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AGENDA INFORMATION

☐ Regular Meeting
☐ Other:

Date: may 28, 2018

The District of North Vancouver

REPORT TO COUNCIL

May 15, 2018
File: 08.3060.20/077.17

AUTHOR: Robyn Hay, Development Planner

SUBJECT: Bylaws 8290 and 8291 - Rezoning and Housing Agreement for a 26 Unit Townhouse Project at 340 Mountain Highway and 1515 - 1537 Rupert Street

RECOMMENDATION

THAT the “District of North Vancouver Rezoning Bylaw 1369 (Bylaw 8290)” to rezone the subject site from Single Family Residential 6000 Zone (RS4) to Comprehensive Development (CD122) be given FIRST reading;

AND THAT “Housing Agreement Bylaw 8291, 2017 (340 Mountain Highway and 1515 - 1537 Rupert Street)”, which authorizes a Housing Agreement to prevent future rental restrictions on the subject property, be given FIRST reading;

AND THAT Bylaw 8290 be referred to a Public Hearing.

REASON FOR REPORT

The applicant proposes to redevelop five single family properties as a five storey, 26 unit townhouse development. Implementation of the proposed project requires Council's consideration of:

- Bylaw 8290 to rezone the subject properties;
- Bylaw 8291 to authorize a housing agreement to ensure all future owners are eligible to rent their units; and,
- Issuance of a Development Permit.

The Rezoning Bylaw, and Housing Agreement Bylaw are recommended for introduction and the Rezoning Bylaw is recommended for referral to a Public Hearing. A Development Permit would be forwarded to Council for consideration if the rezoning proceeds.
SUBJECT: Bylaws 8290 and 8291 - Rezoning and Housing Agreement for a 26 Unit Townhouse Project at 340 Mountain Highway and 1515 - 1537 Rupert Street

May 15, 2018

Page 2

SUBJECT PROPERTY

The site is located at the south east corner of Mountain Highway and Rupert Street in Lynn Creek Town Centre. The subject property consists of five single family residential lots and is approximately 1,870 m² (20,130 sq. ft) in size. The existing house on 1537 Rupert Street straddles two properties however, only the west property is part of this application.

To the north, east and south of the site are single family lots. This residential area is designated for apartment and townhouses in the Official Community Plan (OCP). The properties on the west side of Mountain Highway are improved with various commercial and industrial buildings.

The Implementation Plan identifies the lane behind the site as a good candidate for closure to improve traffic safety. It is anticipated that it will be closed when the site to the south is redeveloped.

EXISTING POLICY

Official Community Plan

The adjacent map indicates the surrounding Official Community Plan (OCP) designations in the area.

The OCP designates the site as RES Level 5: Low Density Apartment which envisions low rise apartments and townhouses at a density of up to approximately 1.75 FSR.

The proposed height of five storeys and the proposed FSR of 1.75 is consistent with the Official Community Plan and the Lower Lynn Town Centre Implementation Plan (Lynn Creek).

The units are three and four bedroom floor plans, which are well suited for families and attractive to a range of residents, responding to Goal #2 of the OCP to “encourage and enable a diverse mix of housing type to accommodate the lifestyles and needs of people at all stages of life.” It also addresses the intent of the housing diversity policies in Section 7.1 of the OCP by providing units suitable for families (Policy 7.1.4).
Zoning

The subject property is zoned Residential Single-Family 6000 Zone (RS4) and therefore requires rezoning to permit this multi-family project. Bylaw 8290 proposes the establishment of a new Comprehensive Development Zone 122 (CD122) tailored specifically to this project. The proposed CD122 zone (Attachment B) prescribes permitted uses and zoning provisions such as a maximum number of 26 units, height, setbacks, and parking requirements.

ANALYSIS:

Site Plan and Project Description

The project consists of 26 townhouses in a five storey residential building. Vehicle access to the underground parkade is provided from Rupert Street near the east property line. The driveway is designed to be shared with a future development to the east. The parkage accommodates 45 residential parking stalls and 3 visitor stalls.

The main pedestrian access to the internal courtyard is on Mountain Highway, and a second pedestrian access for ease of use is provided on Rupert Street (next to the vehicle ramp). The townhouses are in a stacked arrangement with half of the units being accessible from the ground floor and the other half by an elevator or common stairway. The upper level units are also connected within the courtyard by a common walkway on levels 3 and 5. The units are a mix of three and four bedroom layouts and range in size from 113m² (1,220 sq. ft) to 167m² (1,797 sq. ft).
Development Permits

The development site is designated within Development Permit Areas for (1) Form and Character; (2) Energy and Water Conservation and Green House Gas (GHG) Emission Reduction; and, (3) Protection of Development from Hazardous Conditions: Creek Hazard.

1) Form and Character:

The proposal must be compliant with the “Design Guidelines for Ground-Oriented Housing” as outlined within the OCP. Upon initial review, the development attains form and character guideline requirements. Further details outlining the project’s compliance with the Form and Character Design Guidelines will be provided for Council’s consideration at the Development Permit stage should the rezoning bylaw proceed.

2) Energy and Water Conservation and GHG Emission Reduction:

On April 2017, the Province adopted the BC Energy Step Code (“Step Code”) which provides an incremental and consistent approach to achieving more energy-efficient buildings beyond the requirements of the base BC Building Code. The “Step Code” has been included with the District’s new Construction Bylaw and mandatory compliance in effect as of July 1, 2018. The project will be required to meet Step 3 of the “Step Code”.

Further details outlining the project’s compliance with the Energy and Water Conservation and Greenhouse Gas Emission Reduction DPA will be provided for Council’s consideration at the Development Permit stage should the rezoning bylaw proceed.
3) Protection of Development from Hazardous Conditions: Creek Hazard:

This site falls within the Development Permit area for Protection from Creek Hazard and as such is required to build to flood construction levels to ensure the habitable areas and mechanical rooms are not at risk of flooding. Northwest Hydraulic Consultants have assessed the risk to this specific site and determined that it is minimal given the existing elevation of the site as compared to the river system but are none the less recommending new construction build to a flood construction level (FCL) of 9.0m above sea level. All habitable space, including mechanical and electrical are above the FCL.

A detailed review of development permit issues, outlining the project’s compliance with the applicable development permit guidelines will be provided for Council’s consideration should the application proceed through the rezoning process.

Advisory Design Panel

The application was considered by the Advisory Design Panel (ADP) on January 11, 2018 and the Panel recommended approval of the project subject to resolution of the Panel comments. The applicant has addressed the Panel’s comments by:

- Recessing the top floor on the north west and south west corners and incorporating glass railings (in lieu of solid materials) on the balconies to reduce the impact of building volume;
- Incorporating more windows at the corner of Rupert Street and Mountain Highway to improve activation; and
- Improved treatment of concrete wall facing western neighbour to provide interest.

Further design information, responding to the Advisory Design Panel comments and Development Permit Area design guidelines, will be provided when Council considers the required Development Permit should the application proceed through the rezoning process.

Strata Rental Protection Policy

Corporate Policy 8-3300-2 “Strata Rental Protection Policy” applies to this project as the rezoning application would permit development of more than five units. The policy requires a Housing Agreement to ensure that future strata bylaws do not prevent owners from renting their units and Bylaw 8291 is provided to implement that Policy.

Housing Affordability and Diversity

In accordance with the Rental and Affordable Housing Strategy, this application is meeting goal number one of expanding the supply and diversity of housing through the provision of family-oriented townhouse units which are in high demand and short supply in the District. These town homes offer ground-oriented family alternatives to single detached home ownership and will be attractive to young couples who are part of the District’s “missing middle” generation.

Accessibility

The District’s Accessible Design Policy encourages ground-oriented units to include accessible design features where feasible. Due to the flood construction levels none of the ground-oriented units provide grade-level access. The applicant is proposing accessibility measures where feasible including ramps in two units and accessible design measures in all of units to support aging in place.
Parking and Bicycle Storage

Bylaw 8290 requires the following residential parking rates per the Districts Policy “Reduced Parking Rates for Multifamily Developments”:

- 1.5 spaces per each townhouse unit
- 0.1 spaces for visitors

Parking is located in one level of underground parking with access via Rupert Street and includes 48 residential stalls and 3 visitor stalls which is in excess of the Districts Policy “Reduced Parking Rates for Multifamily Developments”:

This parking rate meets the OCP provisions regarding parking in town and village centres and is supported by the conclusions of the traffic and parking study completed by the applicant. The Development Covenant will require unsold parking spaces to be turned over to the strata corporation.

The proposal includes space for 31 bicycle storage spaces, within the underground parking and 2 visitor bicycle racks (accommodating 4 bicycles) near the common entrance. Furthermore, the storage areas are large enough for multiple bikes and/or other sports equipment.

Traffic Generation

The developer's transportation consultant, has submitted a coordinated traffic impact assessment (TIA) report which identifies the potential traffic generated from the proposal and provides a review of the traffic movements in the immediate area.

The proposed 26 unit townhouse development is forecast to generate approximately 8 vehicle trips in the “AM Peak Hour” and 8 vehicle trips in the “PM Peak Hour”. The District’s Transportation Engineering staff has reviewed the submitted TIA report and finds that the proposed development will not unduly affect traffic along Mountain Highway or Rupert Street.

Street Improvements and Land Dedication

This project is responsible for improvements to the Rupert Street and Mountain Highway frontages including street tree plantings and streetlight upgrades, curb, gutter, and paving.

In keeping with the design direction for Lynn Creek, the applicant will provide land dedication on Mountain Highway to accommodate improvements for cycling, pedestrians and vehicles.

A seating area is proposed at the corner of Mountain Highway and Rupert Street.

The project will also provide Development Cost Charges payable at the applicable rate at the date of Building Permit submission should the rezoning be successful.
Community Amenity Contribution

The District’s Community Amenity Contribution (CAC) Policy outlines expectations for contribution for projects which result in an increase in density. A CAC of $625,696 will be included in the proposed CD122 Zone. It is anticipated that the CACs from this development will be directed toward public art; park and trail improvements; the affordable housing fund; or, other public realm infrastructure improvements in the Lynn Creek Town Centre.

Landscaping

A conceptual landscape plan has been submitted with the rezoning application showing a children’s play area, water feature and seating areas in the communal courtyard. The landscape plan also shows concepts for the public realm areas, including those areas along Rupert Street and Mountain Highway.

Should the rezoning proposal proceed, a more detailed review of landscape issues will be included in the development permit report.
Concurrence:

The project has been reviewed by staff from the Environment, Building and Permits, Legal, Parks, Engineering, Community Planning, Urban Design, Transportation, the Fire Department, and the Arts Office.

Construction Traffic Management Plan:

The site is shown in relation to other residential construction projects and potential development projects in the image below:

With respect to this specific development, tradesperson parking and staging activities can occur on the property to the east of the site (which is owned by the developer). This will ensure only limited disruption along Mountain Highway.

This project will be required to participate in the Lynn Creek South Construction Coordination/Transportation Plan. This plan is being developed to provide a framework for the coordination of construction activities among the active developments in the Lynn Creek Town Centre south of Crown Street as well as address trades/worker transportation issues with the aim of minimizing single occupant vehicle trips to the area. This plan will include an on-site coordinator providing coordination services to all the developments in this area, acting as a single point of contact with the District, and coordinating with the active development north of Crown St who will operate under a similar program. In addition to the area plan this project is required to develop and adhere to a Construction Traffic Management Plan that aligns with the area plan and addresses the specifics of
building this project. Of particular importance is the minimization of disruptions to traffic on Mountain Highway, which is the sole north/south thoroughfare in this area.

In particular, the Construction Traffic Management Plan must:

1. Provide safe passage for pedestrians, cyclists, and vehicle traffic;
2. Outline roadway efficiencies (i.e. location of traffic management signs and flaggers);
3. Make provisions for trade vehicle parking which is acceptable to the District and minimizes impacts to neighbourhoods;
4. Provide a point of contact for all calls and concerns;
5. Provide a sequence and schedule of construction activities;
6. Identify methods of sharing construction schedule with other developments in the area;
7. Ascertain a location for truck marshalling;
8. Address silt/dust control and cleaning up from adjacent streets;
9. Provide a plan for litter clean-up and street sweeping adjacent to site; and,
10. Include a communication plan to notify surrounding businesses and residents.

Public Input

In accordance with District policy, the applicant held a facilitated public information meeting on November 30, 2017. The meeting was attended by approximately five residents. The overall tone of the meeting was supportive of the unit mix and proposed design. Comments included:

- Clarification regarding the shadow cast from the proposed buildings.
- On-street parking supply and traffic demand
- Whether the FSR was being optimized
- Proposed construction materials

The facilitator’s report is attached as Attachment D.

IMPLEMENTATION:

Implementation of this project requires consideration of Rezoning Bylaw 8290, and Housing Agreement Bylaw 8291, as well as issuance of a development permit and registration of legal agreements.

Bylaw 8290 (Attachment B) rezones the subject properties from Single Family 6000 Zone (RS4) to a new Comprehensive Development 122 Zone (CD122).

Bylaw 8291, (Attachment C) authorizes the District to enter into a Housing Agreement to ensure that the proposed residential units remain available as rental units.

Prior to adoption of Rezoning Bylaw 8290 the District will enter into a series of legal agreements securing the conditions of rezoning including:

- a development covenant to reference the general form and layout of project as well as a CTMP and requirements for off-site servicing;
- a stormwater management covenant;
- a flood hazard covenant;
CONCLUSION:

This project is consistent with the directions established in the OCP and the Lynn Creek (formally Lower Lynn) Implementation Plan and the associated Lynn Creek Public Realm Guidelines and Transportation Study. It addresses OCP housing policies related to the provision of a range of housing options.

The project is now ready for Council's consideration.

Options:

The following options are available for Council's consideration:

1. Introduce Bylaws 8290, and 8291 and refer Bylaw 8290 to a Public Hearing (staff recommendation); or,

2. Defeat the bylaws at First Reading.

Robyn Hay
Development Planner

Attachments:
A. Architectural and Landscape Plans
B. Bylaw 8290 – Rezoning
C. Bylaw 8291– Housing Agreement
D. Public Input Meeting Facilitator Report
Rupert Street Townhomes.

ZONING:
- Residential Level 4A (Medium Density)

FSR: 1.75 = 35,227 SF

SITE AREA: 20,130 SF

PROPOSED RESIDENTIAL: 35,100 SF (FSR 1.74)
- (28 stacked Townhomes)

PROPOSED SETBACKS:
- North PL = 9'-0"
- East PL = 6'-6 3/4"
- South PL = 15'-0"
- West PL = 11'-9"

Architectural features project into setbacks.

PROPOSED BUILDING HEIGHT = 52'-0"

UNIT TYPES:

<table>
<thead>
<tr>
<th>Unit</th>
<th>No.</th>
<th>Type</th>
<th>First Floor</th>
<th>Second Floor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>4</td>
<td>3 BR-2 FLs</td>
<td>1,277 SF</td>
<td>5,108 SF</td>
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</tr>
<tr>
<td>A2</td>
<td>1</td>
<td>3 BR-2 FLs</td>
<td>1,287 SF</td>
<td>6,100 SF</td>
<td></td>
</tr>
<tr>
<td>B1</td>
<td>1</td>
<td>4 BR-3 FLs</td>
<td>1,666 SF</td>
<td>6,100 SF</td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>1</td>
<td>3 BR-3 FLs</td>
<td>1,899 SF</td>
<td>6,100 SF</td>
<td></td>
</tr>
<tr>
<td>D1</td>
<td>1</td>
<td>3 BR-2 FLs</td>
<td>1,235 SF</td>
<td>5,105 SF</td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>1</td>
<td>4 BR-2 FLs</td>
<td>1,587 SF</td>
<td>6,105 SF</td>
<td></td>
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<tr>
<td>F1</td>
<td>1</td>
<td>3 BR-3 FLs</td>
<td>1,935 SF</td>
<td>6,105 SF</td>
<td></td>
</tr>
<tr>
<td>G1</td>
<td>1</td>
<td>3 BR-2 FLs</td>
<td>1,215 SF</td>
<td>4,105 SF</td>
<td></td>
</tr>
<tr>
<td>H1</td>
<td>5</td>
<td>3 BR-2 FLs</td>
<td>1,381 SF</td>
<td>6,905 SF</td>
<td></td>
</tr>
<tr>
<td>H2</td>
<td>5</td>
<td>3 BR-2 FLs</td>
<td>1,355 SF</td>
<td>6,775 SF</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL PROPOSED RES SF = 35,100 SF

EXCLUDED FLOOR AREA = 3,035 SF

PARKING: 48 Stalls provided

SITE/FLOOR PLAN

IREDALE ARCHITECTURE
The Corporation of the District of North Vancouver

Bylaw 8290

A bylaw to amend District of North Vancouver Zoning Bylaw 3210, 1965

The Council for The Corporation of the District of North Vancouver enacts as follows:

Citation

1. This bylaw may be cited as “District of North Vancouver Rezoning Bylaw 1369 (Bylaw 8290)”.

Amendments

2. District of North Vancouver Zoning Bylaw 3210, 1965 is amended as follows:

   a) Section 301 (2) by inserting the following zoning designation:

      “Comprehensive Development Zone 122 CD122”

   b) Part 4B Comprehensive Development Zone Regulations by inserting the following, inclusive of Schedule B:

      “4B122 Comprehensive Development Zone 122 CD122”

The CD122 zone is applied to:

340 Mountain Highway and 1515 - 1537 Rupert Street, legally known as:

   • Lot 1, Block 43, District Lot 204, Plan 1340 PID: 014-741-474
   • Lot 2, Block 43, District Lot 204, Plan 1340 PID: 014-741-482
   • Lot 3, Block 43, District Lot 204, Plan 1340 PID: 008-354-065
   • Lot 4, Block 43, District Lot 204, Plan 1340 PID: 014-741-491
   • Lot 5, Block 43, District Lot 204, Plan 1340 PID: 014-741-504

4B 122-1 Intent

The purpose of the CD122 Zone is to establish specific land use and development regulations for a 26-unit townhouse project.

4B 122-2 Permitted Uses

The following principal uses shall be permitted in the CD122 Zone:

   a) Uses Permitted Without Conditions: Not Applicable
   b) Conditional Uses: Residential use
4B 122-3 Conditions of Use

a) Balcony enclosures not permitted

4B 122-4 Accessory Use

a) Accessory uses customarily ancillary to residential uses are permitted.

b) Home occupations are permitted in residential dwelling units.

4B 122-5 Density

a) The maximum permitted density is limited to a floor space ratio (FSR) of 0.45 and five dwelling units.

b) For the purposes of calculating floor space ratio, the following are exempted:

   (i) All areas below natural and finished grade in the parkade, vehicle ramp and adjacent pedestrian path;

   (ii) Communal stairwells within the courtyard provided it is external space (i.e. not heated/cooled or drywalled);

   (iii) Mechanical rooms located above the flood construction level; and,

   (iv) Outdoor storage up to 25m² (269 sq ft).

c) For the purposes of calculating FSR the lot areas is deemed to be 1,870m² (20,130 sq. ft) being the site size at the time of rezoning.

4B 122-6 Amenities

a) Despite subsection 4B 122-5, density in the CD122 Zone is increased to a maximum floor space of 3,272.5m² (35,225 sq ft), and a maximum of 26 units, if the owner:

   (i) Enters into a Housing Agreement prohibiting any restrictions preventing the owners in the project from renting their units; and

   (ii) Contributes $625,696 to the municipality to be used for any or all of the following amenities benefiting the Lynn Creek Town Centre (with allocation to be determined by the municipality in its sole discretion): public art; park, trail, environmental, pedestrian or other public realm, infrastructure improvements; municipal, recreation or social service facility or service / facility improvements; and/or the affordable housing fund.

4B 122-7 Setbacks

a) Buildings shall be set back from property lines to the closest building face in accordance with the following regulations:
### Setback

<table>
<thead>
<tr>
<th>Setback</th>
<th>Minimum Required Setback</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Mountain Highway</td>
<td>3.5m (11.48 ft) to the building face</td>
</tr>
<tr>
<td>From east property line</td>
<td>2m (6.56 ft) to the principle building face; and 0m (0 ft) to the ramp and services room</td>
</tr>
<tr>
<td>From Rupert Street</td>
<td>2.7m (8.85 ft) to the building face</td>
</tr>
<tr>
<td>From south property line</td>
<td>4.5m (14.76 ft) to the building face</td>
</tr>
</tbody>
</table>

b) For the purpose of measuring setbacks, measurements exclude partially exposed underground parkade, patios, and overhangs.

#### 4B 122-8 Coverage

a) Building Coverage shall not exceed 60%.

b) Site Coverage shall not exceed 60%.

#### 4B 122-9 Height

a) The maximum permitted height is 16.7m (55 ft).

