

**DATE:** December 21, 2022

**TO:** MAYOR AND COUNCIL

**NAME AND TITLE:** Deanna Wasnik, Director of Planning and Development

**SUBJECT:** Rezoning Application No. RZ100753 (Bylaw No. 9317)

**APPLICANT:** Devinder Parmar for Bob and Gail Viergever

**LOCATION:** 2690 Queensway

**ATTACHMENT(S):** Location and Existing Zoning Map  
Appendix "A" to Bylaw No. 9317  
Exhibit "A" to Bylaw No. 9317  
Supporting Documents

- Riparian Assessment prepared by LTN Environmental Consulting LP, dated November 2022
- Preliminary Geotechnical Report prepared by Evertex Engineering Ltd., dated November 13, 2022

**RECOMMENDATION(S):**

THAT Council:

1. GIVES First and Second Reading to "City of Prince George Zoning Bylaw No. 7850, 2007, Amendment Bylaw No. 9317, 2022"; and
2. PERMITS that Final Reading for proposed Bylaw No. 9317 BE WITHHELD until the following requirements have been met to the satisfaction of Administration:
  - a. Receipt of Servicing Brief;
  - b. Receipt of a Traffic Impact Analysis;
  - c. Registration of a Section 219 Covenant that:
    - i. Restricts the maximum density to no more than 70 dwelling units per hectare and
    - ii. Limits the maximum height of principal development to 12.0 m.

In addition, any recommendations presented in the preceding items must be addressed to the satisfaction of the Director of Planning and Development.

## PURPOSE:

The applicant is proposed to rezone 2690 Queensway (subject property) to facilitate an “Apartment Hotel” development offering dwellings for rent for periods of no less than 30 days. To facilitate the proposed development, the applicant has applied to rezone the subject property from C7: Transitional Commercial to RM6: Multiple Residential, as shown on Appendix “A” to Bylaw No. 9317.

### Site Characteristics

Location	2690 Queensway
Legal Description	Block 28, District Lot 933, Cariboo District, Plan 727, Except Plan PGP37011
Current Use	Vacant Land
Site Area	0.61 ha (1.5 acres)
Future Land Use	Neighbourhood Corridor and Neighbourhood Residential
Growth Management Class	Growth Priority and Infill
Servicing	City Services Available

### Zoning (see Appendix “A” to Bylaw No. 9317)

Current Zoning	C7: Transitional Commercial
Proposed Zoning	RM6: Multiple Residential

### Surrounding Land Use Table

North	Laneway; Inlander Street; Single Residential
South	Office (C7); Fraser River
East	Fraser River
West	Queensway

## POLICY / REGULATORY ANALYSIS:

### **Official Community Plan**

#### Future Land Use

The subject property is designated as Neighbourhood Corridor and Neighbourhood Residential in Schedule B-6: Future Land Use of the Official Community Plan (OCP) which provides Administration and Council with policy direction when considering land use changes. The Neighbourhood Corridor designation encourages medium to high density multiple residential developments up to 135 units/ha, with a maximum height of four stories along collector arterial streets (OCP Policy 8.3.55). Development within Neighbourhood Corridors should respect the scale of existing neighbourhoods by providing effective buffering of residents from traffic noise, mitigating visual impacts to adjacent low density uses through building and site design, and considering access and traffic impacts (OCP Policy 8.3.35 and 8.3.57). The Neighbourhood Residential designation encourages development that is consistent with the form and character of the existing neighbourhood (Policy 8.3.58 and 8.3.62) and permits housing forms with a density of less than 22 units/ha (OCP Policy 8.3.59).

The subject property is bound by Queensway (arterial road) to the west, the Fraser River to the east, a laneway and single-family dwellings to the north, and a commercial office to the south. The subject property is located on an active transit route, with access to three bus stops within 250 m that offer direct access to the Downtown Exchange, the Nicholson Exchange, and the Pine Centre Exchange (OCP Policy 8.7.23). To respect the scale of the surrounding neighbourhood, the applicant has offered to register a Section 219 Covenant on the legal title of the subject property to restrict density to 70 dwellings/ha and limit height to a maximum of 12.0 m (approximately 2.5 storeys).

The OCP supports infill and redevelopment in existing neighbourhoods that is incremental, respects the scale and character of the existing neighbourhood, and has relatively minor immediate impacts on the surrounding area (Policy 8.3.45 and 8.3.48).

Administration supports this application as it is consistent with the OCP's Future Land Use policy direction and will create infill and redevelopment of an underutilized site.

#### Growth Management

The subject property is designated as Growth Priority and Infill in Schedule B-4: Growth Management of the OCP. Growth Management designations allow the City to make decisions about how the community should grow based on existing infrastructure. Areas within the Growth Priority designation are intended to prioritize infill development and encourage utilization of underutilized sites (OCP Policy 8.1.1). Redevelopment within established neighbourhoods maximizes the use of existing infrastructure and is preferred over the extension of services and roads into suburban and rural areas (OCP Objective 8.1.5). The applicant's proposal to develop housing on the subject property will fulfill the intentions of the Growth Priority and Infill designations by creating infill and redevelopment of underutilized sites.

Administration supports this application as it is consistent with the OCP's Future Land Use and Growth Management policy direction of the OCP.

#### Development Permit

Section 488 of the *Local Government Act* gives municipalities the authority to designate development permit areas for specific purposes including the establishment of objectives for the form and character of industrial developments. Once a development permit area has been designated, a development permit must be obtained prior to development.

The subject property has been identified within Schedule D-2: Riparian Protection Development Permit Area and Schedule D-4: Flood Hazard Development Permit Area. The Riparian Protection Development Permit Area is intended to protect land and vegetation adjacent to watercourses. The Riparian Protection Development Permit guidelines indicate that the riparian leave strip be a minimum of 30.0 m from the top of bank of the Fraser River. A lesser leave strips shall be considered where the size is determined by a qualified professional in respect of a development proposal. The applicant has provided a Riparian Assessment prepared by LTN Environmental Consulting LP dated November 2022 (attached to this report), to facilitate a forthcoming Development Permit application. The Riparian Assessment has identified the top of bank and recommends a reduced setback of 20.0 m from the top of bank to maintain the current riparian habitat, as shown on Exhibit "A" to RZ100753.

The Flood Hazard Development Permit Area is intended to promote settlement patterns that minimize the risks associated with hazardous conditions. A Flood Hazard Development Permit is required for all development including the subdivision of land. The applicant has provided a Preliminary Geotechnical Report prepared by Evertex Engineering Ltd., dated November 13, 2022 (attached to this report), confirming that the subject property currently exceeds the required flood construction level.

A Multiple Residential Form and Character Development Permit Area has been designated on all lands where zoning allows multiple residential, comprehensive two-unit or strata developments. Should this application be approved, the proposed development will trigger a Multiple Residential Form and Character Development Permit. The Multiple Residential Form and Character Development Permit Area is intended to diversify housing stock options that provide for an appropriate level of design and site layout compatible with and complementary to adjacent uses; considers the human-scale; and provides the City with the ability to tailor new multiple residential area sites to local site conditions and area character. Through the Development Permit process, the City will review the application to ensure that the proposed development is designed to reflect local identity, align with

design guidelines, and enhance the built environment (OCP Policy 8.2.10). The City may consider the following criteria to determine proposed land use suitability: location; lot size; site access; volume of site usage and traffic; parking; landscaping and screening; development size, massing, and quality of design (OCP Policy 8.3.7).

