

Environmental Impact Assessment Summary

Anmore South Neighbourhood Plan

Purpose of the Study

The Environmental Impact Assessment (EIA) prepared by AquaTerra Environmental Ltd. is a comprehensive document that spans the period of 2014 to 2024. It includes a summary of historical site conditions, database and mapping query results, and robust field assessments evaluating various environmental components spanning the Anmore South site.

- The EIA assessed the site environmental features, identified potentially adverse impact in the absence of appropriate mitigation, and developed appropriate site-specific mitigation measures and strategies to avoid, reduce, and/or offset these potential effects.
- The EIA identifies the following Valued Ecosystem Components (VECs), which are each evaluated separately with respect to existing habitat conditions and inventory/assessment findings, potential risks associated with development, and residual effects, if any:
 1. Wildlife and Terrestrial Habitat;
 2. Fish and Aquatic Habitat;
 3. Surface Water Quality and Stormwater Runoff;
 4. Soils and Local Geology;
 5. Air Quality; and
 6. Noise and Light Pollution.

What We Learned

Existing Environmental Site Conditions

The Anmore South site consists of 60 hectares comprised predominantly of second and third growth coniferous forests, as well as watercourses, a pocket wetland, and associated riparian zones. The site is environmentally consistent with the wider regional area, and provides habitat for a variety of species.

Current Environmental Design Considerations

Throughout the neighbourhood planning process of Anmore South, findings from AquaTerra have been circulated for incorporation into design iterations, in conjunction with input from the public and stakeholders through the engagement process. This includes consideration of aquatic and terrestrial habitats, environmentally sensitive areas, unique habitat features, and sensitive species, as well as potential development opportunities and constraints.

Environmental design considerations that have been incorporated into the Anmore South Preferred Plan consist of the following:

- A total of 22-hectares (35%) of the land is proposed for dedication as Natural Protection Areas, with 11-hectares (18%) retained as riparian area buffer zones, and an additional, 4-hectares (7%) proposed for neighborhood parks.
- Public roadways have been designed to minimize the number of stream crossings. The greenway and trail network, including the 4 metre wide multiuse greenway was developed to link public destinations with walkways as an attempt to reduce car use and minimize wildlife interactions during the operational phase.

Terrestrial Areas / Wildlife Design Elements

- Development is limited to a clustered form which does not require clear cutting, and reduces tree and habitat loss, while maintaining core habitat corridors, buffer / setback areas, and habitat nodes.
- Design of neighbourhood considers hillside conditions including soils and local geology.
- Underpass / oversized crossings providing wildlife / movement corridors.
- Proposed public street cross section with planted and tree lined boulevards as part of urban canopy response.
- Lighting that adheres to dark sky lighting principles.
- Forested buffered areas retained along existing neighbourhoods and existing roads.
- Phased development allows for adaptive management and monitoring of mitigation approaches.

Aquatic Areas / Fish and Fish Habitat Design Elements

- The Preferred Plan avoids watercourses and associated riparian areas with the exception of proposed crossings.
- Rainwater management plan including bioswales within street cross sections and on-site detention to manage both quantity and quality of rainwater and will be modeled to mirror pre-development base and peak flow conditions.
- The Preferred Plan provides a 'Conservation Framework' in conjunction with the riparian areas as well as buffers to existing neighbourhoods (35% of total area).
- Comparison with existing subdivision plan:
 - The Anmore South Neighbourhood Plan more than doubles the total lands dedicated to green space (including parks) in comparison to the current approved subdivision plan using RS-1 zoning (42% vs 20%).
 - The Anmore South Neighbourhood Plan is subject to higher development standards and will ensure improved environmental outcomes than what is required.

Wildlife + Terrestrial Habitat

Assessment

- Variably suitable habitats are present throughout the site for a variety of terrestrial species groups, including invertebrates, mammals, birds, amphibians and reptiles, and native plant communities.
- Mature coniferous forests dominate the site consisting primarily of Western Hemlock with lesser amounts of Western Redcedar and Douglas-fir. The area to the south of Sunnyside Road is comprised of more varied habitat types due to historical land use (e.g., gun range) and regenerating forest, as well as the introduction of invasive species as a result of anthropogenic effects. The prevalent invasive species include English Ivy, Scotch broom, Himalayan Blackberry and Japanese Knotweed.

- Species at risk that were confirmed as being present on-site, or noted as being historically documented within close proximity (i.e., 1-2 km) from the site include the Pacific Water Shrew, Northern Red-legged Frog, Olive-sided Flycatcher, and Coastal Tailed Frog.

Potential Impacts, Residual Effects and Mitigation

- The project will result in some loss of terrestrial habitat and potential habitat fragmentation.
- The residual effects are considered local, and not significant at a regional level as similar habitat types exist throughout the region and can be mitigated via incorporation of habitat nodes, wildlife corridors of variable widths, and utilizing oversized culverts and underpasses to direct wildlife through the site while minimizing wildlife/human interactions.