#### 4B 122-10 Landscaping

a) All land areas not occupied by buildings, structures, parking spaces, loading spaces, driveways, manoeuvring aisles and sidewalks shall be landscaped or finished in accordance with an approved landscape plan; and

b) All electrical kiosks and garbage and recycling container pads not located underground or within a building shall be screened with landscaping.

#### 4B 122-10 Parking and Loading Regulations

a) Parking spaces shall be provided as follows:

<table>
<thead>
<tr>
<th>Use</th>
<th>Minimum Parking Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential dwelling unit</td>
<td>1.5 space/ unit</td>
</tr>
<tr>
<td>Residential Visitor Parking</td>
<td>0.1 space / unit</td>
</tr>
<tr>
<td>Bicycle Storage</td>
<td>1 space / unit</td>
</tr>
</tbody>
</table>

b) All parking spaces shall meet the minimum length and width standards established in Part 10 of the District of North Vancouver Zoning Bylaw."
3. The Zoning Map is amended in the case of the lands illustrated on the attached map (Schedule A) by rezoning the land from the Residential Single Family 6000 Zone (RS4) to Comprehensive Development Zone 122 (CD122).

READ a first time

PUBLIC HEARING held

READ a second time

READ a third time

Certified a true copy of

________________________________
Municipal Clerk

APPROVED by the Ministry of Transportation and Infrastructure on

ADOPTED on

________________________________    ________________________________
Mayor                                      Municipal Clerk

Certified a true copy

________________________________
Municipal Clerk
Schedule A to Bylaw 8290

BYLAW 8290
The District of North Vancouver Rezoning Bylaw 1369 (Bylaw 8290)

SINGLE FAMILY RESIDENTIAL ZONE (RS4) TO COMPREHENSIVE DEVELOPMENT ZONE (CD122)
The Corporation of the District of North Vancouver

Bylaw 8291

A bylaw to enter into a Housing Agreement
(340 Mountain Highway and 1515-1537 Rupert Street)

The Council for The Corporation of the District of North Vancouver enacts as follows:

1. Citation

This bylaw may be cited as “Housing Agreement Bylaw 8291, 2017 (340 Mountain Highway and 1515-1537 Rupert Street)”.

2. Authorization to Enter into Agreement

2.1 The Council hereby authorizes a housing agreement between The Corporation of the District of North Vancouver and TPL Developments Rupert South Inc. substantially in the form attached to this Bylaw as Schedule “A” with respect to the following lands:

- Lot 1, Block 43, District Lot 204, Plan 1340 PID: 014-741-474
- Lot 2, Block 43, District Lot 204, Plan 1340 PID: 014-741-482
- Lot 3, Block 43, District Lot 204, Plan 1340 PID: 008-354-065
- Lot 4, Block 43, District Lot 204, Plan 1340 PID: 014-741-491
- Lot 5, Block 43, District Lot 204, Plan 1340 PID: 014-741-504

3. Execution of Documents

The Mayor and Municipal Clerk are authorized to execute any documents required to give effect to the Housing Agreement.

READ a first time

READ a second time

READ a third time

ADOPTED

______________________________  ______________________________
Mayor                                      Municipal Clerk

Certified a true copy

______________________________
Municipal Clerk
Schedule A to Bylaw 8291

SECTION 219 COVENANT – HOUSING AGREEMENT

This agreement is dated for reference the 15th day of May, 2018

BETWEEN:

TPL DEVELOPMENTS RUPERT SOUTH INC., Inc. No. BC1052759, 200 - 1111 West Hastings Street, Vancouver, BC V6E 2J3

(the “Developer”)

AND:

THE CORPORATION OF THE DISTRICT OF NORTH VANCOUVER, a municipality incorporated under the Local Government Act, RSBC 2015, c.1 and having its office at 355 West Queens Road, North Vancouver, BC V7N 4N5

(the “District”)

WHEREAS:

1. The Developer is the registered owner of the Lands (as hereinafter defined);

2. The Developer wishes to obtain development permissions with respect to the Lands and wishes to create a condominium development which will contain residential strata units on the Lands;

3. Section 483 of the Local Government Act authorises the District, by bylaw, to enter into a housing agreement to provide for the prevention of rental restrictions on housing, and provides for the contents of the agreement; and

4. Section 219 of the Land Title Act (British Columbia) permits the registration in favour of the District of a covenant of a negative or positive nature relating to the use of land or a building thereon, or providing that land is to be built on in accordance with the covenant, or providing that land is not to be built on except in accordance with the covenant, or providing that land is not to be subdivided except in accordance with the covenant;

NOW THEREFORE in consideration of the mutual promises contained in it, and in consideration of the payment of $1.00 by the District to the Developer (the receipt and sufficiency of which are hereby acknowledged by the Developer), the parties covenant and agree with each other as follows, as a housing agreement under Section 483 of the Local Government Act, as a contract and a deed under seal between the parties, and as a covenant under Section 219 of the Land Title Act, and the Developer hereby further covenants and agrees that neither the Lands nor any building constructed thereon shall be used or built on except in accordance with this Agreement:
1. **DEFINITIONS**

1.01 Definitions

In this agreement:

(a) “Lands” means the lands described in Item 2 of the *Land Title Act* Form C to which this agreement is attached;

(b) "Owner" means the Developer and any other person or persons registered in the Lower Mainland Land Title Office as owner of the Land from time to time, or of any parcel into which the Land is consolidated or subdivided, whether in that person’s own right or in a representative capacity or otherwise;

(c) “Proposed Development” means the proposed development on the Lands;

(d) “Short Term Rentals” means any rental of a Unit for any period less than 30 days;

(e) “Strata Corporation” means the strata corporation formed upon the deposit of a plan to strata subdivide the Proposed Development pursuant to the *Strata Property Act*;

(f) “Unit” means a residential dwelling strata unit in the Proposed Development; and

(g) “Unit Owner” means the registered owner of a Dwelling Unit in the Proposed Development.

2. **TERM**

This Agreement will commence upon adoption by District Council of Bylaw 8291 and remain in effect until terminated by the District as set out in this Agreement.

3. **RENTAL ACCOMMODATION**

3.01 Rental Disclosure Statement

No Unit in the Proposed Development may be occupied unless the Owner has:

(a) before the first Unit is offered for sale, or conveyed to a purchaser without being offered for sale, filed with the Superintendent of Real Estate a rental disclosure statement in the prescribed form (the “Rental Disclosure Statement”) designating all of the Units as rental strata lots and imposing at least a 99 year rental period in relation to all of the Units pursuant to the *Strata Property Act* (or any successor or replacement legislation), except in relation to Short Term Rentals and, for greater certainty, stipulating specifically that the 99 year rental restriction does not apply to a Strata Corporation bylaw prohibiting or restricting Short Term Rentals; and

(b) given a copy of the Rental Disclosure Statement to each prospective purchaser of any Unit before the prospective purchaser enters into an agreement to purchase in respect of the Unit. For the purposes of this paragraph 3.01(b), the Owner is deemed to have given a
copy of the Rental Disclosure Statement to each prospective purchaser of any Unit in the building if the Owner has included the Rental Disclosure Statement as an exhibit to the disclosure statement for the Proposed Development prepared by the Owner pursuant to the Real Estate Development Marketing Act.

3.02 **Rental Accommodation**

The Units constructed on the Lands from time to time may always be used to provide rental accommodation as the Owner or a Unit Owner may choose from time to time, except that this section 3.02 does not apply to Short Term Rentals which may be restricted by the Strata Corporation to the full extent permitted by law.

3.03 **Binding on Strata Corporation**

This agreement shall be binding upon all Strata Corporations created by the subdivision of the Lands or any part thereof (including the Units) pursuant to the Strata Property Act, and upon all Unit Owners.

3.04 **Strata Bylaw Invalid**

Any Strata Corporation bylaw which prevents, restricts or abridges the right to use any of the Units as rental accommodations (other than Short Term Rentals) shall have no force or effect.

3.05 **No Bylaw**

The Strata Corporation shall not pass any bylaws preventing, restricting or abridging the use of the Lands, the Proposed Development or the Units contained therein from time to time as rental accommodation (other than Short Term Rentals).

3.06 **Vote**

No Unit Owner, nor any tenant or mortgagee thereof, shall vote for any Strata Corporation bylaw purporting to prevent, restrict or abridge the use of the Lands, the Proposed Development or the Units contained therein from time to time as rental accommodation (other than Short Term Rentals).

3.07 **Notice**

The Owner will provide notice of this Agreement to any person or persons intending to purchase a Unit prior to any such person entering into an agreement of purchase and sale, agreement for sale, or option or similar right to purchase as part of the disclosure statement for any part of the Proposed Development prepared by the Owner pursuant to the Real Estate Development Marketing Act.
4. **DEFAULT AND REMEDIES**

4.01 **Notice of Default**

The District may, acting reasonably, give to the Owner written notice to cure a default under this Agreement within 30 days of delivery of the notice. The notice must specify the nature of the default. The Owner must act with diligence to correct the default within the time specified.

4.02 **Costs**

The Owner will pay to the District upon demand all the District’s costs of exercising its rights or remedies under this Agreement, on a full indemnity basis.

4.03 **Damages an Inadequate Remedy**

The Owner acknowledges and agrees that in the case of a breach of this Agreement which is not fully remediable by the mere payment of money and promptly so remedied, the harm sustained by the District and to the public interest will be irreparable and not susceptible of adequate monetary compensation.

4.04 **Equitable Remedies**

Each party to this Agreement, in addition to its rights under this Agreement or at law, will be entitled to all equitable remedies including specific performance, injunction and declaratory relief, or any of them, to enforce its rights under this Agreement.

4.05 **No Penalty or Forfeiture**

The Owner acknowledges and agrees that it is entering into this Agreement to benefit the public interest in providing rental accommodation, and that the District’s rights and remedies under this Agreement are necessary to ensure that this purpose is carried out, and the District’s rights and remedies under this Agreement are fair and reasonable and ought not to be construed as a penalty or forfeiture.

4.06 **Cumulative Remedies**

No reference to nor exercise of any specific right or remedy under this Agreement or at law or at equity by any party will prejudice, limit or preclude that party from exercising any other right or remedy. No right or remedy will be exclusive or dependent upon any other right to remedy, but any party, from time to time, may exercise any one or more of such rights or remedies independently, successively, or in combination. The Owner acknowledges that specific performance, injunctive relief (mandatory or otherwise) or other equitable relief may be the only adequate remedy for a default by the Owner under this Agreement.
5. LIABILITY

5.01 Indemnity

Except if arising directly from the negligence of the District or its employees, agents or contractors, the Owner will indemnify and save harmless each of the District and its board members, officers, directors, employees, agents, and elected or appointed officials, and their heirs, executors, administrators, personal representatives, successors and assigns, from and against all claims, demands, actions, loss, damage, costs and liabilities that all or any of them will or may be liable for or suffer or incur or be put to any act or omission by the Owner or its officers, directors, employees, agents, contractors, or other persons for whom the Owner is at law responsible, or by reason of or arising out of the Owner’s ownership, operation, management or financing of the Proposed Development or any part thereof.

5.02 Release

The Owner hereby releases and forever discharges the District, its elected officials, board members, officers, directors, employees and agents, and its and their heirs, executors, administrators, personal representatives, successors and assigns from and against all claims, demands, damages, actions or causes of action by reason of or arising out of advice or direction respecting the ownership, operation or management of the Proposed Development or any part thereof which has been or hereafter may be given to the Owner by all or any of them.

5.03 Survival

The covenants of the Owner set out in Sections 5.01 and 5.02 will survive termination of this Agreement and continue to apply to any breach of the Agreement or claim arising under this Agreement during the ownership by the Owner of the Lands or any Unit therein, as applicable.

6. GENERAL PROVISIONS

6.01 District’s Power Unaffected

Nothing in this Agreement:

(a) affects or limits any discretion, rights, powers, duties or obligations of the District under any enactment or at common law, including in relation to the use or subdivision of land;

(b) affects or limits any enactment relating to the use of the Lands or any condition contained in any approval including any development permit concerning the development of the Lands; or

(c) relieves the Owner from complying with any enactment, including the District’s bylaws in relation to the use of the Lands.
6.02 Agreement for Benefit of District Only

The Owner and District agree that:

(a) this Agreement is entered into only for the benefit of the District:

(b) this Agreement is not intended to protect the interests of the Owner, any Unit Owner, any occupant of any Unit or any future owner, occupier or user of any part of the Proposed Development, including any Unit, or the interests of any third party, and the District has no obligation to anyone to enforce the terms of this Agreement; and

(c) The District may at any time terminate this Agreement, in whole or in part, and execute a release and discharge of this Agreement in respect of the Proposed Development or any Unit therein, without liability to anyone for doing so.

6.03 Agreement Runs With the Lands

This Agreement burdens and runs with the Lands and any part into which any of them may be subdivided or consolidated, by strata plan or otherwise. All of the covenants and agreements contained in this Agreement are made by the Owner for itself, its successors and assigns, and all persons who acquire an interest in the Lands or in any Unit after the date of this Agreement.

6.04 Release

The covenants and agreements on the part of the Owner and any Unit Owner and herein set forth in this Agreement have been made by the Owner and any Unit Owner as contractual obligations as well as being made pursuant to Section 483 of the Local Government Act (British Columbia) and as such will be binding on the Owner and any Unit Owner, except that neither the Owner nor any Unit Owner shall be liable for any default in the performance or observance of this Agreement occurring after such party ceases to own the Lands or a Unit as the case may be.

6.05 Priority of This Agreement

The Owner will, at its expense, do or cause to be done all acts reasonably necessary to ensure this Agreement is registered against the title to each Unit in the Proposed Development, including any amendments to this Agreement as may be required by the Land Title Office or the District to effect such registration.

6.06 Agreement to Have Effect as Deed

The District and the Owner each intend by execution and delivery of this Agreement to create both a contract and a deed under seal.

6.07 Waiver

An alleged waiver by a party of any breach by another party of its obligations under this Agreement will be effective only if it is an express waiver of the breach in writing. No waiver of a breach of this Agreement is deemed or construed to be a consent or waiver of any other breach of this Agreement.
6.08 **Time**

Time is of the essence in this Agreement. If any party waives this requirement, that party may reinstate it by delivering notice to another party.

6.09 **Validity of Provisions**

If a Court of competent jurisdiction finds that any part of this Agreement is invalid, illegal, or unenforceable, that part is to be considered to have been severed from the rest of this Agreement and the rest of this Agreement remains in force unaffected by that holding or by the severance of that part.

6.10 **Extent of Obligations and Costs**

Every obligation of a party which is set out in this Agreement will extend throughout the Term and, to the extent that any obligation ought to have been observed or performed prior to or upon the expiry or earlier termination of the Term, such obligation will survive the expiry or earlier termination of the Term until it has been observed or performed.

6.11 **Notices**

All notices, demands, or requests of any kind, which a party may be required or permitted to serve on another in connection with this Agreement, must be in writing and may be served on the other parties by registered mail or by personal service, to the following address for each party:

If to the District:

District Municipal Hall
355 West Queens Road
North Vancouver, BC V7N 4N5

Attention: Planning Department

If to the Owner:

TPL Developments Rupert South Inc.

If to the Unit Owner:

The address of the registered owner which appears on title to the Unit at the time of notice.

Service of any such notice, demand, or request will be deemed complete, if made by registered mail, 72 hours after the date and hour of mailing, except where there is a postal service disruption during such period, in which case service will be deemed to be complete only upon actual delivery of the notice, demand or request and if made by personal service, upon personal service being
effected. Any party, from time to time, by notice in writing served upon the other parties, may designate a different address or different or additional persons to which all notices, demands, or requests are to be addressed.

6.12 Further Assurances

Upon request by the District, the Owner will promptly do such acts and execute such documents as may be reasonably necessary, in the opinion of the District, to give effect to this Agreement.

6.13 Enuring Effect

This Agreement will enure to the benefit of and be binding upon each of the parties and their successors and permitted assigns.

7. INTERPRETATION

7.01 References

Gender specific terms include both genders and include corporations. Words in the singular include the plural, and words in the plural include the singular.

7.02 Construction

The division of this Agreement into sections and the use of headings are for convenience of reference only and are not intended to govern, limit or aid in the construction of any provision. In all cases, the language in this Agreement is to be construed simply according to its fair meaning, and not strictly for or against either party.

7.03 No Limitation

The word “including” when following any general statement or term is not to be construed to limit the general statement or term to the specific items which immediately follow the general statement or term similar items whether or not words such as “without limitation” or “but not limited to” are used, but rather the general statement or term is to be construed to refer to all other items that could reasonably fall within the broadest possible scope of the general statement or term.

7.04 Terms Mandatory

The words “must” and “will” and “shall” are to be construed as imperative.

7.05 Statutes

Any reference in this Agreement to any statute or bylaw includes any subsequent amendment, re-enactment, or replacement of that statute or bylaw.
7.06 **Entire Agreement**

(a) This is the entire agreement between the District and the Owner concerning its subject, and there are no warranties, representations, conditions or collateral agreements relating to this Agreement, except as included in this Agreement.

(b) This Agreement may be amended only by a document executed by the parties to this Agreement and by bylaw, such amendment to be effective only upon adoption by District Council of a bylaw to amend Bylaw 8291.

7.07 **Governing Law**

This Agreement is to be governed by and construed and enforced in accordance with the laws of British Columbia.

As evidence of their agreement to be bound by the terms of this instrument, the parties hereto have executed the *Land Title Act Form C* that is attached hereto and forms part of this Agreement.
GRANT OF PRIORITY

WHEREAS _________________ (the “Chargeholder”) is the holder of the following charges which are registered in the Land Title Office:

(a) _____________________________
(b) _____________________________

(collectively, the “Charges”);

AND WHEREAS the Chargeholder agrees to allow the Section 219 Covenant herein to have priority over the Charges;

THIS PRIORITY AGREEMENT is evidence that in consideration of the sum of $1.00 paid by THE CORPORATION OF THE DISTRICT OF NORTH VANCOUVER (the “District”) to the Chargeholder, the receipt and sufficiency of which are hereby acknowledged, the Chargeholder covenants and agrees to subordinate and postpone all its rights, title and interest in and to the lands described in the Form C to which this Agreement is attached (the “Lands”) with the intent and with the effect that the interests of the District rank ahead of the Charges as though the Section 219 Covenant herein had been executed, delivered and registered against title to the Lands before registration of the Charges.

As evidence of its Agreement to be bound by the above terms, as a contract and as a deed executed and delivered under seal, the Chargeholder has executed the Form C to which this Agreement is attached and which forms part of this Agreement.
340 Mountain Highway Development Application

Public Information Meeting Summary Report

Event Date: November 30, 2017
Time: 7:00pm – 8:30pm
Location: North Shore Winter Club
Attendance: 5 members of the public signed in
Comments: 2 comment sheets

Meeting Purpose:
1) To present development application materials to neighbours
2) To provide an opportunity for the public to ask questions about the development
3) To provide an opportunity for neighbours to comment on the proposal.

Notification:
In accordance with District of North Vancouver policies:

Notification Brochures
Invitations and informational packages were delivered to owners and occupants within a 100m radius from the property, meeting District requirements. Appendix A: Notification includes a copy of the invitation packages.

Notification Sign
A sign notifying neighbours of the proposal was installed on the property. A photograph of this sign can be found in Appendix A: Notification.

Newspaper Ad
A newspaper ad was placed in the North Shore News on Sunday, November 26 and Wednesday, November 29, 2017. A copy of the ad is included in Appendix A: Notification.

Attendance:
Five members of the public signed in for the meeting. A copy of the sign-in sheet is included in Appendix B.

The following District staff and project team members were in attendance:

District of North Vancouver:
• Robyn Hay, Planner

Project Team:
• Adel Bellemlih, Redic Developments Inc.
• Armin Khatoonabadi, Redic Developments Inc.
• Hamidreza Ahmadian, Redic Developments, Inc.
• Peter Hildebrand, Iredale Architecture
Overview:

The meeting was held in an Open House format. Meeting participants could browse the display boards and engage with the project team and the District Planner directly. A planned presentation and facilitated question and answer period took place part way through the meeting. The facilitators listened for questions and comments and noted them on a flip chart for all to see.

The participants were invited to submit written comments to the facilitator or to the municipal planner. Comment sheets are attached in Appendix C.

The key themes of the evening were parking, traffic, and building design.