Should this application be approved, the applicant will be required to submit a Development Permit application for Riparian Protection, Flood Hazard, and Multiple Residential Form and Character.

**City of Prince George Housing Needs Report**

The City’s [Housing Needs Report dated December 2021](#), notes a need for a variety of housing types. The proposed rezoning would provide housing options for residents.

**Zoning Bylaw**

The subject property is currently zoned as C7: Transitional Commercial. The C7 zone is intended to provide for vehicle-oriented service and office uses, including but not limited to educational and indoor recreation facilities, service-oriented businesses, and restaurants. The applicant has applied to rezone the subject property from C7 to RM6: Mid-Rise Residential to facilitate an “Apartment Hotel” development. The Zoning Bylaw defines an “Apartment Hotel” as:

*“Apartment housing having a principal common entrance, cooking facilities and furnishings within each dwelling that may be available for rent or occupation for periods of no less than 30 days. This does not include any additional commercial uses except when specifically permitted in the zone.”*

The proposed RM6 zone is intended to provide for mid-rise housing forms, such as apartment buildings and stacked row homes, with a maximum density of 140 dwellings/ha. As previously mentioned, the applicant has offered to register a Section 219 Covenant to restrict density to 70 dwellings/ha and limit height to a maximum of 12.0 m.

The C7 and RM6 zoning regulations are compared below in Table 1.

**Table 1: Zoning Comparison of C7 and RM6**

Regulations	C7: Transitional Commercial	RM6: Multiple Residential
Principal Uses	<ul style="list-style-type: none"> <li>• Community Care Facility, Major</li> <li>• Community Care Facility, Minor</li> <li>• Education</li> <li>• Education, Commercial</li> <li>• Emergency Service</li> <li>• Health Service, Minor</li> <li>• Office</li> <li>• Parking, Non-Accessory</li> <li>• Recreation, Indoor</li> <li>• Restaurant</li> <li>• Service, Business Support</li> <li>• Service, Financial</li> <li>• Service, Funeral</li> <li>• Service, Household Repair</li> <li>• Service, Massage Therapy</li> <li>• Service, Personal</li> <li>• Service, Pet Grooming &amp; Day Care</li> </ul>	<ul style="list-style-type: none"> <li>• Apartment Hotel</li> <li>• Community Care Facility, Major</li> <li>• Community Care Facility, Minor</li> <li>• Housing, Apartment</li> <li>• Housing, Congregate</li> <li>• Housing, Four-plex</li> <li>• Housing, Row</li> <li>• Housing, Stacked Row</li> <li>• Religious Assembly only on sites less than 1.0 ha</li> </ul>

Secondary Uses	<ul style="list-style-type: none"> <li>Residential Security/Operator Unit</li> </ul>	<ul style="list-style-type: none"> <li>Club</li> <li>Health Service, Minor</li> <li>Home Business 1</li> <li>Retail, Convenience</li> <li>Service, Massage Therapy</li> <li>Service, Personal</li> </ul>
Max. Density	N/A	140 dwellings/ha*
Site Coverage	75%	45% plus 30% for covered parking
Max. Height	12.0 m	30.0 m*
Min. Front Yard Setback	0.0 m	4.5 m
Min. Interior Side Yard Setback	0.0 m, except it is 3.0 m abutting a RS, RT, RM, or Z7 zone	3.0 m
Min. Rear Yard Setback	0.0 m, except it is 3.0 m abutting a RS, RT, RM, or Z7 zone	4.5 m

\*The applicant has offered to register a Section 219 Covenant to restrict density to 70 dwellings/ha and limit height to a maximum of 12.0 m.

As identified in Table 1 above, the C7 zone offers vehicle-oriented service and office uses, including but not limited to educational and indoor recreation facilities, service-oriented businesses, and restaurants. Whereas the proposed RM6 zone predominately supports residential building forms. The RM6 zone offers density restrictions, decreased site coverage and increased setbacks compared to the existing C7 zone. As previously mentioned, the applicant has offered to register a Section 219 Covenant to restrict density to 70 dwellings/ha permitting a maximum of 43 dwelling units and limiting height to a maximum of 12.0 m.

The subject property is bound by Queensway (arterial road) to the west, the Fraser River to the east, a laneway and single-family dwellings to the north, and a commercial office to the south. The surrounding area is a mix of C6: Highway Commercial, C7: Transitional Commercial, RS2: Single Residential and RS4: Urban Residential. The nearest Multiple Residential zoned sites are located on LaSalle Avenue (RM1 and RM4), approximately 150 m north of the subject property.

As the application is consistent with the policy direction of the OCP, Administration supports this application.

#### OTHER CONSIDERATIONS:

##### Referrals

This application was referred to internal City divisions and external agencies for comments. The following comments were received during the referral process.

##### Property Title

**Section 219 Covenant No. PG9697:** Registered on title on March 30, 1993, the Ministry of Environment and Climate Change Strategy and City of Prince George are named on a flood protection covenant requiring development to maintain a 30.0 m setback from the natural boundary of the Fraser River and a flood construction level of 569.5 m.

The applicant has provided a Preliminary Geotechnical Report prepared by Evertek Engineering Ltd., dated November 13, 2022 (attached to this report), which includes a topographic survey plan prepared by McElhanney Associates Land Surveying Ltd., dated October 14, 2022, confirming that the subject property currently exceeds the required flood construction level.

### Geotechnical Report

Portions of the subject property adjacent to the Fraser River are comprised of significant slopes as identified on Schedule B-3: Significant Slopes of the OCP. As such, the applicant has provided a Preliminary Geotechnical Report prepared by Evertek Engineering Ltd., dated November 13, 2022. The Preliminary Geotechnical Report concluded that the proposed development is feasible from a geotechnical perspective and has identified recommendations for construction based on current site conditions. The Preliminary Geotechnical Report is attached to this report as a supporting document.

### Servicing Brief

A Servicing Brief prepared and sealed by a Professional Engineer registered in the Province of British Columbia is required. The Servicing Brief will address technical issues related to water supply, sanitary sewer collection, and storm drainage system designs.

Administration recommends that Final Reading of Bylaw No. 9317, 2022 be withheld until a Servicing Brief has been prepared and submitted to the satisfaction of Administration.

### Traffic Impact Analysis

A Traffic Impact Analysis prepared and sealed by a Professional Engineer registered in the Province of British Columbia is required to address technical issues related to traffic for the proposed development. The proposed development will be accessed via Inlander Street. A Traffic Impact Analysis including a trip generation and distribution from the proposed development, and recommendations for any impacts on current and future road configurations is required for Administrations consideration.

Administration recommends that Final Reading for Bylaw No. 9317, 2022 be withheld until a Traffic Impact Analysis has been prepared and submitted to the satisfaction of Administration.

### Section 219 Covenant

To ensure the density of the proposed development aligns with the OCP Future Land Use policy and surrounding neighbourhood, the applicant has volunteered to restrict density to 70 dwellings/ha and limit height to maximum of 12.0 m through registration of a Section 219 Covenant.

Administration recommends that Final Reading of Bylaw No. 9317, 2022 be withheld until the Section 219 Covenant has been submitted to the satisfaction of Administration and registered to the legal title of the subject property.

### Ministry of Transportation and Infrastructure

As per Section 52 of the *Transportation Act*, Bylaw No. 9317, 2022 requires the Ministry of Transportation and Infrastructure's approval prior to Final Reading and adoption.

