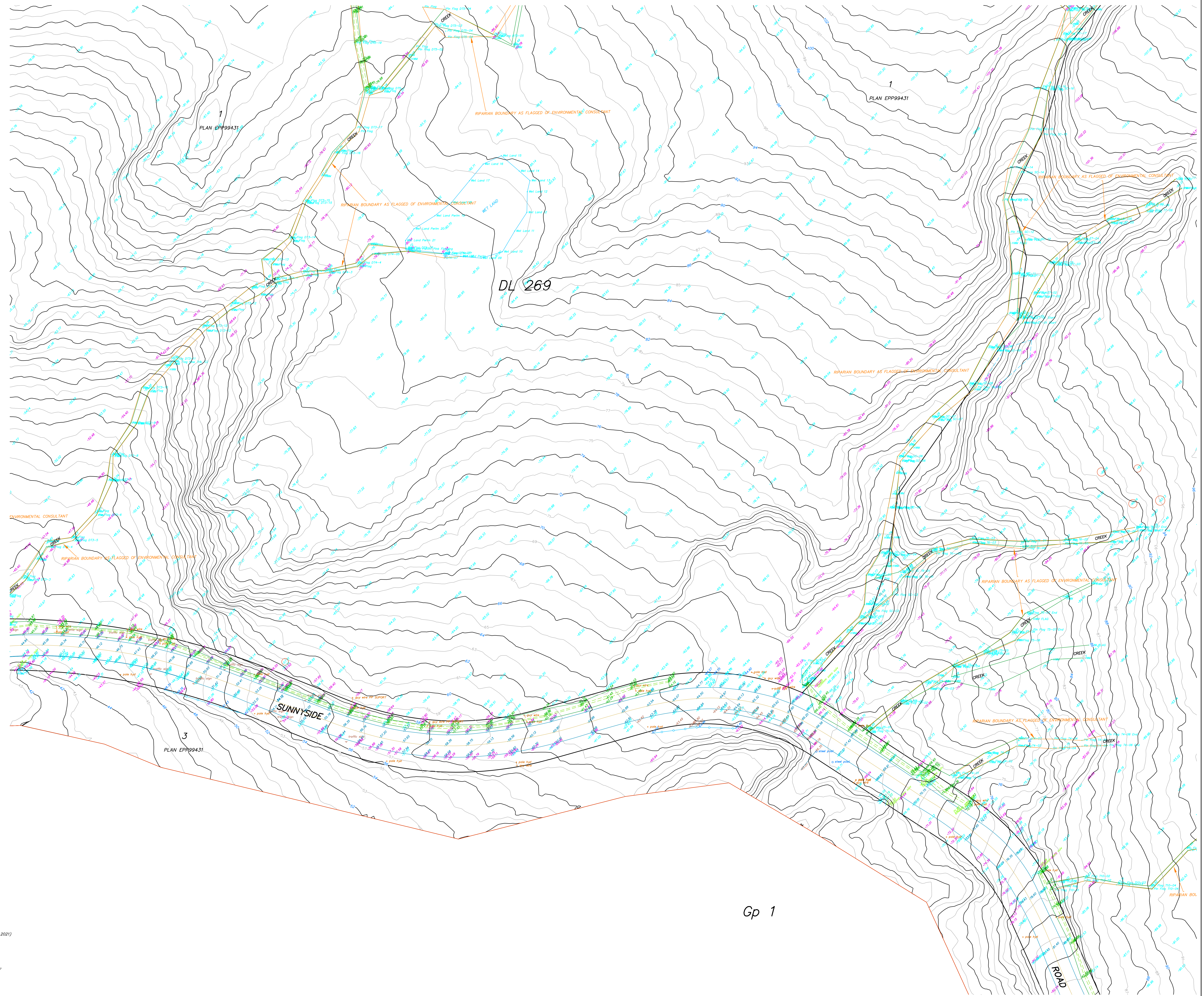
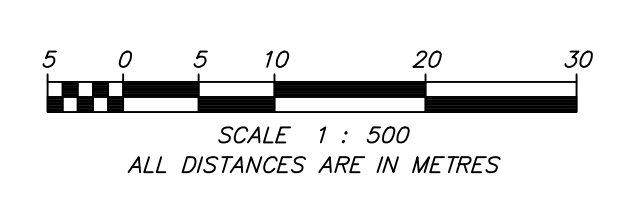
CONTOUR INTERVAL = 1.00 METRES
 CONTOURS DERIVED FROM LIDAR DATA (EAGLE MAPPING LTD, DATE JANUARY 22 2021)
 AND FIELD SURVEY DATA.