Public Dialogue:
(Q = Question, A = Answer, C=Comment, and the number is to track the dialogue)

Q1 Could you show me how the shadows will be cast from your proposed building?
C2 I like the project.
C3 Finding on-street parking is challenging in our neighbourhood. Some people park on the street, and then take a bus from Phibbs Exchange.
C4 These sorts of projects sell out quickly, often to realtors.
A4 Redic Developments intends to offer a two-week sales window to local residents only.
C5 I like the colours and the shape.
Q6 What is the parking ratio?
A6 1.8 spots per unit, which exceeds the required 1.6. This will reduce odds that residents will park on the street.
C7 Traffic patterns on Mountain Highway have changed recently. Since the Keith Road bridge was constructed, people driving eastbound on Keith Street towards Highway 1 avoid queues by driving south on Mountain Highway. I live on Rupert Street, a dead end. It is hard for me to turn off my street onto Mountain Highway because of this new traffic pattern.
C8 I live on Crown Street. We need more townhouse projects like this!
C9 I like the proposed landscaping that will attract birds.
Q10  The site plan has a lot of open space in the courtyard. Why aren’t you optimizing your allowed square footage?
A10  We are using all of the permitted floor space. We designed the building and landscape to allow for an open courtyard in the middle of the site. The proposed layout is a form that is suitable for families.

Q11  How many properties did you consolidate for this project?
A11  Five 33-foot lots (one of them being half of a 66-foot lot). There’s a 6th 33-foot lot owned by the developer, but it will be used for parking during construction. To the east, there are 4 other lots on which there will presumably be another development sometime in the future.

Q12  Was there a change from the Official Community Plan, which planned for development to cross the lane north of Rupert and be sited north-south, rather than east-west?
A12  The siting of future developments was only roughly laid out in that plan: the east-west configuration in the Plan was suggestive and conceptual, rather than a requirement. It is difficult for policy planners to lay out sites with that degree of detail, because the actual future development will depend on how properties are assembled, and other factors. A key part of the community plan land use map was to accommodate parks and green space into future development, which this proposal does.

C13  It’s a great looking project. It has an enduring look.
A13  We try to avoid forms and materials that are trendy because we wanted to design a project that will age gracefully, rather than look dated shortly after construction.

Q14  Will this be a wood-frame building?
A14  The parkade and courtyard will be concrete, and the upper floors will be wood-frame with concrete topping on the floors.

C15  Very impressive.

Q16  Is parking underground?
A16  Yes.

Q17  Would the District consider making Rupert Street resident-only parking?
A17  Maybe over time, depending on other future developments. This is a question for the DNV.

Comment Sheet Summary
Comments and emails were received for a two-week response period after the meeting. Two comment sheets were submitted after the meeting. Both comment sheets expressed support for this proposal based on its design, and the need for newer, denser housing options in North Vancouver.
Conclusion
The purpose of this public meeting was to present to neighbours the proposed development concept, and provide them with an opportunity to ask clarifying questions and comment on the proposal. Invitations were mailed to all neighbours within 100 m of the property, and five community members attended. Two newspaper ads notified the community of the meeting.

The public could participate in this process in three ways:
• browsing boards
• talking to the project team and District Planner
• submitting written comments.

The meeting length and format was sufficient to provide all participants an opportunity to learn more, ask questions, and make the comments they wished to provide that evening. Participants asked the development team and District planner a variety of questions, mostly related to parking, traffic, and building design. Few members of the public attended, which enabled those who did attend to enjoy a fulsome conversation with the project team and planner. No opposition to the project was heard, and most participants expressed their support for the proposed project.
Appendix A: Notification
Newspaper Advertisement: North Shore News November 26 and 29, 2017
A recently North Shore Neighbourhood House pilot program is aiming to emphasize physical activity for both the body and mind for people living with dementia.

The program, called Mind and Body Fitness for People with Dementia, is administered by the Neighbourhood House at John Brathwaite Community Centre in North Vancouver and is scheduled to run every Monday from 1 to 3 p.m. until Dec. 11.

The program includes weekly sessions that will feature exercises that are safe as well as games, cognitive activities, and social interaction.

Program developer North Shore Fitness instructor Gail Roxburgh is excited to be teaching the program. She has taught other programs at John Brathwaite through the Neighbourhood House in the past. In addition to numerous fitness sessions throughout the community.

"When I started there, I had no idea about dementia on Alzheimer's, but I began figuring it out where I could take courses and work with people with dementia. And, I'm a fitness instructor so both of them kind of work together because fitness is such a big part of everybody's life with dementia," Roxburgh told the North Shore News.

She added that the program is best suited for people living with early stage dementia or mild cognitive impairment and the intake process for the pilot program included a short screening interview to ensure a good fit for the individual.

"This program will be suitable for people with the early stages of dementia. We're taking one hour doing it because it's for each person we're kind of interviewing them to see if it's a fit for the program because some people might be in another stage," she said.

She said generally the first hour of the program is devoted to low-impact physical exercises, including aerobics, strengthening and balance work. "It's beneficial for stage, many reasons," she said.

One of the prime focuses of the program is maintaining participants' strengths and abilities, even as their cognitive functions might be changing.

Roxburgh said she knows how outright the program is about who it's intended for. "So come into a centre and see an actual program saying this is for people with dementia, before we might have that out because some people wouldn't want to see it and there's still a little bit of stigma around it's right out there," she said.

Participants are encouraged to attend the program on their own or with a caregiver.

If the pilot program, which has been running since September, proves successful, the Neighbourhood House anticipates offering more in the future. Either way, Roxburgh emphasized that the focus of the programming is about focusing on and strengthening the abilities that participants with early stage dementia or mild cognitive impairment already have.

"We're trying to strengthen the abilities they've got. It's more on what they can't do - it's more what they can do," she said.

To learn more about North Shore Neighbourhood House programs, visit northshoren.ca.

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**Notice of a Public Information Meeting in Your Neighborhood**

A redevelopment is being proposed for 340 Mountain Highway and 1515 -1537 Rupert St. in North Vancouver, to construct a 5 story mixed-use building. You are invited to a meeting to discuss the project.

- **Date:** Thursday November 30th, 2017
- **Time:** 7:00 - 9:30 PM
- **Location of Meeting:** North Shore Warm Club, 1525 E. Keith Road, North Vancouver

Redi Development Inc. proposes to construct a 5 story townhouse building on 340 Mountain Highway and 1515 -1537 Rupert St.

The proposal is for 28 townhouses, which include 3 bedroom units, and 23 three-bedroom units. The main pedestrian access to the building will be from Mountain Highway while the access to its underground parking is from Rupert St.

The development is expected to have a total of 80 units, including 20 below-market rental units, 20 single family homes, and 40 townhouses.

For more information or to have your say, please contact North Shore Neighbourhood House at 604-770-4317 or by email at info@nsnh.org.

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**SENIOORS | A23**

**NEW YEAR'S EVE DANCE**

December 31 from 9 p.m. to 2 a.m. at Buntzen Lake Community Hall. Admission: $10.00 for non-members and $5.00 for members. 

Other programs and events are available for $15.00. RSVP by calling 604-287-0460 or by email at membership@buntzenlake.org.

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**DELIVER HAPPINESS**

Meals on wheels is looking for volunteers to help deliver meals to clients. To inquire about volunteering, call 604-983-4317 or email info@vancouver.com.

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Notice of a Public Information Meeting in Your Neighborhood

A redevelopment is being proposed for 340 Mountain Highway and 1515 – 1537 Rupert St. in North Vancouver, to construct a 5 story stacked townhome building. You are invited to a meeting to discuss the project:

Date: Thursday November 30th, 2017
Time: 7:00 – 8:30 PM
Location of Meeting: North Shore Winter Club
1325 E. Keith Road, North Vancouver

Redic Development Inc proposes to construct a 5 story townhouse building on 340 Mountain Highway and 1515 – 1537 Rupert St. The proposal is for 26 townhouses, which include 3 four bedroom units, and 23 three bedroom units. The main pedestrian access to the building will be from Mountain Highway while the access to its underground parking is through Rupert St. 47 parking stalls are provided for residents and visitors. The proposal also includes improvement to both Rupert and Mountain Highway sidewalks, adding new bike lanes and provision of public art.

This information package is being distributed to the owners and occupants within 100m of the proposed development site in accordance with District of North Vancouver policy. If you like to receive a copy or if you would like more information, please contact A. Khatoonabadi at 604-338-8496 or Robyn Hay, Development Planner at 604-990-2369, or bring your questions and comments to the meeting.
### Meeting Agenda:

- **Doors Open:** 7:00 PM
- **Open House Discussion:** 7:00 - 8:30
- **Presentation:** 7:30 PM - 7:45 PM

### For further information please contact:

- Armin Khatoonabadi  
  Redic Development Inc.  
  604-338-8496
- Robyn Hay  
  District of North Vancouver  
  Development Planner  
  604-990-2369

### Notice of a Public Information Meeting in Your Neighborhood

Redic Developments Inc is hosting a Public Information Meeting to present the development proposal for 26 unit townhome building at 340 Mountain Highway and 1515 – 1537 Rupert St.

This information package is being distributed to the owners and occupants within 100m of the proposed development site in accordance with District of North Vancouver policy.

### Meeting Time and Location:

- **Thursday, November 30th, 2017**
- **North Shore Winter Club**
  1325 E. Keith Road, North Vancouver
The Proposal:

Redic Development Inc proposes to construct a 5 story townhouse building on 340 Mountain Highway and 1515 – 1537 Rupert St.

The proposal is for 26 townhouses, which include 3 four bedroom units, and 23 three bedroom units.

The main pedestrian access to the building will be from Mountain Highway while the access to its underground parking is through Rupert St. 47 parking stalls are provided for residents and visitors.

The proposal also includes improvement to both Rupert and Mountain Highway sidewalks, adding new bike lanes and provision of public art.
Notification Sign
The Corporation of the District of North Vancouver

Bylaw 8290

A bylaw to amend District of North Vancouver Zoning Bylaw 3210, 1965

The Council for The Corporation of the District of North Vancouver enacts as follows:

Citation

1. This bylaw may be cited as “District of North Vancouver Rezoning Bylaw 1369 (Bylaw 8290)”.

Amendments

2. District of North Vancouver Zoning Bylaw 3210, 1965 is amended as follows:

   a) Section 301 (2) by inserting the following zoning designation:

      “Comprehensive Development Zone 122 CD122”

   b) Part 4B Comprehensive Development Zone Regulations by inserting the following, inclusive of Schedule B:

   “4B122 Comprehensive Development Zone 122 CD122”

The CD122 zone is applied to:

340 Mountain Highway and 1515 - 1537 Rupert Street, legally known as:

   • Lot 1, Block 43, District Lot 204, Plan 1340 PID: 014-741-474
   • Lot 2, Block 43, District Lot 204, Plan 1340 PID: 014-741-482
   • Lot 3, Block 43, District Lot 204, Plan 1340 PID: 008-354-065
   • Lot 4, Block 43, District Lot 204, Plan 1340 PID: 014-741-491
   • Lot 5, Block 43, District Lot 204, Plan 1340 PID: 014-741-504

4B 122-1 Intent

The purpose of the CD122 Zone is to establish specific land use and development regulations for a 26-unit townhouse project.

4B 122-2 Permitted Uses

The following principal uses shall be permitted in the CD122 Zone:

a) Uses Permitted Without Conditions: Not Applicable

b) Conditional Uses: Residential use
4B 122-3 Conditions of Use

a) Balcony enclosures not permitted

4B 122-4 Accessory Use

a) Accessory uses customarily ancillary to residential uses are permitted.

b) Home occupations are permitted in residential dwelling units.

4B 122-5 Density

a) The maximum permitted density is limited to a floor space ratio (FSR) of 0.45 and five dwelling units.

b) For the purposes of calculating floor space ratio, the following are exempted:

   (i) All areas below natural and finished grade in the parkade, vehicle ramp and adjacent pedestrian path;

   (ii) Communal stairwells within the courtyard provided it is external space (i.e. not heated/cooled or drywalled);

   (iii) Mechanical rooms located above the flood construction level; and,

   (iv) Outdoor storage up to 25m² (269 sq ft).

c) For the purposes of calculating FSR the lot areas is deemed to be 1,870m² (20,130 sq. ft) being the site size at the time of rezoning.

4B 122-6 Amenities

a) Despite subsection 4B 122-5, density in the CD122 Zone is increased to a maximum floor space of 3,272.5m² (35,225 sq ft), and a maximum of 26 units, if the owner:

   (i) Enters into a Housing Agreement prohibiting any restrictions preventing the owners in the project from renting their units; and

   (ii) Contributes $625,696 to the municipality to be used for any or all of the following amenities benefiting the Lynn Creek Town Centre (with allocation to be determined by the municipality in its sole discretion): public art; park, trail, environmental, pedestrian or other public realm, infrastructure improvements; municipal, recreation or social service facility or service / facility improvements; and/or the affordable housing fund.

4B 122-7 Setbacks

a) Buildings shall be set back from property lines to the closest building face in accordance with the following regulations:
<table>
<thead>
<tr>
<th>Setback</th>
<th>Minimum Required Setback</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Mountain Highway</td>
<td>3.5m (11.48ft) to the building face</td>
</tr>
<tr>
<td>From east property line</td>
<td>2m (6.56ft) to the principle building face; and</td>
</tr>
<tr>
<td></td>
<td>0m (0ft) to the ramp and services room</td>
</tr>
<tr>
<td>From Rupert Street</td>
<td>2.7m (8.85ft) to the building face</td>
</tr>
<tr>
<td>From south property line</td>
<td>4.5m (14.76ft) to the building face</td>
</tr>
</tbody>
</table>

b) For the purpose of measuring setbacks, measurements exclude partially exposed underground parkade, patios, and overhangs.

4B 122-8 Coverage

a) Building Coverage shall not exceed 60%.

b) Site Coverage shall not exceed 60%.

4B 122-9 Height

a) The maximum permitted height is 16.7m (55ft).

4B 122-10 Landscaping

a) All land areas not occupied by buildings, structures, parking spaces, loading spaces, driveways, manoeuvring aisles and sidewalks shall be landscaped or finished in accordance with an approved landscape plan; and

b) All electrical kiosks and garbage and recycling container pads not located underground or within a building shall be screened with landscaping.

4B 122-10 Parking and Loading Regulations

a) Parking spaces shall be provided as follows:

<table>
<thead>
<tr>
<th>Use</th>
<th>Minimum Parking Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential dwelling unit</td>
<td>1.5 space/unit</td>
</tr>
<tr>
<td>Residential Visitor Parking</td>
<td>0.1 space/unit</td>
</tr>
<tr>
<td>Bicycle Storage</td>
<td>1 space/unit</td>
</tr>
</tbody>
</table>

b) All parking spaces shall meet the minimum length and width standards established in Part 10 of the District of North Vancouver Zoning Bylaw.”
3. The Zoning Map is amended in the case of the lands illustrated on the attached map (Schedule A) by rezoning the land from the Residential Single Family 6000 Zone (RS4) to Comprehensive Development Zone 122 (CD122).

READ a first time May 28th, 2018

PUBLIC HEARING held

READ a second time

READ a third time

Certified a true copy of

________________________________
Municipal Clerk

APPROVED by the Ministry of Transportation and Infrastructure on

ADOPTED on

________________________________  __________________________________
Mayor                                           Municipal Clerk

Certified a true copy

________________________________
Municipal Clerk
The Corporation of the District of North Vancouver

Bylaw 8291

A bylaw to enter into a Housing Agreement
(340 Mountain Highway and 1515-1537 Rupert Street)

The Council for The Corporation of the District of North Vancouver enacts as follows:

1. Citation

   This bylaw may be cited as “Housing Agreement Bylaw 8291, 2017 (340 Mountain Highway
   and 1515-1537 Rupert Street)”.

2. Authorization to Enter into Agreement

   2.1 The Council hereby authorizes a housing agreement between The Corporation of the
   District of North Vancouver and TPL Developments Rupert South Inc. substantially in the
   form attached to this Bylaw as Schedule “A” with respect to the following lands:

   • Lot 1, Block 43, District Lot 204, Plan 1340 PID: 014-741-474
   • Lot 2, Block 43, District Lot 204, Plan 1340 PID: 014-741-482
   • Lot 3, Block 43, District Lot 204, Plan 1340 PID: 008-354-065
   • Lot 4, Block 43, District Lot 204, Plan 1340 PID: 014-741-491
   • Lot 5, Block 43, District Lot 204, Plan 1340 PID: 014-741-504

3. Execution of Documents

   The Mayor and Municipal Clerk are authorized to execute any documents required to give effect
   to the Housing Agreement.

READ a first time May 28th, 2018

READ a second time

READ a third time

ADOPTED

Mayor                                       Municipal Clerk

Certified a true copy

Municipal Clerk
Schedule A to Bylaw 8291

SECTION 219 COVENANT – HOUSING AGREEMENT

This agreement is dated for reference the 15th day of May, 2018

BETWEEN:

TPL DEVELOPMENTS RUPERT SOUTH INC., Inc. No. BC1052759, 200 - 1111 West Hastings Street, Vancouver, BC  V6E 2J3

(the “Developer”)

AND:

THE CORPORATION OF THE DISTRICT OF NORTH VANCOUVER, a municipality incorporated under the Local Government Act, RSBC 2015, c.1 and having its office at 355 West Queens Road, North Vancouver, BC  V7N 4N5

(the “District”)

WHEREAS:

1. The Developer is the registered owner of the Lands (as hereinafter defined);

2. The Developer wishes to obtain development permissions with respect to the Lands and wishes to create a condominium development which will contain residential strata units on the Lands;

3. Section 483 of the Local Government Act authorises the District, by bylaw, to enter into a housing agreement to provide for the prevention of rental restrictions on housing, and provides for the contents of the agreement; and

4. Section 219 of the Land Title Act (British Columbia) permits the registration in favour of the District of a covenant of a negative or positive nature relating to the use of land or a building thereon, or providing that land is to be built on in accordance with the covenant, or providing that land is not to be built on except in accordance with the covenant, or providing that land is not to be subdivided except in accordance with the covenant;

NOW THEREFORE in consideration of the mutual promises contained in it, and in consideration of the payment of $1.00 by the District to the Developer (the receipt and sufficiency of which are hereby acknowledged by the Developer), the parties covenant and agree with each other as follows, as a housing agreement under Section 483 of the Local Government Act, as a contract and a deed under seal between the parties, and as a covenant under Section 219 of the Land Title Act, and the Developer hereby further covenants and agrees that neither the Lands nor any building constructed thereon shall be used or built on except in accordance with this Agreement:
1. **DEFINITIONS**

1.01 Definitions

In this agreement:

(a) "Lands" means the lands described in Item 2 of the Land Title Act Form C to which this agreement is attached;

(b) "Owner" means the Developer and any other person or persons registered in the Lower Mainland Land Title Office as owner of the Land from time to time, or of any parcel into which the Land is consolidated or subdivided, whether in that person’s own right or in a representative capacity or otherwise;

(c) "Proposed Development" means the proposed development on the Lands;

(d) "Short Term Rentals" means any rental of a Unit for any period less than 30 days;

(e) "Strata Corporation" means the strata corporation formed upon the deposit of a plan to strata subdivide the Proposed Development pursuant to the Strata Property Act;

(f) "Unit" means a residential dwelling strata unit in the Proposed Development; and

(g) "Unit Owner" means the registered owner of a Dwelling Unit in the Proposed Development.

2. **TERM**

This Agreement will commence upon adoption by District Council of Bylaw 8291 and remain in effect until terminated by the District as set out in this Agreement.

3. **RENTAL ACCOMODATION**

3.01 Rental Disclosure Statement

No Unit in the Proposed Development may be occupied unless the Owner has:

(a) before the first Unit is offered for sale, or conveyed to a purchaser without being offered for sale, filed with the Superintendent of Real Estate a rental disclosure statement in the prescribed form (the “Rental Disclosure Statement”) designating all of the Units as rental strata lots and imposing at least a 99 year rental period in relation to all of the Units pursuant to the Strata Property Act (or any successor or replacement legislation), except in relation to Short Term Rentals and, for greater certainty, stipulating specifically that the 99 year rental restriction does not apply to a Strata Corporation bylaw prohibiting or restricting Short Term Rentals; and

(b) given a copy of the Rental Disclosure Statement to each prospective purchaser of any Unit before the prospective purchaser enters into an agreement to purchase in respect of the Unit. For the purposes of this paragraph 3.01(b), the Owner is deemed to have given a
copy of the Rental Disclosure Statement to each prospective purchaser of any Unit in the building if the Owner has included the Rental Disclosure Statement as an exhibit to the disclosure statement for the Proposed Development prepared by the Owner pursuant to the Real Estate Development Marketing Act.

3.02 Rental Accommodation

The Units constructed on the Lands from time to time may always be used to provide rental accommodation as the Owner or a Unit Owner may choose from time to time, except that this section 3.02 does not apply to Short Term Rentals which may be restricted by the Strata Corporation to the full extent permitted by law.

3.03 Binding on Strata Corporation

This agreement shall be binding upon all Strata Corporations created by the subdivision of the Lands or any part thereof (including the Units) pursuant to the Strata Property Act, and upon all Unit Owners.