### **Statutory Notification and Public Consultation**

In accordance with section 464(2) of the *Local Government Act*, a public hearing regarding this application will not be held as the proposed bylaw is consistent with the "City of Prince George Official Community Plan Bylaw No. 8383, 2011."

As per the requirements set out in the *Local Government Act* and "City of Prince George Development Procedures Bylaw No. 7635, 2005", in advance of First and Second Reading of the proposed bylaw, the City of Prince George will mail or otherwise deliver a notice to adjacent property owners and tenants whose interests in property may be affected by this application. In addition, notice will be published to the City's website and Facebook page as per "City of Prince George Public Notice Bylaw No. 9329, 2022".

Members of the public wanting to provide comment on the application may submit written correspondence to Council. Written submissions received in response to the public notice for this application will be provided to Council for their consideration at the time the application is being considered. Submissions received after the Council meeting agenda has been published will be provided to Council as a handout on the day of the Council meeting for consideration during deliberations on the application.

**ALTERNATIVES:**

1. Approve the bylaw
2. Approve the bylaw as amended
3. Refuse the bylaw
4. Defer or otherwise deal with the bylaw

Administration recommends that Bylaw No. 9317, 2022 be approved.

**SUMMARY AND CONCLUSION:**

The applicant is proposing to rezone the subject property from C7: Transitional Commercial to RM6: Mid-Rise Residential, as shown on Appendix "A" to Bylaw No. 9317. The purpose of this application is to facilitate an "Apartment Hotel" use offering dwellings for rent for periods of no less than 30 days. Administration is supportive of this application for the reasons outlined in this report.

**RESPECTFULLY SUBMITTED:**

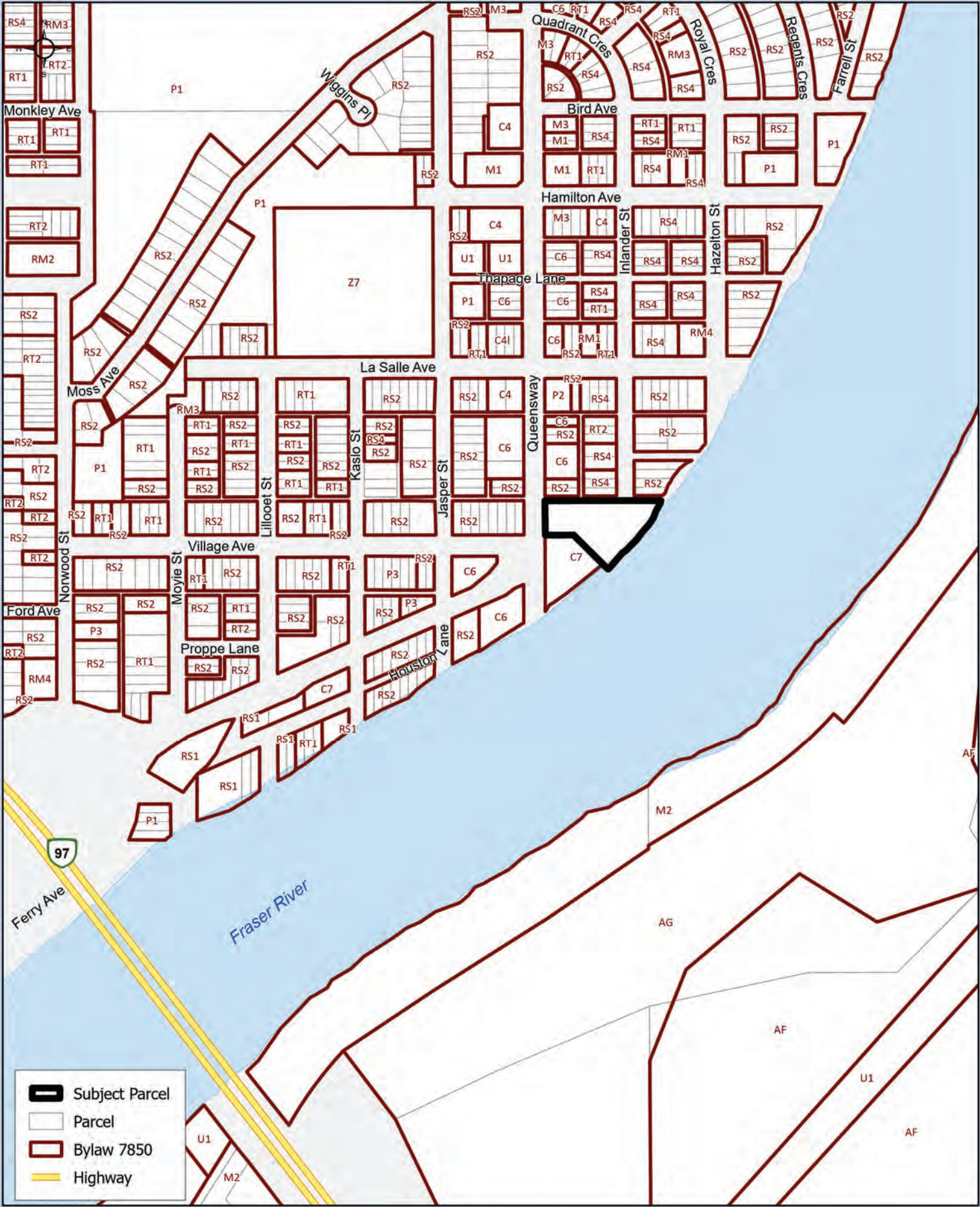
Deanna Wasnik, Director of Planning and Development





**PREPARED BY:** Imogene Broberg-Hull, Planner 1

**APPROVED:**

Walter Babicz, City Manager

Meeting Date: 2023/01/16



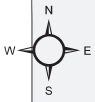
-  Subject Parcel
-  Parcel
-  Bylaw 7850
-  Highway

0 50 100 150 Meters  
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 Projection: Transverse Mercator  
 Datum: North American 1983  
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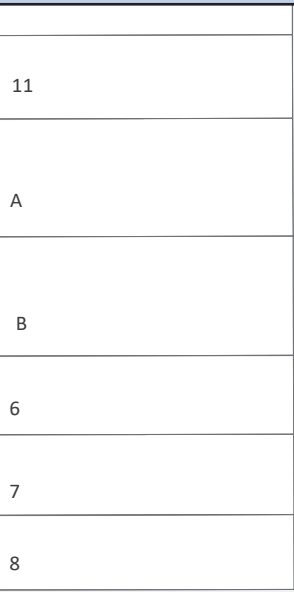
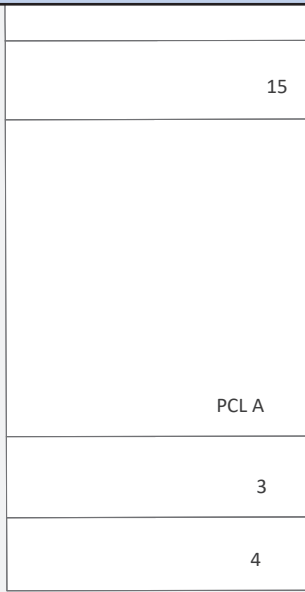
**Location and Zoning Map**