RIPIARIAN FLAGGING SURVEY COMPLETED ON FEBRUARY 23 2021
 FROM AQUA TERRA ENVIRONMENTAL

APLIN & MARTIN
 GEOMATICS LAND SURVEYING LTD.
 201 12448 83V3 AVENUE
 SURREY, BC V3V3S9 604-597-9189

TOPOGRAPHIC SURVEY PLAN OF PORTIONS OF
 LOT 1, DISTRICT LOT 269 GROUP 1 PLAN EPP99431 AND
 LOT 2 DISTRICT LOT 269 GROUP 1 PLAN EPP99431,
 BOTH OF NEW WESTMINSTER DISTRICT

PID: 031-000-447
 031-060-455
 CIVIC ADDRESS: 1600 SUNNYSIDE RD
 ANMORE, BC



NOTES:
 THIS PROPERTY MAY BE SUBJECT TO THE FOLLOWING CHARGES:
 RESTRICTIVE COVENANT C44167522
 COVENANT C4808194 VILLAGE OF ANMORE
 COVENANT C4808196 VILLAGE OF ANMORE

ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES.
 LEGAL BOUNDARIES ARE BASED ON LAND TITLE OFFICE RECORDS
 AND FIELD SURVEY

ELEVATIONS ARE DERIVED FROM GCM 02/02/18, LOCATED
 IN BELCARRA AT N'LY END OF SASAMAT LAKE
 ELEVATION = 44.784 METRES, GEODETIC DATUM.

THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY, AND DOES
 NOT INDICATE BURIED SERVICES THAT MAY EXIST ON OR AROUND THE
 SUBJECT SITE

TREE SPECIES AND DIMENSIONS TO BE CONFIRMED BY A QUALIFIED
 ARBORIST. TREE SYMBOLS ARE NOT AN INDICATION OF DRIP LINE LOCATION
 UNLESS SPECIFICALLY LABELLED.

© APLIN & MARTIN 2022 ALL RIGHTS RESERVED
 NO PERSON MAY COPY, REPRODUCE, REPUBLISH, TRANSMIT
 OR ALTER THIS DOCUMENT, IN WHOLE OR IN PART, WITHOUT
 THE EXPRESS WRITTEN CONSENT OF APLIN & MARTIN

CONTOUR INTERVAL = 1.00 METRES
 CONTOURS DERIVED FROM LIDAR DATA (EAGLE MAPPING LTD, DATE JANUARY 22 2021)
 AND FIELD SURVEY DATA.

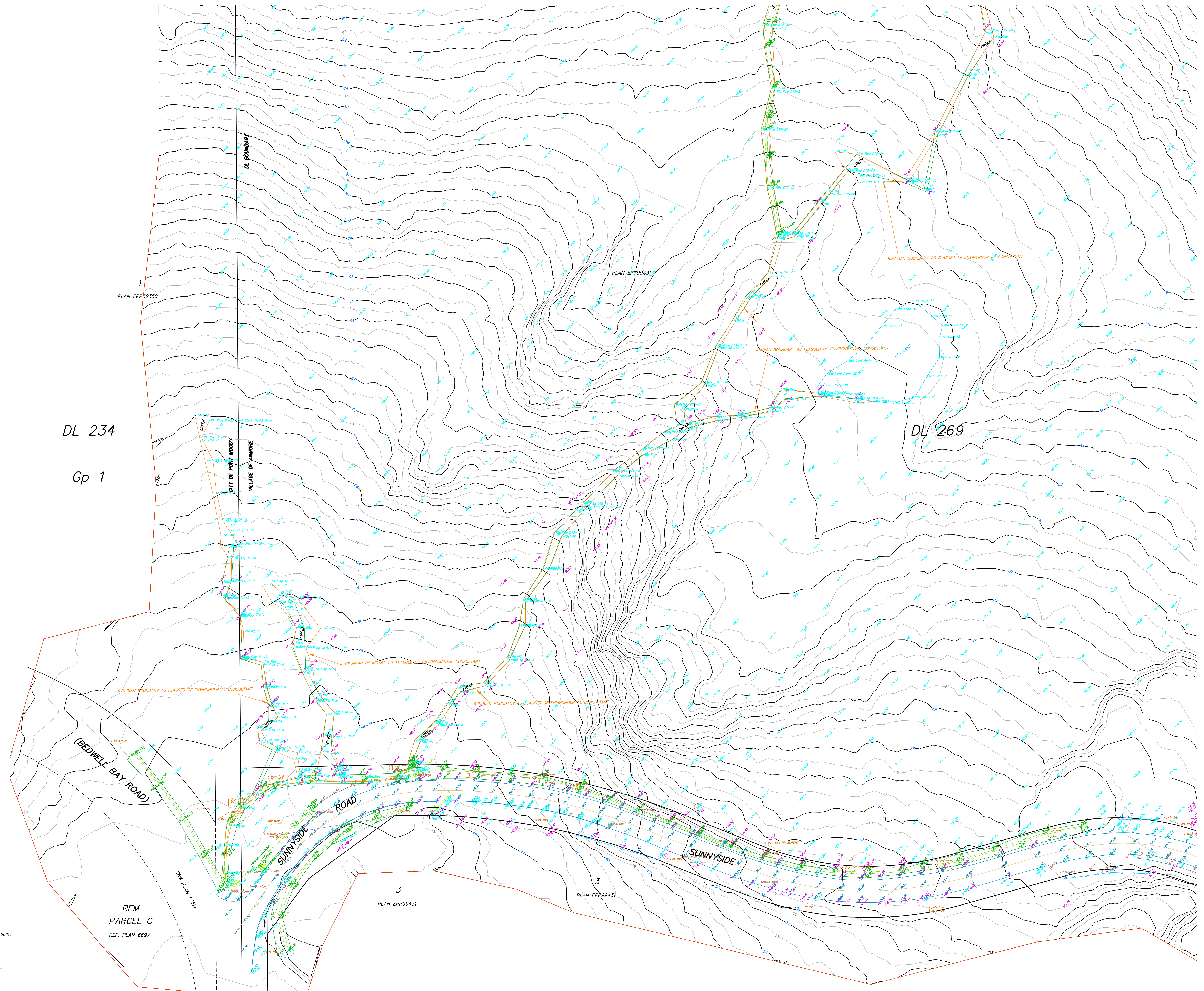
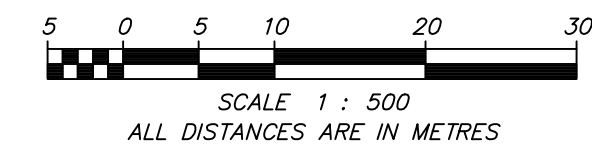
RIPARIAN FLAGGING SURVEY COMPLETED ON FEBRUARY 23 2021
 FROM AQUA TERRA ENVIRONMENTAL