3.04 Strata Bylaw Invalid

Any Strata Corporation bylaw which prevents, restricts or abridges the right to use any of the Units as rental accommodations (other than Short Term Rentals) shall have no force or effect.

3.05 No Bylaw

The Strata Corporation shall not pass any bylaws preventing, restricting or abridging the use of the Lands, the Proposed Development or the Units contained therein from time to time as rental accommodation (other than Short Term Rentals).

3.06 Vote

No Unit Owner, nor any tenant or mortgagee thereof, shall vote for any Strata Corporation bylaw purporting to prevent, restrict or abridge the use of the Lands, the Proposed Development or the Units contained therein from time to time as rental accommodation (other than Short Term Rentals).

3.07 Notice

The Owner will provide notice of this Agreement to any person or persons intending to purchase a Unit prior to any such person entering into an agreement of purchase and sale, agreement for sale, or option or similar right to purchase as part of the disclosure statement for any part of the Proposed Development prepared by the Owner pursuant to the Real Estate Development Marketing Act.
4. **DEFAULT AND REMEDIES**

4.01 **Notice of Default**

The District may, acting reasonably, give to the Owner written notice to cure a default under this Agreement within 30 days of delivery of the notice. The notice must specify the nature of the default. The Owner must act with diligence to correct the default within the time specified.

4.02 **Costs**

The Owner will pay to the District upon demand all the District’s costs of exercising its rights or remedies under this Agreement, on a full indemnity basis.

4.03 **Damages an Inadequate Remedy**

The Owner acknowledges and agrees that in the case of a breach of this Agreement which is not fully remediable by the mere payment of money and promptly so remedied, the harm sustained by the District and to the public interest will be irreparable and not susceptible of adequate monetary compensation.

4.04 **Equitable Remedies**

Each party to this Agreement, in addition to its rights under this Agreement or at law, will be entitled to all equitable remedies including specific performance, injunction and declaratory relief, or any of them, to enforce its rights under this Agreement.

4.05 **No Penalty or Forfeiture**

The Owner acknowledges and agrees that it is entering into this Agreement to benefit the public interest in providing rental accommodation, and that the District’s rights and remedies under this Agreement are necessary to ensure that this purpose is carried out, and the District’s rights and remedies under this Agreement are fair and reasonable and ought not to be construed as a penalty or forfeiture.

4.06 **Cumulative Remedies**

No reference to nor exercise of any specific right or remedy under this Agreement or at law or at equity by any party will prejudice, limit or preclude that party from exercising any other right or remedy. No right or remedy will be exclusive or dependent upon any other right to remedy, but any party, from time to time, may exercise any one or more of such rights or remedies independently, successively, or in combination. The Owner acknowledges that specific performance, injunctive relief (mandatory or otherwise) or other equitable relief may be the only adequate remedy for a default by the Owner under this Agreement.
5. **LIABILITY**

5.01 **Indemnity**

Except if arising directly from the negligence of the District or its employees, agents or contractors, the Owner will indemnify and save harmless each of the District and its board members, officers, directors, employees, agents, and elected or appointed officials, and their heirs, executors, administrators, personal representatives, successors and assigns, from and against all claims, demands, actions, loss, damage, costs and liabilities that all or any of them will or may be liable for or suffer or incur or be put to any act or omission by the Owner or its officers, directors, employees, agents, contractors, or other persons for whom the Owner is at law responsible, or by reason of or arising out of the Owner’s ownership, operation, management or financing of the Proposed Development or any part thereof.

5.02 **Release**

The Owner hereby releases and forever discharges the District, its elected officials, board members, officers, directors, employees and agents, and its and their heirs, executors, administrators, personal representatives, successors and assigns from and against all claims, demands, damages, actions or causes of action by reason of or arising out of advice or direction respecting the ownership, operation or management of the Proposed Development or any part thereof which has been or hereafter may be given to the Owner by all or any of them.

5.03 **Survival**

The covenants of the Owner set out in Sections 5.01 and 5.02 will survive termination of this Agreement and continue to apply to any breach of the Agreement or claim arising under this Agreement during the ownership by the Owner of the Lands or any Unit therein, as applicable.

6. **GENERAL PROVISIONS**

6.01 **District’s Power Unaffected**

Nothing in this Agreement:

(a) affects or limits any discretion, rights, powers, duties or obligations of the District under any enactment or at common law, including in relation to the use or subdivision of land;

(b) affects or limits any enactment relating to the use of the Lands or any condition contained in any approval including any development permit concerning the development of the Lands; or

(c) relieves the Owner from complying with any enactment, including the District’s bylaws in relation to the use of the Lands.
6.02 Agreement for Benefit of District Only

The Owner and District agree that:

(a) this Agreement is entered into only for the benefit of the District:

(b) this Agreement is not intended to protect the interests of the Owner, any Unit Owner, any occupant of any Unit or any future owner, occupier or user of any part of the Proposed Development, including any Unit, or the interests of any third party, and the District has no obligation to anyone to enforce the terms of this Agreement; and

(c) The District may at any time terminate this Agreement, in whole or in part, and execute a release and discharge of this Agreement in respect of the Proposed Development or any Unit therein, without liability to anyone for doing so.

6.03 Agreement Runs With the Lands

This Agreement burdens and runs with the Lands and any part into which any of them may be subdivided or consolidated, by strata plan or otherwise. All of the covenants and agreements contained in this Agreement are made by the Owner for itself, its successors and assigns, and all persons who acquire an interest in the Lands or in any Unit after the date of this Agreement.

6.04 Release

The covenants and agreements on the part of the Owner and any Unit Owner and herein set forth in this Agreement have been made by the Owner and any Unit Owner as contractual obligations as well as being made pursuant to Section 483 of the Local Government Act (British Columbia) and as such will be binding on the Owner and any Unit Owner, except that neither the Owner nor any Unit Owner shall be liable for any default in the performance or observance of this Agreement occurring after such party ceases to own the Lands or a Unit as the case may be.

6.05 Priority of This Agreement

The Owner will, at its expense, do or cause to be done all acts reasonably necessary to ensure this Agreement is registered against the title to each Unit in the Proposed Development, including any amendments to this Agreement as may be required by the Land Title Office or the District to effect such registration.

6.06 Agreement to Have Effect as Deed

The District and the Owner each intend by execution and delivery of this Agreement to create both a contract and a deed under seal.

6.07 Waiver

An alleged waiver by a party of any breach by another party of its obligations under this Agreement will be effective only if it is an express waiver of the breach in writing. No waiver of a breach of this Agreement is deemed or construed to be a consent or waiver of any other breach of this Agreement.
6.08 **Time**

Time is of the essence in this Agreement. If any party waives this requirement, that party may reinstate it by delivering notice to another party.

6.09 **Validity of Provisions**

If a Court of competent jurisdiction finds that any part of this Agreement is invalid, illegal, or unenforceable, that part is to be considered to have been severed from the rest of this Agreement and the rest of this Agreement remains in force unaffected by that holding or by the severance of that part.

6.10 **Extent of Obligations and Costs**

Every obligation of a party which is set out in this Agreement will extend throughout the Term and, to the extent that any obligation ought to have been observed or performed prior to or upon the expiry or earlier termination of the Term, such obligation will survive the expiry or earlier termination of the Term until it has been observed or performed.

6.11 **Notices**

All notices, demands, or requests of any kind, which a party may be required or permitted to serve on another in connection with this Agreement, must be in writing and may be served on the other parties by registered mail or by personal service, to the following address for each party:

If to the District:

District Municipal Hall  
355 West Queens Road  
North Vancouver, BC V7N 4N5  

Attention: Planning Department

If to the Owner:

TPL Developments Rupert South Inc.

If to the Unit Owner:

The address of the registered owner which appears on title to the Unit at the time of notice.

Service of any such notice, demand, or request will be deemed complete, if made by registered mail, 72 hours after the date and hour of mailing, except where there is a postal service disruption during such period, in which case service will be deemed to be complete only upon actual delivery of the notice, demand or request and if made by personal service, upon personal service being
effected. Any party, from time to time, by notice in writing served upon the other parties, may designate a different address or different or additional persons to which all notices, demands, or requests are to be addressed.

6.12 Further Assurances

Upon request by the District, the Owner will promptly do such acts and execute such documents as may be reasonably necessary, in the opinion of the District, to give effect to this Agreement.

6.13 Enuring Effect

This Agreement will enure to the benefit of and be binding upon each of the parties and their successors and permitted assigns.

7. INTERPRETATION

7.01 References

Gender specific terms include both genders and include corporations. Words in the singular include the plural, and words in the plural include the singular.

7.02 Construction

The division of this Agreement into sections and the use of headings are for convenience of reference only and are not intended to govern, limit or aid in the construction of any provision. In all cases, the language in this Agreement is to be construed simply according to its fair meaning, and not strictly for or against either party.

7.03 No Limitation

The word “including” when following any general statement or term is not to be construed to limit the general statement or term to the specific items which immediately follow the general statement or term similar items whether or not words such as “without limitation” or “but not limited to” are used, but rather the general statement or term is to be construed to refer to all other items that could reasonably fall within the broadest possible scope of the general statement or term.

7.04 Terms Mandatory

The words “must” and “will” and “shall” are to be construed as imperative.

7.05 Statutes

Any reference in this Agreement to any statute or bylaw includes any subsequent amendment, re-enactment, or replacement of that statute or bylaw.
7.06 **Entire Agreement**

(a) This is the entire agreement between the District and the Owner concerning its subject, and there are no warranties, representations, conditions or collateral agreements relating to this Agreement, except as included in this Agreement.

(b) This Agreement may be amended only by a document executed by the parties to this Agreement and by bylaw, such amendment to be effective only upon adoption by District Council of a bylaw to amend Bylaw 8291.

7.07 **Governing Law**

This Agreement is to be governed by and construed and enforced in accordance with the laws of British Columbia.

As evidence of their agreement to be bound by the terms of this instrument, the parties hereto have executed the *Land Title Act Form C* that is attached hereto and forms part of this Agreement.
GRANT OF PRIORITY

WHEREAS ___________________ (the “Chargeholder”) is the holder of the following charges which are registered in the Land Title Office:

(a) _____________________________
(b) _____________________________

(collectively, the “Charges”);

AND WHEREAS the Chargeholder agrees to allow the Section 219 Covenant herein to have priority over the Charges;

THIS PRIORITY AGREEMENT is evidence that in consideration of the sum of $1.00 paid by THE CORPORATION OF THE DISTRICT OF NORTH VANCOUVER (the “District”) to the Chargeholder, the receipt and sufficiency of which are hereby acknowledged, the Chargeholder covenants and agrees to subordinate and postpone all its rights, title and interest in and to the lands described in the Form C to which this Agreement is attached (the “Lands”) with the intent and with the effect that the interests of the District rank ahead of the Charges as though the Section 219 Covenant herein had been executed, delivered and registered against title to the Lands before registration of the Charges.

As evidence of its Agreement to be bound by the above terms, as a contract and as a deed executed and delivered under seal, the Chargeholder has executed the Form C to which this Agreement is attached and which forms part of this Agreement.
Two public hearings will occur consecutively in the order noted below.

**When:** 7 pm, Tuesday, June 12, 2018  
**Where:** Council Chambers, District of North Vancouver Municipal Hall, 355 West Queens Road, North Vancouver, BC

### 340 Mountain Highway & 1515-1537 Rupert Street  
**26 Unit Townhouse Project**

**What:** A Public Hearing for Bylaw 8290, a proposed amendment to the Zoning Bylaw, to permit the development of a twenty-six unit townhouse project.

**What changes?**  
Bylaw 8290 proposes to amend the District’s Zoning Bylaw by creating a new Comprehensive Development Zone 122 (CD122) and rezone the subject site from Single-Family Residential 6000 Zone (RS4) to CD122. The CD122 Zone addresses use and accessory use, density, amenities, setbacks, site and building coverage, building height, landscaping and parking.

*Provided by applicant for illustrative purposes only. The actual development, if approved, may differ.

### 1552-1568 Oxford Street  
**88 Unit Residential Development**

**What:** A Public Hearing for Bylaws 8313 and 8314, proposed amendments to the Official Community Plan and Zoning Bylaw, to permit the development of an 88 unit residential development.

**What changes?**  
Bylaw 8313 proposes to amend the OCP land use designation of the properties from Residential Level 5: Low Density Apartment (RESS) to Commercial Mixed Use Level 3 (CRMU3). Bylaw 8314 proposes to amend the District's Zoning Bylaw by creating a new Comprehensive Development Zone 116 (CD116) and rezone the subject site from Single-Family Residential 6000 Zone (RS4) to CD116 and a portion of site (5m on west side) rezoned to Neighbourhood Park (NP). The CD116 Zone addresses use and accessory use, density, amenities, setbacks, site and building coverage, building height, landscaping and stormwater management and parking.

*Provided by applicant for illustrative purposes only. The actual development, if approved, may differ.

### When can I speak?  
We welcome your input Tuesday, June 12, 2018, at 7 pm. You can speak in person by signing up at the hearing, or you can provide a written submission to the Municipal Clerk at input@dvn.org or by mail to Municipal Clerk, District of North Vancouver, 355 West Queens Road, North Vancouver, BC, V7N 4N5, before the conclusion of the hearing. Please note that Council may not receive further submissions from the public concerning this application after the conclusion of the public hearing.

### Need more info?  
Relevant background material and copies of the bylaws are available for review at the Municipal Clerk’s Office or online at dnv.org/public_hearing from May 29 to June 12. Office hours are Monday to Friday 8 am to 4:30 pm, except statutory holidays.
LOWER LYNN TOWN CENTRE
IMPLEMENTATION PLAN
This intentionally left blank.
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A. Introduction

Local context

Lower Lynn is one of four key designated centres in the Official Community Plan’s (OCP) Network of Centres. Centrally located within the District of North Vancouver (District) at the Second Narrows bridgehead and connected to Lower Lonsdale via Main Street/Low Level Road, Lower Lynn has good access to Phibbs Exchange and frequent transit, significant parks and natural amenities, employment lands and regional commercial along Main Street.

Redevelopment of the existing residential areas provides an opportunity to protect employment lands, to rejuvenate the residential areas through quality urban design and place making, to increase connectivity between neighbourhoods that have been isolated by the TransCanada Highway, and to establish a central community “heart” or focal point that serves as a hub for community services and facilities.

Revitalization of the Lower Lynn Town Centre, including a range of new multi-family housing and affordability options, will make it easier for local businesses to attract and retain new employees. In addition, young working adults (20-40 year olds) and their families, seniors looking to downsize and first time home buyers from the North Shore and elsewhere, are anticipated to move here to take advantage of new housing options, jobs, ready access to transit, parks, trails and other amenities.

This Lower Lynn Town Centre Implementation Plan responds to the Official Community Plan policies and direction identifying the need for a detailed implementation plan and design guidelines to inform redevelopment of this area in a manner that is consistent with the community’s vision for this centre. The Lower Lynn Town Centre Implementation Plan also provides policy direction to guide growth and change in the Lower Lynn Town Centre to 2030. Recognizing that it may take 20 years or more for the area to be fully redeveloped, the plan allows for incremental change over time so that areas outside of the core area can continue to function as they do now until such time as they are ready for change.

Vision for the Lower Lynn Town Centre

The Official Community Plan vision for the Lower Lynn Town Centre, developed in consultation with the local community is:

“Lower Lynn will be a transit-oriented mixed use community comprised of a wide range of housing types for people of all stages of life, all incomes, with accessible places of work, convenient shopping and amenities. Over
time, Lower Lynn will become an outstanding model of urban living in harmony with the North Shore’s natural environment.

Implementation Planning and Engagement Process

Following adoption of the Official Community Plan (2011), implementation planning work on the Lower Lynn Town Centre involved: undertaking a series of technical transportation and economic analyses, conducting public and stakeholder consultation, and establishing planning principles and a detailed Concept Plan as a basis for the Lower Lynn Town Centre Implementation Plan and Design Guidelines.

Public engagement on the Lower Lynn Town Centre began in 2008 and has occurred at every major milestone in the implementation planning process. Engagement has involved community and stakeholder workshops, open houses, focus group meetings, drop-in sessions, and community display booths that enabled the community to be active participants in shaping the vision, concept plan and implementation policies for this Town Centre.

The District of North Vancouver has worked closely with Vancouver Coastal Health (VCH) on this and other designated centres to promote community health through healthy built environments and active living. VCH has played an important role in building awareness and providing a strong voice for proactive measures to promote community health.

LLTC IMPLEMENTATION ENGAGEMENT PROCESS

- LLTC public info meeting
- Series of public and stakeholder meetings through the OCP review process and development of Network of Centres
- Open House on LLTC Implementation Plan principles and framework
- Community display booths
- Public and stakeholder Open Houses on Draft LLTC Implementation Plan and Design Guideline elements

2008 - 2010  |  2011  |  2012  |  2013  
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Figure 2. Lower Lynn Town Centre implementation planning and engagement process
**How to use this document and relationship to the Official Community Plan**

This Lower Lynn Town Centre Implementation Plan represents a long-term vision to 2030 to guide future redevelopment, growth and change to this area. This document is to be used in conjunction with the Official Community Plan (OCP). The OCP land use designations and Town Centre policies (Schedule A of the OCP) lay the foundation and policy directions for the Lower Lynn Town Centre. Guided by and consistent with the OCP, this Implementation Plan provides more detailed policies and implementation actions to guide redevelopment of this Town Centre in accordance with the OCP. In the event that there is any inconsistency between this Implementation Plan and the OCP, the OCP governs.

The general, District-wide Development Permit Area Guidelines found in Schedule B of the OCP apply to redevelopment in this area. In addition, the supplemental Design Guidelines specific to the Lower Lynn Town Centre outline the specific form and character and streetscape design elements to help shape the unique character and identity of the Town Centre.

**Realizing a Sustainable Implementation Plan**

Lower Lynn Town Centre has the potential to become one of the most sustainable communities in the District of North Vancouver.

Building on the vision of the Official Community Plan (OCP) as an Integrated Sustainable Community Plan, this Implementation Plan guides the redevelopment of the Lower Lynn Town Centre towards social, economic and environmental sustainability by:

» directing new growth in a frequent transit development area (FTDA) that is well served by transit;

» integrating a range of housing choices, community facilities and services to promote social interaction and demographic mix;

» encouraging economic development through the protection of light industrial lands and expansion and renewal of commercial uses;

» providing new park space and promoting environmental protection, watershed enhancement, green infrastructure, energy and water conservation.

This Implementation Plan also provides recommendations for monitoring progress towards overall Plan objectives and OCP targets.
Establishment of a mixed use centre with easy and enjoyable walking access to retail, community facilities and services, and jobs is an important first step towards creating a very liveable, healthy and vibrant community for current and future residents and businesses. The community’s vision for this Town Centre is illustrated by means of a Concept Plan (Figure 3) and supported by land use and other policies in this Implementation Plan. Both conceptual and land use planning for this mixed use Town Centre have been shaped by extensive community and stakeholder input.

Concept Planning Principles

The following planning principles, established in consultation with stakeholders and the public, were used to guide the development of the Lower Lynn Town Centre Concept Plan and the framework for this Implementation Plan.

Create a new Town Centre for Lower Lynn that:

Mixed Use

» Integrates multi-family residential, retail, light industrial and park uses into a revitalized, complete, transit oriented community.

» Provides a community focal point including a mixed use community “heart” with a “high street” on Mountain Highway between Crown and Hunter Streets.

» Encourages economic development through the protection and intensification of light industrial uses, and modest expansion of local-serving commercial uses.

Multi-Modal Transportation Network

» Strengthens community connectivity through a network of safe and accessible pedestrian and cycling routes including a central “green spine”.

» Supports and facilitates access to the frequent transit network.

» Redirects east-west local District traffic via the East Keith Road extension.

Housing Choices

» Revitalizes the residential neighbourhood and encourages innovative housing forms close to employment, transit, retail and community services.

» Facilitates a mix of housing types and tenures to accommodate people of all ages, abilities and incomes for the next 20 years.

Public Realm and Community Amenities

» Establishes a unique community identity and sense of place referencing nature, outdoor recreation and elements of the industrial character.

» Enhances liveability and social well-being through provision of engaging public spaces, new neighbourhood parks and urban plazas, and a range of community services.

» Promotes public safety and security through streetscape and urban design.
Environmental Protection and Green Infrastructure

- Protects and enhances the Lynn Creek corridor and encourages a healthy urban forest canopy.
- Promotes green infrastructure, rainwater management best practices, water and energy conservation, and alternative energy solutions towards a more sustainable community.

Concept Plan for Lower Lynn Town Centre

The District’s Official Community Plan (OCP) land use map forms the foundation for the Lower Lynn Town Centre Concept Plan. The Concept Plan (Figure 3) has also been informed by community input, economic and transportation analysis, and the concept planning principles specific to the Lower Lynn Town Centre.