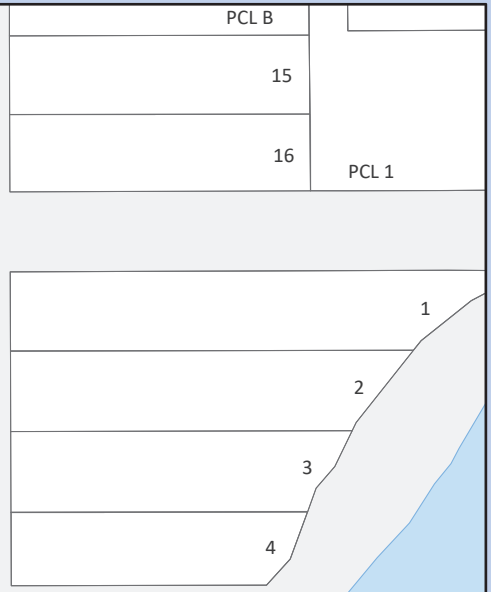




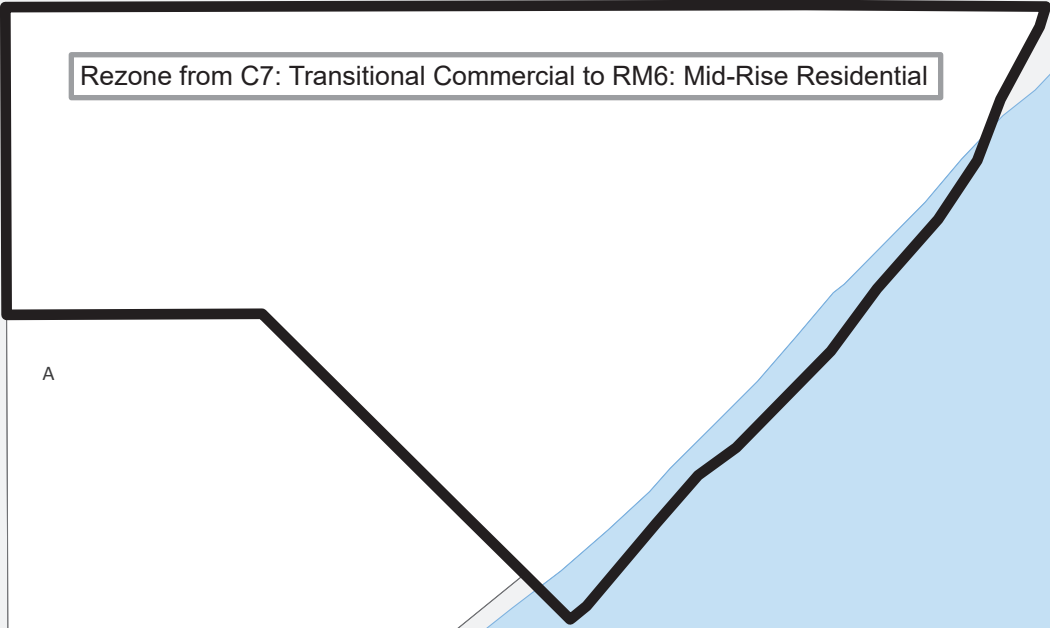
Queensway



Inlander St



Rezone from C7: Transitional Commercial to RM6: Mid-Rise Residential



A

Fraser River

-  Subject Parcel
-  Parcel

0 10 20 30 Meters

Coordinate System: NAD 1983 UTM Zone 10N  
Projection: Transverse Mercator  
Datum: North American 1983






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### Appendix "A" to Bylaw No. 9317

Block 28, DL 933, CD, Plan 727 Except Plan PGP37011





-  Subject Parcel
-  Proposed Riparian Setback
-  Top of Bank
-  Parcel
-  Riparian Protection Development Permit OCP 8383

0 10 20 30 Meters

Coordinate System: NAD 1983 UTM Zone 10N  
 Projection: Transverse Mercator  
 Datum: North American 1983

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**Exhibit "A" to RZ100753**

Block 28, DL 933, CD, Plan 727 Except Plan PGP37011





LTN Environmental  
Consulting LP

Riparian Assessment –  
2690 Queensway

Prepared For

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Prince George, BC V2N 3B3

Prepared By

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22P0446

Version: 2

November 2022

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## AUTHORSHIP

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Jesse McEwen, R.P.Bio..... Primary Author

Hanna Donaldson, R.P.Bio .....Senior Review

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## 1 INTRODUCTION

The landowner of 2690 Queensway is proposing the development of an apartment complex on the lot. The lot is adjacent to the Fraser River and overlaps the City's Riparian Development Permit Area. Section 8.9 of the City's Zoning Bylaw No. 7850, identifies a 30m offset from top-of-bank (TOB) for the Fraser River so that natural features, function and conditions that support fish life processes are preserved, protected, restored, or enhanced (City of Prince George 2022b). The City will consider a decreased leave strip which has been determined based on a Qualified Professional's assessment. We also acknowledge that Covenant PG9697 on the lot at 2960 Queensway stipulates a 30m floodplain setback.

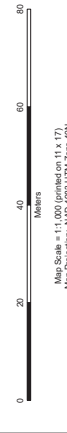
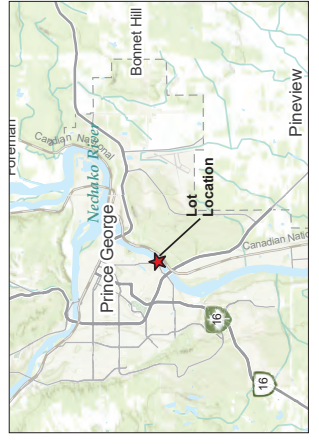
LTN Environmental Consulting LP (LTNE) was retained as a Qualified Professional to conduct a riparian assessment within the lot. The proposed development is a high-density housing building and a paved parking lot. The objectives of the riparian assessment were to determine the value of the riparian area to fish and fish habitat and recommend an appropriate riparian leave strip width.





**Figure 1. Riparian Assessment Study Area Overview**

- Legend**
- Lot of Interest
  - Land Parcel
  - Riparian Protection
  - Development Permit Area



**Data Sources**

- Inset BaseMap, Canada Historical Sources, NRCan, Esri Canada, and Canadian Community Maps contributors.
- Inset BaseMap, Canada Historical Sources, NRCan, Esri Canada, and Canadian Community Maps contributors.
- Main BaseMap, World Imagery, Esri, Canada.
- Main BaseMap, World Imagery, City of Prince George.
- Main BaseMap, World Topographic, Canadian Style, City of Prince George.
- Main BaseMap, World Hydrology, Esri, CGAR, USGS.
- Main BaseMap, World Hydrology, Esri, CGAR, USGS.
- Land Parcel, City of Prince George, 2019.
- Development Permit Area, LTN Environmental Consulting LP, 2022.

**Disclaimer**  
LTN Environmental Consulting LP has made every effort to verify this map is free of errors. Data has been provided by third parties. LTN Environmental Consulting LP does not warrant the accuracy, completeness, or reliability of this map or its data.

Drawn:	O. LeBlanc	Checked:	J. McEwen	Figure 1	Date:	2022-09-26
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## 2 METHODS

The riparian assessment Study Area included the length of the watercourse and riparian area that extended through the lot boundary of 2690 Queensway (Figure 1). A review of existing publicly available data was completed to understand the potential watercourse and aquatic resources in the Study Area. The following data sources were reviewed:

- PG Map (City of Prince George 2022a),

A field assessment was completed to document the existing conditions and identify potential effects of lot development to the watercourse. Within the Study Area, the following information was collected and used to describe the fish habitat potential (i.e., suitability) to support life requisites (i.e., spawning, summer rearing and overwintering) of fish species that may utilize the Study Area (BC Fisheries Information Branch 2001).