Fish + Aquatic Habitat

Assessment

- 16 watercourses have been identified in Anmore South, consisting of the two main watercourses: Schoolhouse Creek and Doctors Creek, and their associated tributaries. The Mossom Creek watershed is not associated with the site area.
- Development will require the crossing of three fish-bearing watercourses and 10 non-fish bearing watercourses, which contribute to aquatic habitats both on-site and downgradient of the site.
- Identified fish include Coho Salmon and Cutthroat Trout.

Potential Impacts, Residual Effects and Mitigation

- Localized aquatic and riparian habitat loss is expected to occur, predominantly to accommodate proposed road crossings.
- Other residual effects were considered not significant where mitigation measures are implemented coupled with environmental monitoring and water quality testing.
- Habitat offsetting (i.e., planting and enhancement of existing habitat, and creation of new aquatic habitat areas) coupled with oversized culverts, box culverts, and clear span bridges, and stormwater retention measures are recommended to minimize aquatic impacts, maintain and improve fish passage, and ensure pre-development flows are maintained.

Surface Water Quality and Stormwater Run-off

- Maintaining the existing drainage pattern and water quality during both the construction and operational phases of the project present unique challenges given the topography, rainfall levels and watercourses and associated tributaries.
- Through the implementation of the recommended mitigation measures, inclusive of stormwater modelling and retention features (i.e., rain gardens, bioswales, detention facilities etc.), no significant adverse environmental impacts to surface and storm water run-off are expected to occur.

Soils and Local Geology

- Soils and local geology impacts were assessed given the steep grades and soil stripping, blasting, and cut-and-fill construction components of the project.

- With the mitigation measures proposed, including input from geologists and geotechnical assessments during the detailed design phase, there are unlikely to be significant adverse soil and local geology effects resulting from construction activities or operations.

Air Quality

- Air quality was evaluated given the potential effects associated with construction works, including fugitive dust from excavated materials and mobile equipment, stockpiling and clearing and grubbing activities, as well as emissions from vehicles and equipment. The increased traffic volumes within the area were also assessed.
- The EIA identified several mitigation measures and Best Management Practices (BMPs) relating to the management of air quality during construction, including the recommendation to develop a phased Construction Environmental Management Plan (CEMP), with air quality management provisions, to be implemented and monitored over the duration of construction works.
- With the recommendations implemented, as intended, the residual effects associated with Air Quality were not deemed to be significant.

Noise and Light

- During the construction phase there is expected to be occasional periods of time when noise levels will be elevated associated with blasting and construction equipment.
- Following completion of the project, noise levels would be elevated because of on-site traffic.
- Residual noise effects in the absence of appropriate mitigation consists of potential disruption to nesting / reproduction for wildlife. Monitoring and noise mitigation strategies (e.g., blast mats) and appropriate timing are proposed to minimize potential impacts.
- Until detailed project-related information is included, the significance of the impacts from light cannot be evaluated. However, the project has been proactively designed to comply with the 'Dark Sky' policy that guides development to design exterior lighting to reduce the potential for impact to environmental receptors.

Key Takeaways

- The Anmore South site is predominantly forested, consistent with the wider regional area and associated habitats. With mature second and third growth trees and riparian areas, including watercourses, it provides the habitat for a variety of terrestrial and aquatic species.
- The EIA acknowledges that the Anmore South Preferred Plan incorporates environmental design considerations that provide mitigation measures for the VEC's identified. The Plan has been developed to balance residential growth with the conservation of natural habitats, promoting sustainability, and minimizing the impact on the surrounding ecosystem and affording a larger percentage of retained natural areas and greenspace relative to traditional development under the current zoning. Specifically, the plan, proposes the dedication of 22-hectares (35%) of the land area to a natural conservation framework, which well exceeds the typical conservation targets set by the Village of Anmore per Official Community Plan (OCP) Policy P&TLU-7.
- Potentially adverse effects on terrestrial and aquatic species including habitat loss, as well as effects to surface water and storm runoff, soils and local geology, air quality, and noise and light were identified and evaluated for the construction and operational phases.

Key Recommendations to Mitigate Environmental Impacts

To effectively reduce the significance of the identified adverse effects, a detailed range of supplementary mitigation measures and recommendations are proposed for the detailed design and construction phases . Key recommendations identified include:

- Implement and adhere to a site-specific Construction Environmental Management Plan (CEMP). This will include sub-plans including, but not limited to, a Sensitive Species Management Plan, Emergency Spill Response Plan and Erosion Control Plan.
- Habitat restoration or offsetting, where loss has been identified.
- Design and implementation of an invasive species management plan.
- Wildlife-friendly designs for stream crossings and riparian zone buffers.
- Monitoring sensitive species and ensuring compliance with environmental regulations (e.g., Riparian Areas Protection Regulation).