Under the Concept Plan, the most significant change is proposed for existing residential areas east of Mountain Highway. Existing employment lands west of Mountain Highway will retain their current uses with the ability to redevelop and intensify light industrial uses in a manner that is consistent with the Zoning Bylaw and the OCP.

Note that while it provides greater detail and finer grain of planning than the OCP land use map, the Concept Plan illustrates one possible way in which redevelopment may occur in the future according to the land uses and densities provided in the OCP.

The actual location, built form and height of buildings will be determined at the time of redevelopment through applicable development application and review processes. The Concept Plan also assumes that some site assemblies may be needed to achieve the Plan vision and the densities in the OCP.
Lower Lynn Town Centre Implementation Plan

Figure 3. Lower Lynn Town Centre Concept Plan

LEGEND
- EXISTING BUILDING
- LOW - MID-RISE RESIDENTIAL
- COMMERCIAL FRONTAGE
- CHOICE OF USE COMMERCIAL OR RESIDENTIAL USE
- CHOICE OF USE COMMERCIAL OR INDUSTRIAL USE
- HIGH RISE RESIDENTIAL
- PARKS AND OPEN SPACE
- TOWN CENTRE BOUNDARY

Area for further planning and review with consideration of new Highway interchange design.
Illustrative Character Sketches of the Lower Lynn Town Centre

Figure 4a. Seylynn Park and Potential Community Facility
This sketch shows a potential new community facility (pending results of a needs assessment) with residential development on Hunter Street and directly facing Seylynn Park.

Figure 4b. The Lower Lynn Town Centre “Heart”
View looking north-west across the central plaza towards Mountain Highway and Seylynn Park. The central plaza is wrapped by at grade retail with café seating, displays and weather protection which together with public art, pavement treatment, landscaping and water features create an inviting and animated public realm space.

Figure 4c. Crown Street
View along Crown Street looking east towards Orwell Street. A mix of low and mid-rise apartments and ground oriented housing with street level entrances, landscaped front yards and street trees enrich the character of this residential neighbourhood.

Figure 4d. Oxford Street
This sketch shows a new pedestrian greenway along the north side of Oxford Street connecting to Phibbs Exchange. Low profile landscaping, rain gardens, rock infill areas, street furniture and lighting provide a safe and enjoyable route for pedestrians to the transit hub.
Land use and density

Land use designations are used to identify the future land uses applicable to an area. Land uses in the Lower Lynn Town Centre encourage building typologies and densities to establish a vibrant higher density, mixed used town centre, close to transit, that protects employment lands and integrates parks, open space and community amenities.

Policies:
1. Encourage redevelopment in the Lower Lynn Town Centre that is consistent with the Official Community Plan land use map and land use designations for this area (Figure 6 and Table 1).
2. Support light industrial uses and encourage intensification of these uses on existing employment lands.
3. Facilitate the establishment of diverse housing forms consistent with OCP land use designations.
4. Maintain the destination/regional commercial character of Main Street and focus new local commercial floorspace and services in the Town Centre “heart” (see Figure 5).
5. Consider opportunities for a new office building with retail at grade at the southwest corner of Mountain Highway and Crown Street, and choice of use (industrial or commercial) for the Mountain Highway frontages immediately north and south of Rupert Street, and for a portion of Main Street as shown in the Concept Plan.
6. Minimize potential conflicts between different adjacent land uses through urban design, buffering and edge treatments.
7. Consider facilitating live/work units along the west side of Mountain Highway at Rupert Street to provide a transition between residential and light industrial uses, where appropriate.
8. Introduce institutional (public assembly) land uses to accommodate a new community recreation facility in the Town Centre core.
9. Retain and expand parks, open space and green spaces to enhance community liveability and to create a vibrant public realm.
10. Encourage an appropriate minimum site assembly size (approximately 4-5 smaller residential lots) for redevelopment in order to achieve the Concept Plan and the land uses and densities in the Official Community Plan.
11. Ensure that new developments demonstrate ability to achieve the overall objectives of the Lower Lynn Town Centre Plan and the Official Community Plan in order to be eligible for the density shown in the applicable land use designation.
12. Discourage proposed development configurations that may result in remainders of land that are uneconomic to development for the uses intended in the Land Use Map (Figure 6).

Figure 5. Illustrative sketch of the Lower Lynn Town Centre looking south-east across Mountain Highway towards the central plaza.
Land use designations and applicable densities for the Town Centre (shown below) are articulated in the OCP and form the foundation for the Lower Lynn Town Centre Implementation Plan. Floor space ratio, as referenced below, means generally the ratio of the gross floor area of a proposed development over the gross area of the lot or lots upon which the development is located.

**Residential Level 5 Low Density Apartment**: Areas designated for low density apartment are intended predominantly for multifamily housing in centres and corridors up to approximately 1.75 FSR. Development in this designation will typically be expressed in low rise apartments, but may include some townhouses. Some commercial use may be permitted at grade.

**Residential Level 6 Medium Density Apartment**: Areas designated for medium density apartment are intended predominantly to provide increased multifamily housing up to approximately 2.50 FSR at strategic locations in centres and corridors. Development in this designation will typically be expressed in medium rise apartments. Some commercial use may also be permitted in this designation.

**Commercial**: Areas designated for commercial are intended predominantly for a variety of commercial and service type uses, where residential uses are not generally permitted. Development in this designation is permitted up to approximately 1.0 FSR.

**Commercial Residential Mixed Use Level 1**: Areas designated for commercial residential mixed use level 1 are intended predominantly for general commercial purposes, such as retail, service and offices throughout the District. Residential uses above commercial uses at street level are generally encouraged. Development in this designation is permitted up to approximately 1.75 FSR.

**Commercial Residential Mixed Use Level 3**: Areas designated for commercial residential mixed use level 3 are intended predominantly to provide for high density uses up to approximately 3.50 FSR at limited appropriate sites in the District’s Centres. Development in this designation may include residential or commercial uses which encompass retail, office and service uses, or a mix of these residential and commercial uses.

**Light Industrial Commercial**: Areas designated for light industrial commercial are intended predominantly for a mix of industrial, warehouse, office, service, utility and business park type uses. Supportive uses including limited retail and limited residential uses may be permitted.

**Parks, Open Space, and Natural Areas**: Areas designated for parks, open space and natural areas are intended for a range of public and private uses focussed principally on the protection and preservation of ecologically important habitat areas, the regional drinking water supply, or the provision of diverse parks, outdoor recreational, or tourism opportunities.

Table 1. Land use designations for Lower Lynn Town Centre (from the OCP).
Figure 6. Lower Lynn Town Centre Land Use Map

- Area for further planning and review with consideration of new Highway interchange design.
- Lands potentially impacted by future road improvements.
- Encourage consideration of an office building at this location.
Community Identity and Urban Design

Building on its existing setting, contextual patterns, climate and history and looking forward to what this area could become; redevelopment of the Lower Lynn Town Centre will create a unique community character and identity for this area that is both distinct from other town and village centres and will help to foster community connection and sense of place or belonging. The Lower Lynn Town Centre Design Guidelines provide detailed direction for streetscape and urban design and for the expression of community identity and character. General design objectives and policies are provided below.

Policies:
1. Promote a high quality attractive built environment that reflects the role of this community as a gateway to the District of North Vancouver.
2. Encourage and promote new development within the Lower Lynn Town Centre that:
   » follows urban design principles that are consistent with the Form and Character Design Guidelines in the OCP and the Lower Lynn Town Centre Design Guidelines; and
   » helps create of a unique community character and identity for the Lower Lynn Town Centre through site planning, streetscape and urban design, landscaping, public art and other measures as appropriate.
3. Encourage application of the Lower Lynn Town Centre Design Guidelines in a manner that promotes design continuity, while still enabling individual expression on a particular development site.
4. Encourage and promote new development and appropriate landscaping that complements and reinforces the character and roles of the different streets, neighbourhoods and open spaces in the community.
5. Undertake a review of street names (Mountain Highway, proposed new streets), place names (Town Centre itself), parks and other community facility names to identify new names, as needed, that are in keeping with the identity and character of this area and that help to establish unique sense of place.
6. Recognize that the Design Guidelines may be supplemented, from time to time, to provide further clarity and direction to inform the urban character and streetscape design.

Building Form and Height

The Concept Plan outlines the approximate type and location of potential future buildings in the Lower Lynn Town Centre. Approximate building heights shown in Figures 6 and 7 reflect consideration of land use and density, land economics, parcel assembly, sunlight penetration, views, privacy, access, relationship to other uses and to the street.

Policies:
1. Encourage new development to consider public and private access to views and sunlight and request view and shadow analyses with development applications, as appropriate.
2. Employ sensitive urban design and variation in heights to transition sensitively outwards from the Town Centre heart.
3. Encourage smaller tower floor plates to establish leaner buildings and to maximize open space.
4. Encourage new development that is respectful of adjacent current and future built forms and presents an appropriate relationship in scale and form to adjacent land uses.
**Figure 7.** Illustrative sketch of approximate building heights along Mountain Highway between Seylynn Village and Crown Street. All building heights and locations are approximate.

**Figure 8.** Approximate stepping and variation in building heights per the Lower Lynn Town Centre Concept Plan. All building locations and heights are approximate.
C. Housing Choices

Access to jobs, natural and recreational amenities, and transit will attract North Shore and other residents to this scenic community. These future residents are anticipated to include young working adults, first time home buyers, young families, and seniors looking to downsize. Housing policies in this section aim to establish a mix of housing types and affordability to meet the expected housing needs of residents for the next 20 years and contribute towards achieving overall housing objectives for the District as a whole.

Redevelopment according to the land uses and densities in the Official Community Plan is anticipated to contribute an estimated 3,000 new housing units in the Lower Lynn Town Centre.

Housing Diversity

Proactive planning and policies are needed to ensure the establishment of housing choice and diversity in response to current housing gaps and future population needs that might not otherwise be addressed through market considerations alone. This section of the Implementation Plan outlines key policies to establish housing diversity through the supply of different forms of tenure (ownership and rental), different sizes of units (to accommodate different family needs), housing innovation and adaptable design measures.

Policies:
1. Encourage and promote a range of housing options to meet the current and anticipated needs of the community over the next 20 years.
2. Through redevelopment, encourage a diversity of multi-family housing choices including high rise, midrise and low rise apartments, as well as ground oriented housing (e.g. townhouses and row-houses) in the Town Centre in keeping with the OCP land use designations.
3. Consider opportunities for new and evolving housing forms including, but not limited to, restricted resale/ownership, fee simple row-housing, and co-housing.
4. Encourage a range of tenure options including home ownership and rental (purpose built rental, strata rental) in an integrated manner for all new development.
5. Recognizing that owned strata units will provide the majority of rental housing opportunities in the future, consider the establishment of purpose-built rental buildings, where appropriate, to provide further opportunities for rental units.

6. Apply policy and other tools to support the ongoing ability of future owners to rent their strata unit(s) without being restricted by strata council regulations.

7. Encourage new residential development to provide a mix of unit sizes (bachelor, 1-bedroom, 2-bedroom and 3-bedroom units) throughout the building, as appropriate, to accommodate different household needs and sizes.

8. Encourage the development of flexible residential spaces (lock-off units, secondary suites where feasible) that can be adapted to changing family needs and/or act as a mortgage helper.

9. Encourage, and where appropriate, require that new residential buildings provide adaptable design measures, per established District guidelines, to accommodate the needs of people with disabilities and/or to serve the needs of elderly residents.

10. Encourage development of housing for seniors in the Town Centre, where appropriate.

11. Encourage, and where appropriate, require safe useable outdoor play spaces in new multi-family residential developments.

12. Encourage consideration of providing onsite private amenities with larger residential developments.

13. Encourage new residential development to incorporate lifestyle support features, secure storage for oversize sports equipment, parking for bicycles and scooters, artist/workshop space and dog walking space, as appropriate.

**Housing Affordability**

In a regional context of high property values, providing some measure of housing affordability has been and remains an important objective for the District. Affordability, used here, refers to low end of market, reduced market and non-market housing needed to house mid to low income groups. Redevelopment of the Lower Lynn Town Centre according to the land uses and densities in the OCP provides opportunities for establishing a portion of below market housing units through the redevelopment process and limited non-market units through partnerships with other agencies.

**Policies:**

1. Encourage the delivery of a range of affordable housing options to accommodate moderate to lower household incomes.

2. Where feasible and appropriate, seek to increase the supply of affordable housing units in new multi-family developments by encouraging, but not limited to:
   - inclusion of a portion of affordable rental, price controlled/restricted ownership units, or non-market units as part of the project,
   - provision of land dedicated for affordable housing, or
   - provision of a cash-in-lieu contribution to a housing opportunities fund for establishing new affordable units.
3. Encourage, and where appropriate, require proportions of affordable units that reflect the same mix and range of unit sizes (bachelor, 1-bedroom, 2-bedroom and 3-bedroom units) as per the market residential housing component of development projects.

4. Enable, where appropriate, a portion of new market apartments to be built as smaller units (of approximately 400 square feet) as an affordable market housing option.

5. Encourage the integration of affordable units into market residential projects.

6. Apply established design guidelines to achieve a portion of affordable units with adaptable design measures.

7. Pursue opportunities to reduce parking standards for affordable housing projects in the Town Centre.

8. Consider exempting affordable units from payment of Development Cost Charges.

9. Work with developers, senior governments, non-profit societies and other community partners to facilitate the provision of non-market residential units including supportive, transitional and low-income housing for residents with special needs.

10. Consider leveraging a portion of District-owned lands within the Town Centre to contribute towards non-market housing.
D. Economic Vitality

With redevelopment, the Lower Lynn Town Centre will have perhaps the greatest diversity of land uses of all the town and village centres in the District. Careful site planning, design and revitalization of these uses over time, will create a very unique, vibrant and thriving community. Light industrial and commercial areas provide important local employment opportunities and help sustain local and regional economies.

Under the OCP, redevelopment of the Lower Lynn Town Centre is anticipated to provide approximately 120,000 square feet of new locally serving retail space and approximately 40 – 50,000 square feet of new office space.

Commercial Uses

Commercial uses in the Town Centre include both local serving retail along Mountain Highway, and regional/destination retail along Main Street. Besides providing local access to goods and services, these services play a vital role in animating public spaces and providing entry level employment.

Policies:
1. Encourage and integrate local commercial uses, including a new grocery store, in the Town Centre to allow local access to retail services.
2. Establish Mountain Highway as the retail “high street” in the Town Centre.
3. Retain the regional destination retail character of Main Street.
4. Encourage retail uses surrounding the central gathering and other plaza spaces that contribute to the activation and programming of these spaces.
5. Ensure that commercial frontages along Mountain Highway provide physical and visual permeability to create a strong connection between the street and the retail services.
6. Encourage local serving office uses and home-based businesses in the Town Centre, as appropriate.
7. Encourage the establishment of a Lower Lynn Town Centre business association to help market the area to attract local customers.
8. Facilitate programs to attract and encourage businesses that have ecologically responsible operational practices and that support sustainable lifestyles and business practices.
Industrial Uses

Employment lands including light industrial areas (located within Lower Lynn Town Centre) and heavy industrial/port lands (to the south of Lower Lynn Town Centre) play an important role in the economy of the region and are also an important source of jobs for current and future residents of the Lower Lynn Town Centre community. Policies in this section seek to protect these employment lands and encourage intensification of these uses according to the OCP.

Policies:
1. Protect employment lands and encourage various measures to minimize potential impacts to surrounding land uses.
2. Support industrial infill development and the redevelopment of underutilized sites on employment lands.
3. Support measures to upgrade and improve the appearance and quality of industrial areas.
4. Review the Zoning Bylaw regulations to facilitate intensification of light industrial uses and consult with the business community through this process.
5. Consider opportunities for live work in the choice of use areas on Mountain Highway as shown in the Concept Plan (Figure 3).
6. Celebrate the industrial character of the area and reference through streetscape, public realm and form and character design as guided by the Lower Lynn Town Centre Design Guidelines.
7. Direct major retail uses to Main Street and Mountain Highway, as appropriate.
E. Transportation System

The Lower Lynn Town Centre’s central location in the District near the foot of the Ironworker’s Memorial Second Narrows Bridge, port-related activities and Phibbs Exchange, make this area a hub of transportation activity for buses, local and regional traffic, trains, trucks, cyclists and pedestrians. Existing transportation infrastructure (Highway 1, railway lines, Main Street) has influenced adjacent land uses and, in some cases, created physical barriers to neighbourhood connectivity. Transportation improvements guided by this Implementation Plan promote an efficient multi-modal transportation network and enhanced community connection.

Road Network

Road network policies in this Implementation Plan aim to reinforce and enhance the existing street grid pattern as well as improve the efficiency of traffic movements, circulation and connectivity.

Policies:
1. Enhance the Lower Lynn Town Centre street network as outlined in the Road Network Concept Map (Figure 9).

Figure 9. Proposed Road Network for Lower Lynn Town Centre
2. Establish a new East Keith Road extension north of Seylynn Village to facilitate local east-west traffic, to support the flow of regional traffic and to remove this through traffic from the core of the Lower Lynn Town Centre.

3. Following the establishment of the East Keith Road extension, enable the downgrading of Fern Street into a local, no-through street that facilitates connection of Seylynn Village to the rest of the Lower Lynn community.

4. Reconfigure Mountain Highway to facilitate efficient multi-modal movements, bus pullouts, turning bays and on-street parking, as appropriate (Figure 10).

5. Replace the Keith Road Bridge and move from 2 to 4 lanes.

6. Facilitate the development of commercial services lanes on either side of Mountain Highway in the vicinity of the Town Centre “heart” to enable service vehicle access and to improve circulation around the commercial core.

7. Install signalized intersections and enhanced signal timing to improve vehicular movements and enable safe pedestrian crossings.

8. Extend Orwell Street south to Oxford Street.

9. Establish Hunter Street, west of Mountain Highway as a greenway to support east-west pedestrian and cycling connections to the Town Centre and to Seylynn and Bridgman Parks.

10. Encourage siting of new buildings and structures to accommodate street widening to facilitate anticipated pedestrian, bike and vehicular movements.

11. As redevelopment occurs, explore opportunities for right-of-way improvements to assist in achieving multi-modal transportation objectives.

12. Consider opportunities to close some existing lanes entering from the west side of Mountain Highway where safety benefits are demonstrated.

13. Encourage access to off-street parking and loading areas from commercial service lanes rather than from Mountain Highway.

14. Consider the use of transportation demand management (TDM) measures to encourage efficient use of existing infrastructure and to encourage alternative forms of transportation (transit, cycling, walking).

15. Refer to the Lower Lynn Town Centre Design Guidelines for street sections and streetscape design.

16. Integrate transportation measures per the District’s Transportation Plan with redevelopment in the Lower Lynn Town Centre, as applicable.

17. Continue to work with the British Columbia Ministry of Transportation and Infrastructure and other agencies, as relevant, towards options for Highway 1 improvements that benefit the Lower Lynn Town Centre and the District overall.
Transit

Lower Lynn is a designated Frequent Transit Development Area. Residents of Lower Lynn will enjoy some of the best transit service in the region with 30-minute or less travel time to most of the region’s jobs. A number of different bus routes make stops along Mountain Highway at 15 minute intervals providing efficient, direct transit service to Vancouver and the Seabus and enabling residents and workers in the Lower Lynn Town Centre to access frequent transit right outside their front door.

Policies:
1. Support and design for frequent transit bus service on Mountain Highway, Main Street and Oxford Street.
2. Integrate transit priority lanes to support frequent transit services and access to Phibbs Exchange.
3. Work with the regional transportation authority to accommodate future transit facility improvements and redesign of Phibbs Exchange including park-and-ride facilities and improved bus access routing.
4. Encourage redesign options for Phibbs Exchange that address pedestrian and public safety, reflect the quality design features and character of the Town Centre, and work to integrate this transit facility more fully with the Lower Lynn Town Centre community.
5. Enhance the pedestrian and cycling network to and from Phibbs Exchange as per Figure 11.
6. Encourage the regional transit authority to continue to provide services for bikes and bike storage facilities at transit hubs.

Figure 11. Transit Network Map for Lower Lynn Town Centre
Walking and Cycling

Communities that promote “active living”, including walking and cycling to nearby community services and amenities, benefit from improvements in overall community health, safety and liveability. The revitalized Town Centre will build on and strengthen the existing fabric of access routes and trails in the community to provide multiple opportunities for walking and cycling. Key implementation priorities for the Lower Lynn Town Centre include trail enhancements to improve pedestrian and cyclist safety and to improve connections to key destinations, including the Lynn Creek park and trail system, Park and Tilford, Lynnmour Elementary School, Capilano University, Phibbs Exchange and the Ironworkers Memorial Second Narrows Crossing.