- general site description,
- biophysical data (e.g., channel measurements, substrate types and streambank characteristics),
- available cover types, composition, and abundance,
- riparian area description and representative vegetation species, and
- representative photographs illustrating habitat characteristics.

The watercourse top of bank was surveyed by McElhanney within the Study Area in conjunction with the riparian assessment. The top of bank is defined by the City of Prince George as: “the points closest to the boundary of the active floodplain of a watercourse or water body where a break in the slope of the land occurs such that the grade beyond the break is flatter than 3 (horizontal) to 1 (vertical) at any point for a minimum distance of 15.0 meters measured perpendicularly from the break. Where banks are not well defined (as determined by a qualified professional) the top of bank is equivalent to the high water mark.”

### 3 RESULTS AND RECOMMENDATIONS

The Fraser River at 2690 Queensway is approximately 240m wide and the lot is located on an inside bend. Being such a large river, the assessment was focused on the riparian area of the portion of the river along the lot that could be visually assessed. At the time of assessment, there were very little signs of erosion along the bank and no signs of major erosion. This is typical of inside bends.

While the bulk of the lot is relatively flat there is a drop in elevation along its' edge to a lower bench. This lower bench is approximately 15m wide for the length of the lot. Beyond the bench, the slope declines steeply down to the river channel. The small crest on the lower bench before the steep drop has been defined as the top of bank. The top of bank was determined following the City's 3:1 slope criteria for 15m from the break. Recognizing that a small section of the lot did not achieve this, the identified top of bank also follows the high-water mark as defined by cottonwood trees along the top of the slope break on adjacent lots. The lower bench is vegetated with species such as willows, horsetails, and grasses (Photo 2). As the lower bench transitions to the upper portion of the lot (with similar elevation to Queensway) there are saskatoon bushes present (Photo 2). The upper portion of the lot is grassed throughout with some cottonwoods near the roadside half of the lot (Photo 3 and 4).

The fish habitat along the lot boundary was moderate overall, however, this portion of the river is a migratory corridor for many fish species including salmonids and white sturgeon<sup>1</sup>. Spawning habitat for salmonids was poor in the study area as the substrate was dominated by cobbles with fines filling the spaces. White sturgeon spawning is not well documented however they have been documented spawning in water 3-4.5m deep in the Fraser River, these sites have been dominated by boulders and cobbles (Ptolemy and Vennesland 2003) and are unlikely to occur on the river's inside bend along the lot boundary. Rearing habitat was moderate as there were some boulders present that could provide some refuge from flows, but the benefits of these boulders would likely be negligible at higher flows (Photo 1). Vegetation present in the riparian area would provide negligible detritus inputs to the river and only a small amount of cover during high water periods. Overwintering habitat was moderate as the channel becomes deep quickly, however, without many large boulder or large woody debris to provide refuge from flows it is likely less desirable overwintering habitat.

Based on our assessment of the area, and available fish habitat, a 20m average setback from the top of bank (i.e., the crest of the lower bench) would maintain the current riparian habitat values along the Fraser River (Figure 2). The 20m setback is based on an average measurement from the TOB, which is variable depending on the specific measurement along the Fraser River. The setback line was smoothed to provide a buffer that aligned with the topography and maintained the intent of the riparian setback by limiting development beyond the upper bench. Most of the setback distances are between 17.5m and 21.5m, except for the first 5m within the southwest corner where the TOB turns in sharply, at this point the setback is 15-17.5m from the TOB. This allows for the entire lower bench and 2-5m of the upper portion of the lot to be included in the setback. This setback would be inline with or slightly greater than that of the neighboring property. The area immediately adjacent to the identified riparian setback is flat with grasses and provides little to no riparian

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<sup>1</sup> Upper Fraser white sturgeon are currently listed as endangered under the Species at Risk Act (SARA)

value. The developer intends to site the building closer to Queensway with the parking lot up to the edge of the setback. Within the setback zone there is no development permitted and existing vegetation should be maintained. However, planting of trees would be encouraged within the riparian zone, especially the area immediately adjacent to the planned parking lot. Clean snow can be stored within the riparian setback area.

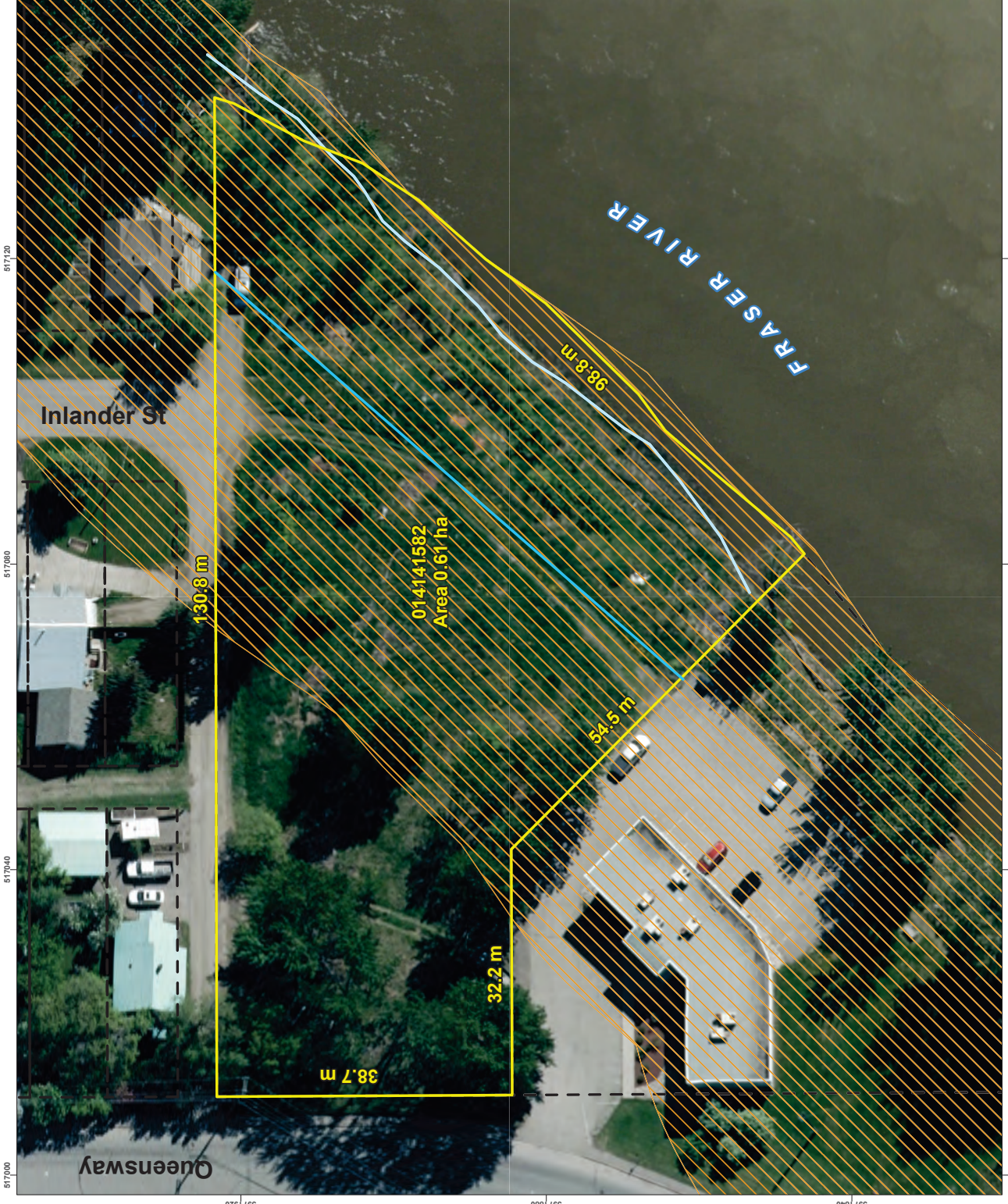
A 20 m average leave strip is considered adequate to sustain riparian values due to:

- Negligible detritus contribution to the Fraser River beyond the 20m distance and retention of shrubs that provide small amounts of cover during high water.
- Very little signs of erosion along the bank and no signs of major erosion.
- An erosion and sediment control plan should be prepared prior to surface disturbance of the lot to protect water quality.