THIS PLAN IS PREPARED SOLELY FOR A LIMITED CONTRACTUAL USE BETWEEN
 APLIN & MARTIN AND OUR CLIENT. IT IS NOT TO BE USED FOR THE LOCATION OF
 PROPERTY LINES. WE ACCEPT NO RESPONSIBILITY FOR ANY UNAUTHORIZED USE.

Gp 1

TOPOGRAPHIC SURVEY PLAN OF PORTIONS OF
 LOT 1, DISTRICT LOT 269 GROUP 1 PLAN EPP99431 AND
 LOT 2 DISTRICT LOT 269 GROUP 1 PLAN EPP99431,
 BOTH OF NEW WESTMINSTER DISTRICT

PID: 031-000-447
 031-060-455
 CIVIC ADDRESS: 1600 SUNNYSIDE RD
 ANMORE, BC



NOTES:
 THIS PROPERTY MAY BE SUBJECT TO THE FOLLOWING CHARGES:
 RESTRICTIVE COVENANT C44167322
 COVENANT CAROB8194 VILLAGE OF ANMORE
 COVENANT CAROB8196 VILLAGE OF ANMORE

ALL ELEVATIONS AND DISTANCES SHOWN ARE IN METRES.
 LEGAL BOUNDARIES ARE BASED ON LAND TITLE OFFICE RECORDS
 AND FIELD SURVEY

ELEVATIONS ARE DERIVED FROM GCM 0202418, LOCATED
 IN BELCARRA AT NLY END OF SASAMAT LAKE
 ELEVATION = 44.784 METRES, GEODETIC DATUM.

THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY, AND DOES
 NOT INDICATE BURIED SERVICES THAT MAY EXIST ON OR AROUND THE
 SUBJECT SITE.

TREE SPECIES AND DIMENSIONS TO BE CONFIRMED BY A QUALIFIED
 ARBORIST. TREE SYMBOLS ARE NOT AN INDICATION OF DRIP LINE LOCATION
 UNLESS SPECIFICALLY LABELLED.

© APLIN & MARTIN 2022 ALL RIGHTS RESERVED
 NO PERSON MAY COPY, REPRODUCE, REPUBLISH, TRANSMIT
 OR ALTER THIS DOCUMENT, IN WHOLE OR IN PART, WITHOUT
 THE EXPRESS WRITTEN CONSENT OF APLIN & MARTIN

CONTOUR INTERVAL = 1.00 METRES
 CONTOURS DERIVED FROM LIDAR DATA (EAGLE MAPPING LTD, DATE JANUARY 22 2021)
 AND FIELD SURVEY DATA.

RIPIARIAN FLAGGING SURVEY COMPLETED ON FEBRUARY 23 2021
 FROM AQUA TERRA ENVIRONMENTAL

THIS PLAN IS PREPARED SOLELY FOR A LIMITED CONTRACTUAL USE BETWEEN
 APLIN & MARTIN AND OUR CLIENT. IT IS NOT TO BE USED FOR THE LOCATION OF
 PROPERTY LINES. WE ACCEPT NO RESPONSIBILITY FOR ANY UNAUTHORIZED USE.

APLIN & MARTIN
 GEOMATICS LAND SURVEYING LTD.
 201 12448 83RD AVENUE
 SURREY, BC V3W 3E9 604-597-9189