Policies:
1. Promote active forms of transportation and community health through the establishment of an integrated pedestrian and cycle network (as shown in Figure 12).
2. Create comfortable walking environments on all streets and provide a generous sidewalk width along Mountain Highway in the Town Centre heart to accommodate side-by-side walking, store front viewing, street trees and street furniture.
3. Establish a series of marked pedestrian crossings along Mountain Highway to facilitate safe pedestrian movements.
4. Establish Crown, Orwell and Hunter Streets as important walking and cycling greenways.
5. Establish a wide pedestrian pathway along the north side of Oxford Street, linking the Town Centre to the Phibbs Exchange transit hub (see Figure 4d).

Figure 12. Proposed pedestrian and cycling network
6. Establish a linear “green spine” or publically-accessible pedestrian trail that connects neighbourhoods through the Town Centre area from Marie Place Park to Oxford Street and provides clear views to the North Shore Mountains.

7. Establish Crown Street as a key link in the Spirit Trail network complete with bike/pedestrian facilities and work with the City of North Vancouver, senior governments and the Squamish Nation to establish a bike/pedestrian crossing over Lynn Creek (west end of Crown) and over Highway 1 in the long-term.

8. Undertake improvements to enhance the Lynn Creek trail system, including beneath the East Keith Road and Highway 1 bridges to improve pedestrian and cycle access northbound to Lynnmour Inter River and southbound to the Town Centre core and Phibbs Exchange.


10. Pursue the establishment of mid-block breaks, especially through large blocks east and west of Harbour Avenue, to facilitate pedestrian access.

11. Consider the use of a comprehensive set of measures to improve cycling safety on all urban streets in the Lower Lynn Town Centre.

12. Enhance pedestrian and cycling safety along Main Street and to the Ironworkers Memorial Second Narrows Crossing and, where road widths allow, facilitate the establishment of a separated sidewalk and landscaped buffer along Main Street.

13. Encourage new development to provide for cycling facilities, including bike racks and end of trip facilities.

14. Develop way-finding measures and signage to direct pedestrians and cyclists to the community heart and other key destinations.

15. Coordinate the implementation of this Plan and other District-wide pedestrian and cycling network initiatives as they relate to the Lower Lynn Town Centre.

Parking Management

Given the ready access to frequent transit service and the movement towards a more walkable, bikeable community – there is an opportunity to consider reducing parking requirements, while at the same time recognizing the need for adequate on-street parking to support employment and retail uses. Reduced parking may facilitate use of more sustainable forms of transportation and help reduce overall development project costs.

Policies:
1. Consider on-street and off-street parking as an integrated system per Figure 13.

2. Design street networks in retail areas such that some on-street parking is available for retailers and traffic can easily circulate around the block.

3. Support households choosing to own fewer cars by reducing the amount of parking required to be built and introducing initiatives such as car-sharing and transit pass programs.

4. Consider reduced parking requirements for multi-family residential developments relative to unit type and context (e.g. frequent transit development area), in conjunction with trip reduction programs according to the following:
   » 1.5 parking spaces per unit for townhouses
   » 1.1 parking spaces per unit for apartments
   » 0.75 parking spaces per unit for rental apartments
   » 0.1 parking spaces per unit for visitors

5. Consider further parking reductions for non-market rental housing.

6. Consider opportunities for shared parking for complementary, adjacent uses in commercial areas. Development applicants may be required to provide a parking study to demonstrate feasibility.
7. Avoid resident-only on-street parking and consider time-restricted parking as an instrument to encourage efficient turn-over of on-street parking.

8. Encourage the unbundling of residential parking from strata units so parking can be managed separately from the unit, where appropriate.

9. Encourage unsold parking to be turned over to the strata corporation after the dwelling units are sold.

10. Seek to obtain post-occupancy survey information from new development to inform future decisions about parking rates.

11. Continue to encourage sufficient, secure bicycle parking and storage for residents, workers and visitors in all new developments.

Figure 13. On-street parking strategy for Lower Lynn Town Centre
F. Public Realm and Community Amenities

The public realm is made up of any publicly-accessible streets, pathways, parks, public open spaces and civic buildings/facilities arranged and designed in a manner that encourages public life and social activity, and contributes to the community’s character, liveability and sense of place. Urban design principles for establishing well-designed and inviting public spaces and streetscapes are outlined in the Lower Lynn Town Centre Design Guidelines. This Implementation Plan includes policies to inform the establishment of parks and open space, community facilities, public art and other community amenities.

Parks and Open Space

The Lower Lynn area enjoys access to a wide spectrum of parks and trails. Located on the doorstep of the Lower Lynn community, the Lynn Creek trail system is a significant and well used community asset that provides access to natural areas, to neighbourhood parks (Bridgman, Seylynn), District parks (Inter River and Lynn Canyon), regional (Lower Seymour Conservation Reserve) and Provincial parkland. Redevelopment provides opportunities to undertake parks revitalization, to introduce new parks and open space and to improve trail connectivity. The Parks and Open Space Network is outlined in Figure 14.

Policies:
1. Preserve, upgrade and expand existing parks, trails and open space in the Lower Lynn Town Centre to adapt to changing community needs and increased use.
2. Undertake a re-visioning exercise for Seylynn and Bridgman Parks to guide redesign so that these parks are working effectively to serve the needs of current and future users.
3. Coordinate improvements to Seylynn and Bridgman parks, the Lynn Creek natural parks and trail system, and local neighbourhood parks.
4. Explore the potential redevelopment and reconfiguration of the grass sports field at Seylynn Park.
5. Improve staging areas, traffic circulation and parking at Seylynn and Bridgman Parks.
6. Retain the existing skatebowl at Seylynn Park and, with stakeholder input, review options to renovate.
7. Expand and upgrade Marie Place Park as a neighbourhood park.
9. Encourage protection of significant natural areas and enhance the ability of parks to function as natural habitat.
10. Plan for a new central plaza on the east side of Mountain Highway in the heart of the Town Centre. Design this space as a community focal point for casual and programmed community uses including casual seating and interaction, community events and activities, outdoor retail services and displays.
Figure 14. Parks and open space network for Lower Lynn Town Centre
11. Encourage active land uses including retail, restaurants and civic facilities at ground level along the edges of the central plaza to create a successful and enlivened public space.

12. Establish an interconnecting mews that links the central urban plaza to Marie Place Park.

13. Consider opportunities for smaller open plaza spaces at key intersections (e.g. Crown Street, Main Street) along Mountain Highway.

14. Design public spaces with consideration of solar orientation, weather protection, typical use at different times of day and opportunities for passive surveillance.

15. Maintain, upgrade and revitalize parks and open space to better serve the Lower Lynn Town Centre community through, but not limited to:
   » opportunities for seating, gathering and special events
   » facilitating children’s creative and active play
   » opportunities for sport, recreation and relaxation for children, youth and adults
   » enhancing accessibility and inclusivity in parks, open spaces and trails
   » integrating way-finding, distinguishing features and public art to reinforce community character
   » integrating trees, landscaping and natural features for rainwater, environmental and other benefits
   » incorporating opportunities for urban agriculture
   » managing rainwater in an efficient and visually engaging manner
   » using water features to mitigate noise impacts (from traffic, industrial activities etc.) and accommodating through travel by pedestrians and cyclists.

### Community Facilities

Seylynn Hall, located in Seylynn Park, has operated as the only public indoor recreational facility in the Lower Lynn Town Centre area. Redevelopment of the Town Centre provides an opportunity to replace this aging facility and to respond to the recreational and community needs of current and future populations.

**Policies:**

1. Undertake a community/ recreational facility need assessment to assess potential demand for coordinated community and recreational services in a new modest scale Lower Lynn Town Centre facility.

2. Consider opportunities to locate a new neighbourhood community facility either adjoining the central plaza or adjacent to Seylynn Park.

3. Pending determination of feasibility and demonstrated needs, a new community facility could:
   » be a ‘community living room’ or hub for a variety of recreational and community services where people can gather, meet, socialize and access services, supports and information about their community.
   » include flexible, multi-use spaces to accommodate changing community needs over time.

4. Subsequent phases of analysis may include: identifying capital and operating costs, considering potential locations for a community centre, and exploring potential partnership models and developing design parameters.
Public Art

Public art conveys interesting local stories, speaks to community values, interprets the physical and cultural environment and celebrates local character. It can be fun and quirky, insightful and breathtaking, but most of all it can be an exciting way to differentiate one community or neighbourhood from another.

Policies:

1. Refer to the Lower Lynn Town Centre Public Art Plan that outlines recommended public art principles, master planning context and recommendations for public art that are specific to Lower Lynn Town Centre.

2. Encourage the integration of public art as a means to help shape local community identity and character especially in key public realm areas including, but not limited to: the central public plaza, key gateways, adjacent to a community centre, entrance to Seylynn Park, and Mountain Highway intersections at Crown Street and Main Street.

3. Recognize that public art can have both aesthetic and functional roles and can be expressed in or in relation to a variety of different forms, including:
   » artistic landmarks (gateway features, community facilities, sculptures, murals)
   » functional streetscape/architectural design (street furniture, pavement treatment, tree grates, lighting, entranceways, fencing, playground equipment, bridge elements and more)
   » features in the natural environment (parks, pathways, playgrounds, landscaping)
   » components of public buildings (murals, entrance features, play structures) and
   » interpretive way-finding, trail markers and other signage.

4. Consider opportunities to include public art in pedestrian/cycle crossings over Lynn Creek.

Community Amenity Strategy

Parks and open space, community facilities and public art are examples of community amenities that are important ingredients for community health and liveability in new urban centres. As a condition of rezoning, and to address increased demand on existing municipal facilities and services from new
development, developers may be asked to provide a community amenity contribution (CAC). Such community amenity contributions may come in the form of either built amenities or a cash-in-lieu contribution towards community amenities.

**Policies:**
1. Community amenity contributions (CACs) for the Lower Lynn Town Centre should be negotiated on a site-specific basis per the District’s Community Amenity Contribution policy and CAC strategy for OCP designated Town and Village Centres.
2. Identify site specific built amenities that should be provided through redevelopment of major sites.
3. Seek to establish the following overall community amenities in the Lower Lynn Town Centre:
   - A modest small scale community/recreational facility (based on needs assessment)
   - A childcare facility (in addition to the facility to be built at Seylynn Village)
   - An adult/senior facility
   - A satellite library
   - Redesign and upgrade of Seylynn and Bridgman Parks
   - Expansion and enhancement of Marie Place Park
   - A new neighbourhood park south of Crown Street
   - New or improved bike/pedestrian greenway connections such as:
     - Crown Street greenway and Spirit Trail links
     - Improved Lynn Creek trails, connections and crossings
     - Orwell Street bikeway and Oxford Street greenway
     - Neighbourhood pedestrian-oriented green spine
   - A new central urban plaza in the heart with interconnecting mews to Marie Place Park
   - A series of smaller urban plazas at key corners on Mountain Highway
   - Affordable, non-market and special needs housing
   - Public art, and
   - Mountain Highway streetscape beautification.
4. Community amenity contributions may also be directed towards operational seed funding for and furnishing of the community recreation centre, provision of services (programs for seniors, families, youth, etc.), measures to reduce potential industrial/residential use conflicts, and other amenities as recommended by the community and determined by Council.

**Community Services**

The delivery of community services and programs supports the health and well-being of local residents and the economic development of local businesses. The District will need to look to innovative opportunities and partnerships for the delivery of these services.

**Policies:**
1. Facilitate the delivery of accessible community services, social programs and infrastructure to support local residents and businesses.
2. Identify opportunities to co-locate services and infrastructure to realize both capital and operating efficiencies.
3. Promote relationships and partnerships between the District and other relevant agencies and organizations for the effective delivery of services in the Town Centre.
4. Maintain and facilitate the programming of community open spaces such as the central plaza to contribute to its prominence as a place to gather for various activities such as farmer’s markets, concerts, festivals, exhibits and informal leisure.
G. Environmental Protection and Energy Efficiency

Redevelopment of the Lower Lynn Town Centre is expected to provide net benefits to environmental health, to provide energy efficiencies and to reduce greenhouse gas emissions.

Environmental Protection

The Lower Lynn Town Centre lies within the Lynn Creek watershed. Maintaining riparian forest integrity, promoting a healthy urban forest canopy and implementing rainwater and water quality best practices are key environmental measures for protecting the health of this watershed.

Policies:

1. Encourage and facilitate the protection and enhancement of Lynn Creek as a major salmon-bearing watercourse and maintain or enhance water quality and riparian forest integrity to promote watershed health.

2. Encourage and facilitate the protection of the ecological services (rainwater infiltration, carbon sequestration, air quality enhancement, temperature moderation etc.) provided by the natural environment and seek to maintain a healthy, diverse urban forest canopy.

3. Connect the natural and urban environments by incorporating natural elements into the urban landscape (e.g. rain gardens) and encourage urban landscaping that includes native and drought tolerant species.

4. Recognize the potential for flooding and the high water table for areas near Lynn Creek and require that flood risk analyses be undertaken prior to redevelopment to assess potential constraints for parking and built form as per the District’s Creek Hazard Development Permit Area guidelines.

5. Encourage opportunities for urban agriculture and local food production in the Lower Lynn Town Centre (e.g. edible landscaping, community gardens, green roofs, private garden space).
Energy Efficiency and Greenhouse Gas Reductions

Energy efficiency has moved from being an occasional added project benefit to becoming the mainstream or normal way of doing redevelopment. All new development will be required to provide energy efficiencies and green building design to reduce greenhouse gas emissions. A district energy system, is proposed to collect and transfer industrial waste energy to supply heat to neighbouring communities, including Maplewood Village Centre, Capilano University and the Lower Lynn Town Centre.

Policies:
1. Continue to work with stakeholders and potential partners towards the delivery of a district energy heating system for the Lower Lynn Town Centre.
2. Require, where feasible, that new development be “district energy” ready for hook-up to a hydronic system.
3. Promote the implementation of green building design measures and greenhouse gas reductions as part of the development process through the Green Building Strategy and Energy and Water Conservation and Reduction of Green House Gas Emissions Development Permit Area guidelines.
4. Promote the installation of electric vehicle charging infrastructure in multi-family, civic and commercial uses and buildings.
5. Encourage energy efficient and sustainable travel modes.

Figure 16. Proposed District Energy Network (red lines)
H. Community Infrastructure

Community infrastructure in this section refers to the utilities, waste management and other external infrastructure and services needed to support healthy community function.

Rainwater Management

Rainwater runoff in the Lower Lynn Town Centre currently discharges into Lynn Creek and Burrard Inlet. Redevelopment in this area is expected to provide rainwater management measures to improve watershed health, maintain groundwater flows, enhance the efficiency of the drainage system, and reduce the level of contaminants entering Lynn Creek and Burrard Inlet.

Policies:
1. Complete and implement an integrated stormwater management plan for the Lynn Creek watershed.
2. Address stormwater issues in a manner that is consistent with the District’s Development Servicing Bylaw No. 7388 and the Lower Lynn Town Centre Design Guidelines, as amended from time to time.
3. Encourage measures to infiltrate rainwater onsite, where appropriate, and manage impervious areas to remove excess water from the drainage system, to reduce runoff volumes, to improve water quality and to recharge groundwater.
4. Consider opportunities for innovative and site specific rainwater best management practices that may include, but is not limited to rain gardens, green roofs, biofiltration swales, and permeable paving to protect watershed health and to respond to the site context.
5. Require geotechnical and groundwater investigations with redevelopment, as needed, to assess onsite soil and water table conditions.
6. Facilitate the protection and maintenance of groundwater levels, as needed, to manage the amount of perimeter drainage and groundwater that is pumped into the storm drainage system.
7. Design new and replacement drainage infrastructure, including biological treatments, for long-term durability and effectiveness in promoting watershed health.
8. Consider rainwater as a resource to enliven the urban experience and enhance biodiversity. Design rainwater facilities to be aesthetically pleasing and to integrate multi-use objectives.
9. Encourage, where appropriate, the application of green roof treatments on mixed-use building podiums to improve stormwater management and to enhance views from above.
Waste Management

Waste management measures in the Lower Lynn Town Centre aim to encourage composting, recycling and organic waste collection to reduce the amount of waste being diverted into offsite landfills.

Policies:
1. Provide appropriate facilities to accommodate safe, efficient, and environmentally-responsible collection of waste and recyclable materials from all land uses and activities on the site.
2. Refer to Metro Vancouver’s Technical Specifications for Recycling Amenities in Multi-family and Commercial Developments or any successor documents for regional waste and recycling facility standards.
3. Facilitate the provision of composting, recycling and organic waste collection facilities in new multi-family housing developments and at strategic locations in the Town Centre.
4. Encourage design of waste disposal and recycling container storage areas, including temporary surface storage areas, to enable efficient collection and to improve aesthetics.
5. Encourage site planning for underground solid waste facilities in close proximity to garage access ramps.

Water and Sanitary Sewer

As the Town Centre is built out, municipal infrastructure, including water and sewer systems, will be upgraded to accommodate new loads associated with redevelopment. Policies in this section outline key directions for improvements and strategies to enable timely and coordinated infrastructure upgrades.

Policies:
1. Direct appropriate and feasible upgrades to the sanitary and water systems in response to anticipated population growth as indicated in Figures 17 and 18 as updated from time to time based on new modelling information.
2. In accordance with the District’s Green Building strategy encourage water conservation measures for new developments, including low flow fixtures, the use of native vegetation and drought tolerant species, and potential reuse of grey water as an alternative to non-potable water use, such as irrigation.
3. Encourage the installation of water meters for new development, ideally at the property line, with consideration for isolation of residential versus business water use.
4. Promote the use of fire-resistive building design.

External Utilities

External utilities include fiber-optic, hydro, telephone, district energy, natural gas, and cable. Significant coordination will be required to allow adequate servicing from all outside agencies to occur at the appropriate levels and at the appropriate times. Mountain Highway and Main Street corridors are busy transportation routes that should have limited interruption to accommodate utility maintenance requirements.

Policies:
1. Work with utility agencies to ensure that service capacity is adequate to accommodate anticipated growth in the Town Centre.
2. Coordinate utility upgrades to minimize impacts to traffic and surrounding neighbourhoods.
3. Plan for the relocation of existing overhead utilities underground through redevelopment of the Town Centre.
4. Encourage new developments to integrate structural design measures for fibre-optic infrastructure to support economic development and to improve future information technology capacities and choices for residents and businesses.
Figure 17. Water main upgrade concept for Lower Lynn Town Centre to 2030. Subject to change.
Figure 18. Sanitary sewer upgrade concept for Lower Lynn Town Centre to 2030. Subject to change.
I. Development Permit Areas in Lower Lynn Town Centre

In accordance with the Local Government Act, the District uses Development Permit Areas (DPA) and associated guidelines to manage development applications to address special conditions including:

- protection from natural hazards,
- protection of the natural environment and streamside areas,
- to encourage energy, water conservation and greenhouse gas reduction,
- establishment of quality urban design and character.

Development applicants should refer to Schedule B of the Official Community Plan (OCP) for the complete set of Development Permit Area policies.

The Lower Lynn Town Centre as indicated in Figure 19 is recognized as a DPA that is subject to the Lower Lynn Town Centre Design Guidelines. Other applicable OCP policies, design guidelines and schedules may also apply to this area.

Policies:
1. Recognizing that the Lower Lynn Town Centre may be considered the eastern gateway to the District of North Vancouver and to promote quality architectural and streetscape urban design, designate lands within the Town Centre (shown in Figure 19) as a Lower Lynn Town Centre Form Character and Streetscape Development Permit Area.
2. Within this designated DPA area, require where appropriate, that a Form and Character Development Permit be obtained prior to any applicable development.
J. Recommendations for Implementation

The following items are recommended for consideration in the implementation of the Lower Lynn Town Centre Plan.

1. Manage redevelopment and change in such a manner as to realize community benefits, consider market absorption rates, and coordinate utility upgrades to minimize disruption to the community.

2. Work with developers to reduce the impacts of construction on the community through improved construction management and traffic control plans.

3. Recognizing that redevelopment of the surrounding residential areas will evolve incrementally, over time, ensure that redevelopment considers edge conditions and provides appropriate transitions.

4. Examine the potential for future land uses in the area west of Mountain Highway and north of East Keith Road (as identified in Figure 6) once detailed design plans for the reconfiguration of the Highway Interchange are available.

5. Undertake an integrated Lower Lynn Town Centre parks planning and design study to identify measures for the redesign and enhancement of Seylynn and Bridgman Parks.

6. Undertake a collaborative community/recreational facility need assessment with the North Vancouver Recreation Commission to assess potential demand for coordinated community and recreational services in a new modest scale Lower Lynn Town Centre facility.
K. Monitoring the implementation of this Plan towards a more sustainable Lower Lynn Town Centre

While this Lower Lynn Town Centre Implementation Plan is a long range planning policy document that will guide redevelopment of this area for the next 20 years, it is intended that progress towards the implementation of this Plan is monitored approximately every 3-5 years and that this Plan is updated, as needed, to ensure its effectiveness in delivering the community’s vision for the Town Centre.