## 4 EROSION AND SEDIMENT CONTROL

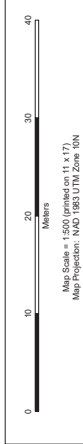
For erosion and sediment control it is recommended the following measures are considered during both the construction and post-construction phases of the work:

- There is to be no disturbance to existing riparian vegetation beyond the project footprint. Vegetation that must be removed from within the project footprint should be stockpiled and if possible, replanted within the riparian area.
- The riparian setback will be clearly marked to prevent access (e.g., snow fencing supported by rebar).
- The contractor should manage drainage to avoid sediment laden water from flowing into the riparian area.
- Appropriate sediment and erosion control measures are employed to prevent any sediment laden water from leaving the project footprint. This could include:
  - Any exposed erodible materials and/or surfaces must be appropriately fortified in the event of unanticipated weather or other flow events.
  - Contingency materials including silt fence, poly plastic sheeting and/or tarps should be on site during construction. Attached are some Best Management Practices for ESC
- All fuel and maintenance materials must be appropriately stored; no refueling of equipment will be conducted where there is any chance of a spill or leak entering the Fraser River either directly or through infrastructure such as storm water networks.
- All equipment used in construction must be clean and maintained and inspected for leaks regularly.
- Exposed soils around the property should be stabilized with appropriate grass seed mixture to prevent any erosion or sedimentation of the riparian area post construction.
- Planting of trees is not required, however it is recommended that the developer plant trees on the edge of the upper bench adjacent to the proposed parking lot to increase the riparian value. The lower bench has many native riparian species and should not be disturbed.



**Figure 2. Riparian leave strip from top of bank**

- Legend**
- 20 m setback from Top of Bank
  - Top of Bank
  - Lot of Interest
  - Land Parcel
  - Riparian Protection Development Permit Area



**Data Sources**

- Inset BaseMap, Canada Historical Sources, NRCan, Esri Canada, and Canadian Community Maps contributors.
- Canada, Topographic, Esri, Canada
- Main BaseMap, World Imagery, City of Prince George
- Main BaseMap, World Topographic, Canadian Style, City of Prince George
- Main BaseMap, World Hydrography, Esri, ANSA, NSGA, USGS
- Land Parcel, City of Prince George, 2019
- Development Permit Area, LTN Environmental Consulting LP, 2022

**Disclaimer**  
LTN Environmental Consulting LP has made every effort to verify this map is free of errors. Data has been provided by third parties. LTN Environmental Consulting LP does not warrant the accuracy, completeness, or reliability of this map or its data.

Drawn:	O. Lobanc	Checked:	J. McEwen	Figure 2	Date:	2022-10-11
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517000 517040 517080 517120

517000 517040 517080 517120

Inlander St

Queensway

FRASER RIVER

130.8 m

014141582  
Area 0.61 ha

54.5 m

98.8 m

38.7 m

32.2 m

## 5 REFERENCES

BC Fisheries Information Branch. 2001. Reconnaissance (1:20 000) Fish and Fish Habitat Inventory: Standards and Procedures. Resource Inventory Committee.

(<https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/nr-laws-policy/risc/recce2c.pdf>)

City of Prince George. 2022a. PG Map.

(<https://pgmap.princegeorge.ca/Html5Viewer/index.html?viewer=PGMap>)

City of Prince George. 2022b. City of Prince George Zoning Bylaw No. 7850, 2007. Document Number: 551445.

Ptolemy, J. and R. Vennesland. 2003. Update COSEWIC status report on the white sturgeon *Acipenser transmontanus* in Canada, in COSEWIC assessment and update status report on the white sturgeon, *Acipenser transmontanus*, in Canada. Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Ottawa. 1-51 pp.

# APPENDICES



## APPENDIX A PHOTOGRAPHS



**Appendix Photo 1.** Downstream view showing an instream boulder and a large cottonwood along the top of bank.



**Appendix Photo 2.** Willows along the top-of-bank and Saskatoon's on the transition to the higher bench.



Appendix Photo 3. Grasses on the higher bench.



Appendix Photo 4 Cottonwood on the Queensway end of the lot.

APPENDIX B ESC BMPS

## **EROSION CONTROL**

### ***Temporary Cover***

- Cover exposed soils with plastic to prevent erosion during precipitation and/or wind events.

### ***Surface Roughening***

- Roughening slopes reduces runoff velocities, reduces soil compaction, increases soil infiltration rates and provides micro sites that promote plant growth.
- Can be done by tracking slopes with machinery (creating horizontal grooves) or simply placing logs and woody debris on the slope.

### ***Grass Seeding***

- Grasses can provide rapid, long-term protection of exposed soils from rainfall erosion; they will also reduce erosion by slowing runoff velocities, enhancing infiltration, trapping sediment and providing structural support for the soil.
- To immediately protect soils from rainfall erosion, seeded areas should be covered with straw mulch.

### ***Mulching***

- Mulching consists of spreading materials such as straw, woodchips, rock or hydroseed mulch over exposed soils.
- Mulch provides short-term protection of soil from rainfall erosion and should be done in conjunction with grass seeding to provide long term protection.

### ***Hydroseeding***

- Hydroseeding is an effective way to apply seed and mulch to large areas.
- Hydroseeding involves the use of a portable tank and pump that are used to spray the mixture onto the site.
- Hydroseed mix can be customized to suit the site.
- Avoid adding fertilizer to the mix when applying hydroseed adjacent to watercourses.

## **SEDIMENT CONTROL**

### ***Sandbag Dikes***

- Sandbag dikes can be used along the toe of slopes to trap sediment by slowing water velocities.
- They must be placed in a row with ends tightly abutted and stacked to the desired height.
- They must be embedded in the soil at least 10 cm on the uphill side to prevent water from going under the sandbags.

### ***Check Dams***

Check dams are constructed in drainage ditches to slow water velocity and reduce ditch erosion. They can be constructed of rocks, logs, sand bags or other materials. Check dams will allow some of the larger suspended sediments to settle out, so they must be properly constructed and maintained. Construction of check dams must ensure that water will not flow under or around the check dam. As such, the upstream portion of the dam must be impermeable and sealed against or embedded into the ditch. Water should only flow over the check dam without causing erosion of the banks of the ditch: the center of the dam must be lower than its edges, which must be lower than the road surface.

### ***Straw wattles***

Straw wattles are tubes of compressed straw, wheat or rice, also known as erosion logs. They provide perimeter protection along contours or at the base of slopes, inlets and roadways to reduce soil erosion, runoff and retain sediment. Straw Wattles can also be installed to intercept water running down a slope. Wattles should be installed in a 5 cm trench that is constructed along the contour to prevent runoff from flowing under the wattle. Ends of the wattles should be turned up the slope or attached to the adjacent wattle using heavy twine or plastic locking ties. Wattles should be secured to the slope by wooden stakes placed every 1.2 m across the length of the wattle. Stakes should be driven through the centre of the wattle and into the ground approximately 60 cm, with less than 5 cm projecting above the top of the wattle. A stake must be placed within 60 cm of the end of the wattle. It may be necessary to use a metal rod to create pilot hole for the wooden stakes.

### ***Silt Fencing***

- Silt fencing is designed for use along or around slopes.
- Prevents sediment laden runoff from escaping by slowing runoff and allowing sediment to settle out.
- Not for use in ditches or watercourses as it does not filter sediment out of water.
- Must be installed properly to be effective:

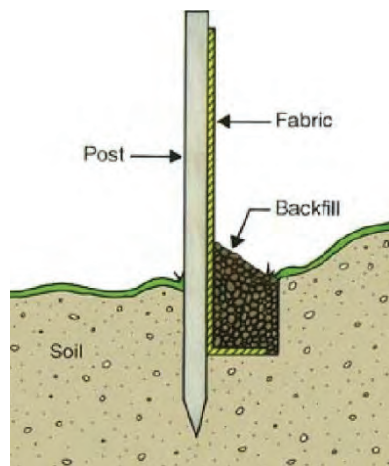
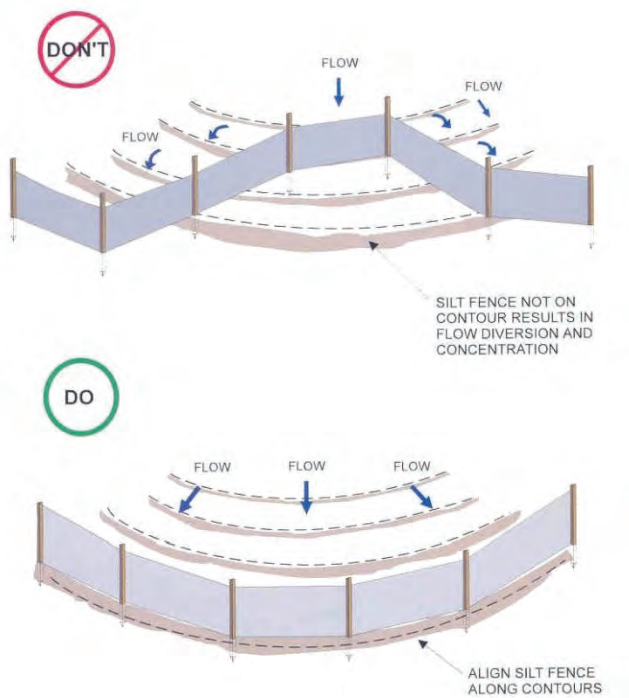


Figure A. Proper silt fence

installation (California Regional Water Quality Control Board 1999).



Our File: 100654

November 13, 2022

Mr. Sukhi Atwal  
Email: [realtorsukhiatwal@gmail.com](mailto:realtorsukhiatwal@gmail.com)

Dear Sir,

**Re: Preliminary Geotechnical Report Revision 1 - Proposed Residential Development  
2690 Queensway, Prince George, BC**

## **1.0 Introduction**

Everték Engineering Ltd. (Everték) was retained by Mr. Sukhi Atwal (Client) to conduct a preliminary geotechnical evaluation for the proposed residential development on a property located at 2690 Queensway in Prince George, BC (herein referred to as, “the property”). The purposes of this geotechnical evaluation were:

- To conduct a field review of the current site surface and subsurface conditions.
- To provide geotechnical comments on prefeasibility for the proposed residential development.

Preparation of this report is generally in accordance with the City of Prince George Bylaws and British Columbia Building Code 2018. Everték has reviewed the environmental report titled “The Riparian Assessment for 2690 Queensway, Prince George (Version 2, November 2022)”, prepared by LTN Environmental Consulting LP.

This report has been revised based on the City of Prince George’s comments on November 7, 2022.

## **2.0 Site Location & Proposed Development**

The legal description of the property is Block 28, District Lot 933, Plan 727, PID: 014-141-582. The size of the property is approximately 1.51 acres (6113.3 m<sup>2</sup>). The Property is currently zoned as C7: Transitional Commercial. Fraser River is located east, adjacent to the property. The property is generally flat except for the 15-20 m eastern section of the property that benches down to the Fraser River bank. There is a section 219 Covenant (PG9697) registered to the legal title of the property requiring a minimum 30 m building setback from the natural boundary of the Fraser River and a flood construction level (FCL) of at least 569.5 m. The site location plan is attached for reference (Figure 1).

Based on the preliminary site plan prepared by Bakerview Building Design and verbal communication with the client, it is Everték’s understanding that the proposed residential development includes two-storey apartment buildings with an internal road and parking areas. The preliminary site development plan is attached for reference (Figure 2).



### **3.0 Field Geotechnical Assessment**

A field geotechnical investigation was conducted on August 24, 2022. An excavator was used to excavate six (6) test pits (TP22-01 to TP22-06) on the property to depths ranging from 1.5 m to 2.7 m below the existing grade. Approximate test pit locations are depicted on Figure 2, attached. Soil encountered in the test pits consisted of 0.15 m to 0.3 m thick surficial topsoil layer over loose to compact, moist, brown sand with trace to some silt. The sand layer thickness ranged from approximately 0.9 m to 1.8 m. Underlying the sand was compact to dense, moist, greyish brown sand and gravel with some cobbles. TP22-01 and TP22-02 were terminated in the sand layer at a depth of 1.5 m below existing grade while test pits TP22-03 to TP22-06 were terminated in the sand and gravel layer at a depth of 2.7 m below existing grade. No groundwater was observed upon completion of the test pit excavation. The detailed subsurface soil logs are attached for reference. It should be noted that the test pits indicate subsurface conditions encountered at the respective test pit locations only. The subsurface conditions may vary outside the test pit locations and below the depths explored.

Laboratory testing was completed by Metro Testing for selected soil samples in order to identify the moisture content and grain size distribution of the soil. The moisture content of the soil sample for the sand with some silt ranges from 5.1% to 19.0% while the sand and gravel have a moisture content ranging from 2.1% to 3.8%. The grain size distribution for soil samples were taken at test pits TP22-02 and TP22-04 at a depth of 1.5 m below the existing grade. The grain size distribution for test pit TP22-02 was 62.5% sand and 37.5% silt. The grain size distribution for test pit TP22-04 was 90.2% sand and 9.8% silt. The laboratory testing results are attached for reference.

### **4.0 Recommendations for the Proposed Development**

Based on the desktop review and preliminary subsurface investigation, Evertek considered that the proposed residential development is feasible from a geotechnical perspective. Recommendation for the proposed development will be discussed in the following sections.

#### **4.1 Site Preparation**

In the proposed building and roadway areas the site must be cleared of any vegetation, fill, construction debris or any soft and wet soil to expose native competent sand subsoil. Evertek must review the sub-grade once the stripping is complete, in order to verify the conditions of soil found during the investigation and to provide additional recommendations, if required.