Policies:
1. Monitor progress toward the achievement of Lower Lynn Town Centre policies as part of OCP monitoring.
2. Allow for ongoing community participation in implementing and monitoring the achievement of the Lower Lynn Town Centre Implementation Plan objectives, with potential indicators for monitoring including, but not limited to:
   » Housing (diversity, rental, ownership, affordable etc.)
   » Community amenities
   » Number of local jobs
   » Demographic mix
   » Community health and well-being, active living
   » Crime rates, number of motor vehicle accidents
   » Reduction in vehicle miles travelled
   » Mode share splits
   » Greenhouse gas emissions
   » Number of units connected to district energy heating system
   » Amount of waste/recycling diverted from landfill
   » Park space
   » Watershed health improvements
   » Urban forest canopy
## Credits:

These design guidelines have been developed by the District of North Vancouver in collaboration with the consultant team of PFS Studio and Taylor Kurtz Architecture and Design, as informed and refined by community and stakeholder feedback.
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INTRODUCTION
Introduction

Centrally located at the Second Narrows bridgehead, bordering the Lynn Creek parks and trails system, and close to Phibbs Exchange, the Lynn Creek Town Centre (formerly referred to as Lower Lynn Town Centre) has excellent access to parks and community amenities, transit, jobs and the commercial/retail uses along Main Street. Over time, revitalization of this important urban centre will be guided by the community vision as outlined in the Official Community Plan and the Lower Lynn Town Centre Implementation Plan:

"Lower Lynn will be a transit-oriented mixed use community comprised of a wide range of housing types for people in all stages of life, all incomes, with accessible places of work and convenient shopping, amenities and civic uses and services. Over time, Lower Lynn will become an outstanding model of urban living in harmony with the North Shore’s natural environment”.

These Lynn Creek Town Centre Design Guidelines recognize the value of this centre as a gateway to the District and as a model for sustainable urban living. They strive to create a distinct identity and sense of place through unified design themes that support the community vision. The design guidelines celebrate the connection to, and urban interface with the natural environment, the industrial and port land areas, alternative transportation systems, outdoor recreation and the parks and trails network.

Please note that the “Lynn Creek Town Centre” LCTC was formerly referred to as the “Lower Lynn Town Centre” LLTC.
**Consultation to inform the Guidelines**

The Lynn Creek Town Centre Design Guidelines has been informed by the community and stakeholder input involving a series of engagement events with local residents, business operators, members of the general public, the Advisory Committee on Disability Issues (ACDI), Vancouver Coastal Health, the Advisory Design Panel, as well as development and consulting teams.

People living and working in Lynn Creek value its natural setting of mountains, forest, and the river and the outdoor recreation activities that can be pursued in the area. The industries, both past and present, that have shaped the economy and provide workplaces are seen as important elements of the local character.

As informed by community feedback, the guidelines seek to protect and enhance the strong relationship to the Town Centre’s natural surroundings and wide range of outdoor activities, industrial heritage and continuing mix of workplaces, local shopping, and residential uses of varying forms and densities.

The guidelines also seek to encourage an attractive, engaging and walkable pedestrian environment with well-designed public spaces to encourage social interaction.

**Purpose of the Guidelines**

These Design Guidelines provide a design framework for the plazas, open spaces, parks, greenways, streetscapes and buildings within the Lynn Creek Town Centre; and are intended to guide property owners, developers, design consultants, District staff and Council towards the achievement of the community vision for Lynn Creek.

While these design guidelines seek to create a consistent look and feel for the centre; they also enable flexibility, creativity and innovation as the centre develops and grows over time. New development in Lynn Creek Town Centre is encouraged to respond creatively to the context envisioned in the Implementation Plan, while at the same time working towards a cohesive identity and character.

These Design Guidelines are applicable to the Lower Lynn Town Centre as identified in the District’s Official Community Plan (2011) and the Lower Lynn Town Centre Implementation Plan (2013). The majority of the design elements apply to the higher density, mixed use core (see map) and the surrounding medium density multi-family residential areas located largely on the east side of Mountain Highway.
Policy Context

The policy context for the Lynn Creek Town Centre is established in the District’s Official Community Plan and the Lower Lynn Town Centre Implementation Plan. Schedule B of the OCP outlines design principles and objectives to guide the form and character of all development throughout the District regardless of location. The Lynn Creek Public Realm Guidelines supplement Schedule B with additional, more detailed design direction for the public realm spaces, streetscapes and built form within the Town Centre.

Other key policies, plans and strategies that are also applicable include:

- Zoning Bylaw,
- Development Services Bylaw and other supplementary municipal standards,
- Lower Lynn Transportation Strategy,
- Lower Lynn/Lynn Creek Flood Management Strategy, and
- Parks and Open Space Strategic Plan
- Accessible Design Guidelines
- Seylynn & Bridgman Parks Conceptual Masterplan 2015

Town Centre Concept Plan
(From the LLTC Implementation Plan)
How to use this Document

This document is intended to be used in conjunction with the OCP Schedule B, the Lower Lynn Town Centre Implementation Plan, and other applicable municipal policies and regulations. They also supplement the OCP Form and Character design guidelines by providing greater detail to inform the specific identity and character for this Town Centre.

The Lynn Creek Town Centre Design Guidelines are based on the land use concept plan as outlined in the Lower Lynn Town Centre Implementation Plan. Importantly, this document is to be used to guide the design of public spaces and to inform the sense of place. The design guidelines enable flexibility to respond to design objectives. Additionally, design direction may be provided during the development application review process.

This guiding document is not intended to be prescriptive nor exhaustive, but rather illustrates the anticipated key design objectives for this centre. Cross sections, plans and details included within these guidelines are intended to inform further detailed design, but are not to be used as an engineering document.

Sample Images of existing context
Key Character Areas

These guidelines are intended to coordinate design of the public realm to achieve a character and sense of place that expresses the area’s history and evolution, its natural setting along Lynn Creek, and intentions for its emergence as a Town Centre within the District of North Vancouver.

The Lynn Creek Town Centre can be divided into four distinct character areas:

- Town Centre Core
- Residential Neighbourhood
- Industrial and Commercial Areas
- Seylynn & Bridgman Parks

Together these four areas are complemented by a series of critical public spaces, multi-modal connections and are closely tied to the transit hub at the south east corner of the Town Centre.

Town Centre Core

- The Town Centre core is focused around the intersection of Mountain Highway and Hunter Street.
- This area will be the focus of higher density mixed-use development, including high rise buildings, achieved through redevelopment of larger parcels around Mountain Highway and
Hunter Street and fronting Seylynn Park.

- The Town Centre core is envisioned as the heart of the community. This will include key elements for the public realm including a community centre and the central plaza. The focus in this area will be to create a lively, pedestrian oriented shopping area that supports businesses, community needs and establishes an iconic central plaza.

- Streetscapes and building guidelines seek to completely revitalize the public realm to achieve a strong pedestrian environment with wide sidewalks, street trees, weather protection, site furnishings, public art, and interesting, engaging building edges.

- Existing streetscapes will be redeveloped in step with new high density development in order to achieve an urban and high amenity public realm designed to promote pedestrian activity and comfort and to support transit use.

- Open space in the Town Centre core focuses on a combination of Seylynn Park, a green community park with a variety of recreational and environmental amenities, and a new urban plaza and interconnecting mews, a place edged by buildings with daily and special event programming. The detailed design and programming response in these two complementary spaces should be integrated to offer Lynn Creek a wide and varied mix of public realm amenities.

Residential Neighbourhood

The Residential Neighbourhood Area constitutes the medium to low density, predominantly residential redevelopment area, generally east of Mountain Highway, this area will be designed to support incremental redevelopment around a north-south pedestrian spine on axis with Marie Place, with vehicular access to development provided from adjacent low volume streets. The Residential Area is anticipated to redevelop through assemblies of several adjacent properties.

To facilitate redevelopment of partial block parcels and avoid awkward transitions where current uses lag in their redevelopment, existing sidewalk and curb locations are retained for many residential streetscapes. These streets typically have low levels of traffic so there is less need to buffer pedestrians from traffic by an intervening boulevard strip as is specified for the Town Centre core.

The key public realm amenities in the Residential Area are two small neighbourhood parks linked by a pedestrian green spine. This route will offer an alternative north-south connection central to the Residential Area. One park will expand the size of Marie Place Park and the other will be newly created through redevelopment along the spine in the area between Bond and Rupert Streets.

The pedestrian spine will benefit from opportunities for visual access into adjacent semi-private open spaces with the blocks through which it passes. Guidelines ensure that the pedestrian spine is built at the elevation of the adjacent sidewalks as it crosses each block to protect universal access and to maintain open sight-lines, safety, and security.

Light Industrial/Commercial Area

The Industrial and Commercial area is located to the west of Mountain Highway and to the South of Main Street.

These lands are anticipated to undergo a slower process of
renewal over time, applying a design context that integrates with the overall character of Lynn Creek Town Centre while protecting the industrial function.

The streetscapes within the Industrial and Commercial Area are anticipated to have minor changes given the stability of the land uses in this section of the Town Centre. Where redevelopment occurs, it is more likely to be infill on one or more parcels than a full block assembly; sidewalk and underground utility corridors are therefore expected to remain generally in their current locations. This approach aims to encourage retention of existing mature trees and other landscape features that exist on a number of properties in this area, generally on private property.

Commercial and mixed-use redevelopment fronting on Main Street will be encouraged to respond to the pattern of recent new projects and contribute to the emerging urban character of Main Street, including animated storefronts at grade and weather protection for pedestrians.

The interface with the Phibbs Transit Exchange and frequent transit services along Mountain Highway and Oxford Street will be supported and enhanced by adjacent redevelopment and streetscape improvements.

**Seylynn and Bridgman Parks**

Seylynn and Bridgman Parks as well as future Spirit Trail connections through the park will continue to play a critical role in the Town Centre, offering active and passive space for the community. This natural asset is closely tied to river, walking trails and further connections throughout the Lynn Creek system including the Sea to Sky link to the Inter-River community. The proximity of these parks to the Town Centre establishes a natural connection between urban form, open spaces and the Lynn Creek system.
Building on the community vision for the Lynn Creek Town Centre the following key ideas and inspirations for the emerging centre were derived through a multi-stakeholder Town Centre “branding” session. In Brief, future residents will experience the Lynn Creek Town Centre as a place that:

- Connects neighbourhoods to Lynn Creek and other key destinations overcoming existing barriers with pedestrian crossings and bridges.
- Is a contemporary complete community – work places, amenities, shops, key destinations and transit within walking distance from homes.
- Promotes active living – moving people out of cars (reducing need for cars) and embracing active living including walking and cycling.
- Promotes social interaction and neighbourliness – social gathering spaces and community amenities and facilities become the “outdoor living rooms” for people to meet and get to know their neighbours.
- Embraces local business – small businesses as key to the local economy + playing an important role in energizing, animating, infusing new ideas & building excitement in this area.
- Celebrates eclectic, random, funky, organic and somewhat unruly nature of current and future development – different architectural forms, scales of development, lot sizes, types of uses etc.
- Encourages innovation and includes choices for smaller fine grain lot patterns and affordable spaces for families and workers.
- Provides flexibility and choice – flexible spaces that can be adapted to residential and business needs, flexible to provide innovation, opportunity and experimentation.
- Encourages seamless integration- Mountain Highway should connect and not “divide” the neighbourhoods and streets.

Concept for Green Spine

Inspiration and Experience
Key Images that capture the experience of Lynn Creek Town Centre

Key words that capture the experience of Lynn Creek Town Centre

LYNN CREEK  OUTDOOR LIVING + SOCIAL SPACES
CRAFT BEER  SMALL LOCAL BUSINESSES  CONNECTED
ECLECTIC, RANDOM, MESSY, ORGANIC  SUSTAINABLE LIVING
SHOPS  WALKING + CYCLING  CHOICES
PUBLIC ART  RESTAURANTS  COOL, FUNKY, CREATIVE, INNOVATION
TRANSIT  COMMUNITY CENTRE
SEYLYNN + BRIDGMAN PARKS  BRIDGES
FARMERS MARKET  TREES MOUNTAINS TRAILS
The inspiration for the Town Centre will be expressed through a number of urban design elements to create a cohesive, distinct identity and character for this area.

Redevelopment of the Lynn Creek Town Centre is to be guided by the following overarching planning and design principles:

- Creative, contemporary, functional design;
- Facilitate well-designed, engaging and functional public spaces and streetscapes;
- Apply an appropriate design response to the climate and geography of the North Shore;
- Celebrate connection to Lynn Creek and incorporate best practices in sustainable design;
- Explore creative ways to celebrate and connect to the industrial lands;
- Enhance the public realm for the enjoyment and safety of pedestrians, cyclists, and transit users;
- Connect the Town Centre through priority pedestrian and cycling networks to support a walkable community;
- Well-connected green network emphasizing the linear north-south pedestrian green spine, pedestrian bridge over the creek, Hunter Street and Phibbs Exchange greenways;
- Embedded use of sustainable best practices for stormwater management, energy efficiency and water conservation;
- Support for full tree growth and an increased tree canopy;
- Use of vibrant colour accents to creative liveliness and a material pallet that complements connection to Lynn Creek, parks, and adjacency to industrial lands;
- Modular stepping both in heights and setbacks from the street to achieve articulated forms and simple geometries;
- Showcase landmark crossroads and gateways through urban design and public art;
- Create opportunities to celebrate public art, music and recreation.
Unifying Design Materials

A range of unifying design elements are intended to be expressed throughout the Town Centre as a means to establish its identity as a distinct and special place.

The materials and colours should reflect the surrounding natural environment while highlighting the unique industrial and commercial uses situated within the town centre. Wood, steel and concrete will form the basis for the material palette with variations in the types and uses of steel as a reflection of creative design processes and the variability of the product.

Some design cues may be influenced by the simplicity and materiality of the industrial context eg. use of Corten steel can be used in key public spaces. This material highlights the intersection of nature and industry with its weathered, changing appearance.

Glass, metal, concrete, rough stone, rock and wood may be used as a highlight material, demarcating softer more pedestrian focused elements such as benches, seating elements and patio spaces.

Colour can be used to highlight focal points or elements of significance within the public realm. Art work may integrate colour and act to draw the attention to significant intersections or junctures.
The Lynn Creek Town Centre borders Lynn Creek which includes an extensive system of trails and open spaces. The existing Seylynn and Bridgman parks are valued community assets providing passive and active open space for residents.

Redevelopment of the Town Centre, will enable an improved and expanded green network to enhance pedestrian movements and to create a hierarchy of open spaces.

Critical to this network is the green spine or pedestrian focused linear park which will run north south the length of the Town Centre.

Along this spine, stormwater management will be evident and integrated into the design. Places to stop, interact and observe will be continuous along the spine.

This green spine will also serve to connect two urban parks: Marie Place Park and a new neighbourhood park to the south. These two parks will offer more urban programmed open spaces, to complement Seylynn and Bridgman parks, establishing a hierarchy that will meet a wide range of needs. Widened, planted sidewalks and multi-modal connections will knit the neighbourhood together from east to west.

The combination of new park spaces and a linear green spine will serve to fully connect the neighbourhood, provide substantial planting, a network of stormwater management opportunities and a parallel pedestrian network.
Priority Multi-Modal Connections

The Lynn Creek Town Centre is a community that has historically been isolated by major roads, highways, railway and by Lynn Creek. Creating a walkable compact community with opportunities for all modes of movement will help to overcome these barriers while still facilitating the industrial nature and heavy vehicle uses. Multi-modal connections will be integrated throughout the Town Centre and will focus on connecting key destinations including:

- Businesses in the Town Centre core and the industrial lands
- New Community Centre
- Phibbs Exchange Transit Hub
- Seylynn & Bridgman Parks + Lynn Creek trails

Transit

Phibbs Exchange offers close proximity to rapid transit with connections across Metro Vancouver. This asset allows for a more pedestrian-focused, transit-oriented town centre.

Walking

A system of greenways, trails and sidewalks will promote pedestrian movements throughout the Town Centre. The “green spine” will form the primary north south connection. This spine will be supported by east-west sidewalk connections and trails. Wide sidewalks will be provided on key streets to try to provide safe and enjoyable walking conditions.

Cycling

The design guidelines propose a hierarchy of cycling facilities ranging from sharrows and conventional bike lanes to grade separated dedicated bike lanes to accommodate the needs of all users. Where feasible, busy routes and routes adjacent to heavy traffic should be physically separated to encourage use and support cyclists of all abilities. Intersection design incorporated into priority intersections can provide efficient crossing configurations.
The Lynn Creek Town Centre is located at the delta of Lynn Creek forming a low flats where the creek meets the ocean. Rain events are particularly evident here with the swell and crest of the creek and the tidal flux of the ocean. Coarse gravel soils allow for stormwater infiltration into the delta and the management of rainwater offers an opportunity to respect the delta environment while improving the quality of runoff from urban environments.

Redevelopment of the Town Centre presents an opportunity to provide functional stormwater management practices to ensure development is respectful and responsive to its environment. Taking cues from natural systems and incorporating green infrastructure and Best Management Practices, stormwater networks will provide a dual function within the Town Centre. They will create an aesthetic legibility of water, of the vulnerability of the natural systems and the connection to the delta. They will also provide a functional way to clean, filter and improve the quality of runoff from the urban environment and recharge the aquifer and relieve pressure from existing drainage infrastructure. Ideal soil conditions will make infiltration a practical solution to be pursued whenever possible.

Rain-gardens may be integrated along urban and residential streets, filtering stormwater and infiltrating water into the delta soils. Linear trench drains and other conveyance systems will act to move stormwater through the expanded green network and green infrastructure will be utilized whenever possible.

Potential for flooding will be an ever present aspect of the Lynn Creek and the delta location. Innovative flood management solutions must be considered with each new development. Raised floor levels will achieve one component of flood protection, but innovation should be encouraged to identify additional solutions and opportunities.
Healthy Tree Growth and Canopy

A healthy urban tree canopy provides numerous benefits including:

- Evapotranspiration and cooling
- Visual screening and sound attenuation
- Delineation of spaces
- Colour and seasonal variation
- Sense of tranquility and connection to nature
- Improvements to air quality

Urban trees and increased canopy will also knit together the Town Centre creating green corridors linking the urban areas to the creek and the park systems.

To ensure that trees are able to grow to full maturity, increasing soil volumes and reducing soil compaction is important. These design guidelines propose a new system of sidewalk installation and linear tree trenches that increase soil volumes and reduces soil compaction to enable trees to grow to full maturity. Increased soil volumes also facilitate stormwater management and rainwater capture.

Tree grates are to be used in high traffic areas to ensure protection of root systems. Tree grates and tree grate extensions will maximize the area created where rain can reach tree roots directly from the surface. Long and, where possible, continuous, linked tree grates are recommended to maximize water infiltration and oxygenation of tree roots.

Residential areas, where pedestrian traffic is lower, open tree planting with native grasses and understory planting should be used. The tree planting areas should be planted with soft landscape of low shrubs, perennials, and groundcovers rather than tree grates for increased soil volumes and better rainwater access as well as aesthetic benefits of increased green landscaping.
3 PARKS, PLAZAS & OPEN SPACE
General Open Space Guidelines

The proposed open space network for Lynn Creek Town Centre is a series of parks, urban plazas, and natural areas that together provide a range of passive and active recreational opportunities, outdoor experiences, and other amenities connected by trails, multi-use paths, and greenways for the enjoyment of residents, employees, and visitors. Connections between spaces and features for wayfinding and crossing of intervening streets are key design elements of the network.

Design guidelines for these public realm areas are intended to guide redevelopment and redesign to reflect and reinforce the emerging identity and character for the Lynn Creek Town Centre, to strengthen wayfinding, to promote accessibility, and to enhance pedestrian safety.