The proposed development is relatively flat. Therefore site grading for the proposed development is expected to be minimal. Where grades need to be raised using structural fill material, the fill should comprise of granular material approved by the geotechnical engineer. The structural fill should be well graded, with a maximum particle size of 75 mm, and contain no more than 5% passing the No 200 sieve. The structural fill materials should be placed horizontally in maximum 300 mm (12 inch) thick lifts within 2 percent of its optimum moisture content. Each lift should be uniformly compacted to 100% of the Standard Proctor Maximum Dry Density (SPMDD) in accordance with ASTM D698 in the building area, and 95% Modified Proctor dry density in the roadway area. In-situ density testing must be carried out during the structural fill placement to verify that the specified compaction is achieved. Subject to field review during construction and approval by the geotechnical engineer onsite excavated sand and gravel may be suitable for reuse as structural soil.





## **4.2 Floods, Site Slopes, and Setbacks**

Fraser River is located east, adjacent to the property. The property is generally flat except for the 15-20 m eastern section of the property that benches down to the Fraser River bank. There is a section 219 Covenant (PG9697) registered to the legal title of the property requiring a minimum 30 m building setback from the natural boundary of the Fraser River and a flood construction level (FCL) of at least 569.5 m.

LTN Environmental Consulting LP recently conducted an environmental study, and specified an environmental setback of 20 m between the proposed development and the river. Based on the architectural site plan by Bakerview Building Design, the setback for the proposed parking area is a minimum of 20 m while the setback of the proposed building is a minimum of 30 m.

The majority of the site is relatively flat. However, there is a slope near the Fraser River channel. The site slopes down towards Fraser River at the southeast side of the property which is approximately 12-15 m wide. The section slopes (3H:1V to 2.5H:1V) to a lower bench which then declines steeply (1.5H:1V to 1.3H:1V) down to the Fraser River channel. The lower bench transition to the steep slope is classified at the watercourse top of bank. Based on the site visit, there was no evidence of slope instability such as tension cracks, scarps, soil slumping and debris tracks. The slope is considered to be stable. Evertek concurs that the minimum of 20 m setback line from the watercourse top of bank as specified by LTN Environmental Consulting LP) is considered geotechnically adequate in terms of slope stability.

The topographic surveying plan prepared by McElhanney Associates Land Surveying Ltd. dated October 14, 2022 indicates that the current ground elevation in the proposed building area ranges from approximately 570 to 571 m, which is higher than the FCL (569.5 m) outlined in the existing land covenant (PG9697).

## **4.3 Site Drainage, Erosion Control, and Stormwater Management**

A temporary onsite surface drainage system (ditches or swales) may be implemented during site grading and construction. The surface water collected and conveyed by the temporary surface drainage system should be discharged to the existing natural drainage system or the municipal stormwater system, if permitted. These recommendations should be incorporated into the civil design.

During and after construction, it is important that care be taken to prevent uncontrolled water runoff and saturation of any exposed natural soil surface. Site grading should be designed to prevent the ponding of surface water near foundation walls and paved areas. Sidewalks, pavement areas or landscaping within a zone of approximately 2 m of the exterior perimeter of the buildings should be graded to drain water away from the buildings at a minimum gradient of 2%.

Drainage established during design and construction should be maintained for the life of the development.

Should the municipal stormwater system be unavailable to the site, an onsite stormwater infiltration system for the roof water and foundation drainage may be considered. Based on the soil and groundwater conditions, onsite stormwater infiltration system is considered feasible from



the geotechnical perspective. Evertex can assist in the proposed storm-water management plan design upon request.

#### **4.4 Bearing Capacity Estimation and Site Classification**

Based on the existing soil conditions, a conventional shallow foundation system atop of compacted structural fill or the native soil may be considered suitable for the proposed buildings. Footings founded on the competent native sand soil or structural fill can be designed with a factored Ultimate Limit State (ULS) bearing pressure of 150 kPa (3,000 psf), for a resistance factor  $\phi = 0.5$  in accordance with the Canadian Foundation Engineering Manual (CFEM). The Serviceability Limit State (SLS) pressure is 100 kPa (2,000 psf). For footings founded on the natural sand and gravel, soil bearing capacities of 225 kPa (ULS) and 150 kPa (SLS) may be used. The estimated total settlement of the building should not exceed 25 mm and the corresponding differential settlement should not exceed 20 mm over a 6 m span.

The minimum width of continuous footings should not be less than 0.45m (18 inches), and the minimum dimension of column pads should not be less than 0.9 m (36 inches). A minimum embedment depth of 1.2 m (48 inches) must be provided for frost protection.

In terms of seismic design, the Site Classification for this property is D – stiff soil (in accordance with the BC Building Code 2018, Table 4.1.8.4.A). The Peak Ground Acceleration (PGA) for this site is 0.049g for a probability of occurrence of 2% in 50 years (0.000404 per annum), which obtained from 2015 National Building Code Seismic Hazard from the web-site <http://www.earthquakescanada.nrcan.gc.ca> of National Resources Canada.

#### **4.5 Floor Slab-On-Grade**

Concrete floor slab-on-grade must be underlain by a 100 mm minimum layer of coarse, free draining granular material. A vapour barrier membrane consisting of minimum 0.15 mm thick polyethylene sheeting should be placed between the slab and the bedding layer. A thin layer of sand may be placed on top of the vapour barrier to protect the polyethylene sheeting from tearing during construction of footing forms and concrete pouring.

#### **5.0 Further Work and Construction Inspections**

Evertex should review the final design to ensure that our recommendations have been incorporated into the design. We recommend that Evertex be retained in the detailed design and construction phases of the project for the following purposes:

- Review of final proposed layout and grading plan;
- Review of structural design for proposed buildings;
- Subgrade field review during the building, underground utility and road construction;
- Monitoring of excavation side slope stability and review of the temporary shoring installation if required; and
- Monitoring of field densities of structural fill during placement and compaction.



## 6.0 Closure

This report is based on the findings at six test pit locations. Should different subsoil and groundwater conditions be encountered during construction, this office should be notified and recommendations submitted herein will be reviewed and revised as required. This report should be applied only to the presently proposed development.

This report has been prepared for the exclusive use of the client for the specified application to the project described in this report. The City of Prince George may also rely on the findings of this report. It has been prepared in accordance with generally accepted geotechnical engineering practices. No other warranty, expressed or implied, is made.

We trust that the information provided in this letter meets your requirements. Should you have any questions please do not hesitate to contact this office.

Yours truly,

**Evertek Engineering Limited**  
(EGBC Permit to Practice No. 1000729)

Reviewed by:

Derek Emslie, EIT, M.A.Sc.  
Junior Geotechnical Engineer



Larry Deng, M.Sc, P.Eng.  
Senior Geotechnical Engineer, Principal

Attachments: Preliminary Site Plan by Bakerview Building Design  
Figure 1 – Site Location Plan  
Figure 2 – Test Pit Location Plan  
Soil Logs  
Metro Testing Laboratory Results

QUEENS WAY



INLANDER STREET

124  
5'

LANE

3M

4.5M

GRB  
ENC  
MECH  
RM

1 2 3 4 5 6 7 8 9 10 11 12

36' DRIVE AISLE

13

VISTOR

LANDSCAPING AND TREES

ERROR: stackunderflow  
OFFENDING COMMAND: exch

STACK:

/\_ct\_na