1. Park Plaza
2. Town Centre Plaza
3. Interconnecting Mews
4. Green Spine
5. Potential Orwell Pedestrian Zone
6. Marie Place Park
7. Neighbourhood Park

Pedestrian & Cycling Connections
Future Trail Greenway Connections
Urban Plazas & Generous Sidewalks
Pedestrian Green Spine
Neighbourhood Parks

Exact boundaries of the proposed new neighbourhood park to be determined through property assembly and development application process.
Town Centre Plaza and Interconnecting Mews

The Town Centre plaza on the east side of Mountain Highway is intended to be a focus of both daily use for sitting, outdoor seating, and people watching as well as a programmable space that can host community events. It will be designed to accommodate a wide variety of users, and promote accessibility and inclusivity. Design principles for the plaza are as follows:

- Promote direct engagement from retail and restaurant uses at its north and south edges
- Ensure direct at-grade access to the plaza and to retail fronting the plaza to promote accessibility for all users
- Plan circulation routes to allow the areas adjacent to buildings to be used for outdoor seating and displays of merchandise without compromising movement of pedestrians
- Incorporate ample seating with variety in groupings, ways to sit, and choice between sun and shade
- Encourage paving patterns and areas of special paving materials coordinated with the design intent and movement patterns
- Integrate into the design of the plaza visible features that collect stormwater from paved surfaces
- Provide services to support special events and use by food trucks including electrical outlets, water, recycling bins, furnishings to support temporary equipment like speakers or lighting, adaptable and programmable lighting, etc.
- Include public art, both as free-standing installations curated through the District’s public art program and as integrated pieces or as part of stormwater features
- Enhance connectivity though the inclusion of interconnecting mid-block pedestrian mews with appropriate landscaping and lighting
Guidelines for the Central Plaza include:

- Lighting standards (see appendix) should be selected from the approved chart of lighting fixtures, but can include unique lighting elements further integrated into the design.

- Paving should integrate with the approved paving pattern for sidewalks along streets. Feature areas with other paving surfaces may be incorporated through the design process in consultation with District staff.

- Stormwater management features should be incorporated into the plaza design including both rain garden areas and recessed trenches with cast iron grates over them to capture water from public areas.

- Numerous seating opportunities should be integrated into the design including seating for groups. Movable seating and tables are encouraged within the plaza.

- Trees should be part of the overall design concept and strategically located to provide shade, and to soften the urban context.

- Public art should be integrated into the public plaza design.
Marie Place Neighbourhood Park

Marie Place Park is currently a neighbourhood pocket park with a children’s playground. The Implementation Plan envisions expanding the size of this park and enhancing facilities suited to its role as a locally serving neighbourhood park.

Marie Place park can become an enhanced neighbourhood park that transitions from the hard-surface urban and pedestrian mews to the adjacent residential community. A mix of hard and soft surfaces will extend the durability of the space and accommodate a variety of activities.

New park amenities should be sited in relation to an unobstructed movement route through the park that respects the flow of pedestrians between the Town Centre Plaza and the north-south pedestrian spine that has its north end within Marie Place Park.

The park design should consider opportunities for expanded children’s play, gathering and seating areas, and public art. These elements should be integrated within the design rather than stand alone elements.
Mid-Block Pedestrian Spine and New Local Neighbourhood Park

The pedestrian green "spine" will run north south from Fern Street to Oxford Street and will be a significant new linear park in the Lynn Creek Town Centre. This aligned pathway will be more than simply a pedestrian trail. It is envisioned as a continuous park providing connectivity with seating, and opportunities for play with stormwater elements integrated along its length.

A new neighbourhood park created along the spine and between Rupert and Bond Streets, will provide a more substantive area for play and act as a node along this linear park.

In order to achieve the desired connectivity, sightlines and openness for this pedestrian spine, the design of each surrounding block of residential development should be guided by the following:

- The entire length of the pedestrian spine should be accessible and delivered at the same grade as connecting sidewalks.
- The spine should result in a direct connection on axis with Marie Place.
- The paving, lighting fixtures, and wayfinding elements of the path should be consistent along the entire length of the spine.
• The spine should be no less than 14m in width, comprised of 10m dedicated green spine and 4m landscaped setback and should also include a minimum 4m continuous unobstructed pedestrian path.

• Surface stormwater features should be incorporated to collect rainwater from paved surfaces on District land and should create a continuous expression of water movement along the spine.

• Spaces for sitting, watching, and relaxing should be positioned along the spine to create areas to stop, rest or gather within each block.

• Where the spine crosses east-west streets, the crossing should be marked by a planting bulge incorporating stormwater raingardens in place of on-street parking.
Seylynn & Bridgman Parks

The Seylynn and Bridgman Parks Conceptual Park Master Plan (April 2015) will guide the revitalization of Seylynn and Bridgman Parks by recommending improvements to the natural environment and park amenities to support existing and future recreation activities. This plan should be referenced for the design of Seylynn and Bridgman Parks. Key design objectives from this plan include:

- Provide innovative design features and elements inspired by the dynamic interface between the spectacular natural landscapes and the vibrant urban environment.
- Increase access and connectivity within, between and to the parks, with consideration for active transportation, universal design, parking, and service access.
- Improve opportunities for recreation, play, art, cultural events, and gathering.
- Improve safety and security.
- Increase opportunities for nature appreciation, interpretation, education and stewardship.
- Provide the opportunity to enjoy Lynn Creek while protecting sensitive ecosystem values.
- Provide opportunities for dog use that respect the ecological sensitivity.
- Protect and enhance creek, riparian, and forest habitats.

Environmental Management

- Rainwater management features should be installed where necessary to minimise stormwater flows in sensitive areas.

Recreation Amenities

- A new hierarchy of connecting paths including a Spirit Trail connection should be built in the parks, including the upgrading and resurfacing of existing paths.
- Open grass areas should be provided for informal gatherings and unprogrammed uses.
- An event space should be provided in Seylynn Park to accommodate community gatherings, which will include an open plaza with event structure.
- A field suitable for diverse activities, including sports, special events and informal play will be provided in Seylynn Park

Urban Interface

- The transition from natural park to urban centre should be accomplished through tree-lined promenades along Hunter Street and Mountain Highway.
- An entrance plaza to Seylynn Park should act as a gateway from the urban centre.
Semi Private Open Spaces

The three blocks between Crown and Oxford Streets are planned for multi-family housing and will be also structured by the north-south green spine. Access to underground parking in these blocks should be provided directly from adjacent low-traffic local streets (Crown, Rupert, Bond, and Orwell Streets) in order to protect opportunities for both public movement and open space along the north-south spine and for pedestrian-only semi-private open space courtyards for surrounding residents.

The design of semi private courtyards should integrate the themes and material treatments of the overall public realm. Consistency in material, planting, lighting and form will ensure a cohesive residential area. Subtle visual cues to users of adjacent public paces should indicate that semi private courtyards are not fully intended for public use.

Design elements to achieve this distinction may include: a change in elevation above the adjacent spine with ramps and stairs, low walls and landscaping.

Semi-private courtyards should be designed for the use and enjoyment of residents with amenities for children’s play, social gathering and seating. Urban gardening opportunities should also be included where possible.

For ground oriented units, a minimum 9 square metres per unit should be provided. These may take the form of patios, balconies, or rooftop decks and gardens.

Typical block in Residential Area with pedestrian Green Spine and semi-private courtyards
Street Network

This section describes the character of the key centre streets including:

1. Mountain Highway
2. “High Street”
3. Hunter Street
4. Crown Street
5. Orwell Street
6. Residential Streets
7. Industrial Streets
8. Laneways

Each street type offers unique elements relating to traffic volumes, adjacent building use and natural features. Consistent elements including stormwater management features and tree planting will be incorporated throughout. All streets are subject to engineering and design.

Detailed plans for Main St. and Keith Rd. are excluded due to the variability of street type or active redevelopment associated with ongoing design processes.

The locations of new roads and lanes are approximate and may be adjusted during the municipal development application review process depending on timing of development, land assemblies and other factors.

Hierarchy of Streets

* Phibbs Exchange and adjacent connections are under review as part of the Ongoing Phibbs Exchange Design
Cycling Network

Establishing a hierarchy of bike connections through Lynn Creek will facilitate internal circulation, provide a range of commuting routes and promote the use of cycling infrastructure by a variety of different users. Bike lane configurations should be suited to the context, road configuration, availability of land and safety objectives.

Pedestrian and Cycling Route, including greenways are to be off-road shared environments between cyclists and pedestrians with ample space to accommodate mixing of all user types.

Bike Routes are signed connections or may include sharrow road marking that indicate a shared lane environment for cyclists and automobiles and are located on low-volume roads.

On-Street Bike Lanes offer greater separation of modes with the delineation of spaces with painted lines primarily located on higher volume roads.

Separated Bike Lanes offer safety improvements by physically separating cyclists from automobile traffic. The use of concrete medians and signage can be used to improve safety along higher volume roads and make cycling lanes viable for users of varying ability.

Other unmarked roads are acceptable for bike movements but will not include signage or markings.

Bike Network

Bike facilities are subject to change through the development process and are anticipated to be achieved over time as opportunities arise.
**Mountain Highway - High Street**

**Major Road Network**

The blocks of Mountain Highway between Fern Street and Crown Street are the heart of the Town Centre core. The core will include active street-fronting retail activity on both sides of the block and will form the “High Street” of LCTC intent. The streetscape will be characterized by large street trees on both sides as well as street trees in the median for a portion of the High Street. This will provide a buffer from vehicular traffic and a fuller, more continuous tree canopy.

A wider sidewalk is necessary to accommodate higher volumes of pedestrians accessing the commercial opportunities along the “High Street”. Sidewalks should be a minimum of 3.0m (inclusive of tree grate), with a minimum 2.5m setback to building face to provide ample seating and opportunities for movement. This setback should be consistent in material treatment with the sidewalk to create a uniform surface from curb to building face.

To reflect the industrial aesthetic of the adjacent land uses and to provide as much usable pedestrian space as possible, cast metal tree grates should be used along the High Street in place of planted boulevards. This low maintenance solution will facilitate pedestrian access along the length of the High Street. Tree grate openings should be 1.5m square, though extensions are recommended to offer street trees access to rainwater. Where several street trees are located in a row that is uninterrupted by other streetscape features, then the tree grates can be connected into a continuous area of tree grate.

Separated bike lanes should be included the length of Mountain Highway at grade with the sidewalk, buffered from traffic and parked cars by a wide median. This will accommodate the arrival of cyclists to the retail heart of the community. Trees, street furnishing, and lighting will be located between the bike lanes and the sidewalk and act as a buffer between modes.

All storefronts along the High Street should be at grade with the sidewalk to provide universal accessibility, an active street wall and a positive relationship between shops and cafes and the sidewalk environment. Continuous weather protection should be provided over the sidewalk adjacent to the building edge.

To address flood concerns businesses will be required to provide flood-proofing methods outlined in Section 8 - Flood Resilience.

This section of Mountain Highway may have vehicular parking on both sides to ensure access to retail and pick-up / drop-off opportunities. Transit stops will also be provided at key locations to serve the retail heart.
Proposed High Street Section of Mountain Highway

* Trees may be located in centre median where sufficient width is provided for maintenance vehicle access
Mountain Highway - Crown Street to Main Street

Major Road Network

South of Crown Street, Mountain Highway will be fronted by new medium-density residential development on its east side. The existing industrial / service / commercial uses are expected to remain on the west side for the foreseeable future. All redevelopment on Mountain Highway should be upgraded to reflect the same character and materials of the High Street. Mountain Highway will have wider sidewalks and a full tree canopy to highlight it as a significant North-South connection for vehicles, cyclists and pedestrians. The use of continuous soil trenches will allow for full tree growth contributing to the vision for this to be an iconic street.

A minimum clear 2.0m sidewalk will allow for pedestrian movement. Trees should be integrated into tree grates or boulevard plantings of 1.5m minimum width. A more substantial vegetated setback will be provided between public and private space.

Continuous building frontages on Mountain Highway are encouraged and buildings should properly address the street with units facing mountain highway to provide eyes on the street and a positive relationship with the public realm. In instances where North-South consolidations are not possible, setbacks between buildings should be reduced by off-setting corner units. This will reduce the visual gaps along the street wall.

All access to underground parking should be from lanes or flanking streets to avoid vehicles crossing the sidewalks on Mountain Highway.

A continuous full canopy of street trees will be a critical element of Mountain Highway. Trees should be integrated into tree grates where pedestrian traffic is high, but can include boulevard, understory planting where appropriate. Raingardens should be accommodated at all corner bulges and wherever functional opportunities arise and space is available.

Bike lanes will be grade separated and protected from traffic by a wide median. Where space is constrained at bus stops, curb let downs and painted markings will accommodate through bike connections. If space permits, grade separated bike lanes should be accommodated behind bus stops.

Redevelopment of Mountain highway will require a phased strategy to implement the ultimate design.
Proposed Mountain Highway Section South of Crown Street
Crown Street
Multi-Use Facility

Crown Street will become an important east-west route for pedestrians and cyclists once the proposed pedestrian / cycle bridge over Lynn Creek and pedestrian overpass across Highway 1 are constructed. Crown Street is a preferred priority bike route. To meet the needs of this important pedestrian and cycling connection the street configurations will provide additional space for grade separated bike lanes in both directions.

East of Mountain Highway a wide median should be provided as a buffer from travel lanes and parking, and street trees, lighting and furnishing will act as a buffer between pedestrians and cyclists. East of Mountain Highway, Crown Street terminates at Orwell Street and will have lower traffic volumes.

Street trees should be integrated along the length of Crown Street providing a full canopy and residential scale to the street. Raingardens should be integrated at all curb bulges and where space is suitable.

Planted setbacks should be provided between the back of sidewalk and private residential space. Grade changes should be integrated into this planted buffer.

West of Mountain Highway, Crown Street serves traffic traveling to and from a variety of shopping and workplace destinations. This area is anticipated to develop at a slower rate and a consistent street treatment should be implemented over time. Interim options for better pedestrian and cycling connections should be explored when possible, and may include painted bike lanes, or temporary barriers if necessary. Limiting the number of access points through the redevelopment process should be an important consideration to improve pedestrian and cycling environments.
Proposed Crown Street - East of Mountain Highway
**Hunter Street**

**Neighbourhood Street**

Hunter Street forms an important east-west connection, connecting residents from the Town Centre core to Seylynn + Bridgman Parks, the proposed new community centre and Lynn Creek. This street will be similar in configuration to other residential streets. However it will transition from tree grates and wider sidewalks at the heart to boulevard understory planting in more residential areas to the east. This transition will move from hardscape to soft and reflect the intensity of pedestrian use moving away from the heart of the community.

To the west of Mountain Highway, Hunter Street will accommodate mixed use development on the south side, and provide parking for Seylynn Park to the north side. This segment of the street will be significantly traffic calmed and serve local access only. Parking along the north edge should serve the needs of park users.

A multi-use trail will run along the south edge of the park from the future Hunter Street pedestrian bridge to Mountain Highway as identified in the Seylynn Bridgman Park Master Plan.

East of Mountain Highway to the service lane, Hunter Street should provide ample pedestrian space, and a transition from retail / commercial towards a more residential function, but which could also accommodate street festivals and community farmers markets. Street trees will be a consistent element along the length of the street providing a significant canopy and buffer between residents and street traffic.

East of the commercial serving lane Hunter Street will be residential in nature and should include raingardens in corner bulges, or in other areas with sufficient space. Trees can be integrated into boulevard planting to soften the streetscape, or include tree grates in locations with higher volumes of pedestrian traffic or at key crossing points.

The character of this street should be slow and provide a safe condition for cyclists.
Proposed Hunter Street - East of Mountain Highway and the Town Centre Core
Orwell Street

Neighbourhood Street

Orwell Street is similar in configuration on its west side to other residential streets. However, to accommodate the existing side yard condition along the east side of Orwell Street, a sidewalk will be established flanked by boulevards and street trees on both sides. This double row of trees will create an allée condition and provide a significant north south pedestrian link and buffer existing residents to the east from new development.

On the west side of Orwell Street, new developments should provide a streetscape treatment similar to that of other neighbourhood local streets. Street trees will be integrated into a planted median to provide a soft landscape treatment. Rain gardens should be integrated into corner bulges or other appropriate locations.

Orwell Street is part of the cycling network for LCTC, planned as an on-street cycling route leading to the multi-use pathway on Oxford Street, to Phibbs Exchange and planned future links to the Ironworker Memorial Second Narrows Bridge and Main Street.

Orwell Street will provide a quiet neighbourhood bikeway that will be suitable for cyclists of all ages and abilities. To ensure traffic is slowed, corner bulges should be considered. An unopen road right-of-way may be integrated along a segment of Orwell street to encourage slower vehicular travel and a focus on providing a pedestrian and cycling friendly route. This segment could form a pocket plaza connection and reduce through traffic volumes along the length of the street.

Example of Pocket Plaza creating a break in vehicle travel
EXISTING RESIDENTIAL PROPERTIES

EXISTING FENCE

EXISTING FENCE

Proposed Orwell Street
Oxford Street
Neighbourhood Street

Oxford Street is an important transit connection from Mountain Highway to Phibbs Exchange and accommodates more traffic than the other local east-west streets in Lynn Creek Town Centre. This street is also an important pedestrian and cycling connection, linking the Phibbs transit hub to Mountain Highway. As a result, this street will have increased space allotted to pedestrians and cyclists as well as wider travel lanes if necessary to accommodate vehicles and transit.

The preferred design solution is an asymmetrical streetscape. The south side of the street will have on-street parking and street trees in a boulevard strip. With bus traffic, the street trees and setback to a new sidewalk will provide a buffer for pedestrians. The travel lanes will be widened from the current width of 3.0 meters to more safely accommodate frequent transit services.

On the north side of Oxford Street, the intent is to establish a 4.0 meter wide multi-use pathway serving pedestrian and cyclist travel in both directions and paved in asphalt or concrete.

This will be an important link from the transit exchange towards the Town Centre core. Setbacks should provide substantial planted space to buffer residential development from traffic.

The intersection of Mountain Highway and Oxford Street will include separated pedestrian and cycling movements to ensure increased safety, and efficient connections from the north and south bike lanes on Mountain Highway.

Consideration should be given to activating the ground-levels at the intersection of Orwell and Oxford streets that might serve transit users or cyclists at the south end of the Orwell cycling route.
Proposed Oxford Street
Typical Residential Local Street

The goal of other quieter residential streets is to provide a well canopied streetscape with inviting sidewalks on both sides of the street. Providing a balance of space for pedestrians, cyclists, parking and travel lanes is important and will meet the needs of residents in the area. To meet sustainability goals, rain-gardens can be integrated at corner bulges and understory planting should be included where possible. This will reduce stormwater runoff from hard surfaces and provide a lusher, softer green condition along the length of the street.

Corner and mid-block crossings should be protected by corner bulges to facilitate safer crossing for pedestrians.

Local streets of this character may include Bond Street, Rupert Street and streets in the future study area.

Private spaces should be separated from the sidewalk by a planted buffer, offering some height and feeling of distance between spaces.

Onstreet parking should be accommodated in pockets to facilitate pick up / drop off and short-term parking. Parking pockets may be needed on both or one side of the street, and should reflect the parking needs of the specific location.
RUPERT STREET - LOOKING EAST

WALKWAY CONNECTION

RESIDENTIAL BUILDING FACE

PATIO

FINISHED FLOOR

PATIO
Industrial/commercial streets west of Mountain Highway include both low and high volume local and collector streets. Solutions for each type of street should address specific needs and traffic volumes, but should explore creative solutions for providing active street environments that are safe for all modes of travel. Though these streets are expected to redevelop at a slower rate, improvements can be made to provide interim and long-term safety measures.

Through redevelopment, vehicular access points should be reduced, limiting the number of crossing points along the sidewalks. This will create a safer environment for pedestrians and cyclists with fewer conflict points. Painted lines delineating pedestrian space could be considered where feasible to improve safety.

Pop-up parks which include seating and areas for improved street life is another possible design solution. Existing retail / commercial encouraged to consider innovative improvements along their frontages.

Long-term redevelopment should regularize the street edge and implement permanent sidewalks and street trees.
5 PLANTING
Planting Strategy

The planting strategy for the Lynn Creek Town Centre will be based on a selection of resilient plant species that exemplify seasonal variations in colour. The following plant lists are divided into:

- General Plant List
- General Use and Corner Bulge Planting
- Raingarden Plant List

The progression of plant selection reflects the specificity of planting conditions. Raingarden plants can be used in other conditions, but no other species should be used within a raingarden.

Planting strategies in all locations should focus on providing a mix of colours and seasonal variation. Plants outside of raingardens should be established in large clustered groups of no less than 50. This will create swathes of colour and the ability to feel a progression, particularly in linear conditions. Creating a sequence will be important and significant mass plantings will create a field condition and the sense of immersion for pedestrians. Illumination and up-lighting of plants and trees is encouraged whenever possible to highlight this clustered theme.

Examples of clustered planting and up-lighting

Coneflower
Salal
Hosta various varieties
### General Plant List

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Rudbeckia hirta</em></td>
<td>Black-eyed-susan</td>
</tr>
<tr>
<td><em>Calluna vulgaris</em></td>
<td>Pink Heather</td>
</tr>
<tr>
<td><em>Echinacea purpurea ‘Kim’s Knee High’</em></td>
<td>Kim’s Knee High Dwarf Purple Coneflower</td>
</tr>
<tr>
<td><em>Mahonia nervosa</em></td>
<td>Oregon grape</td>
</tr>
<tr>
<td><em>Spirea douglasii</em></td>
<td>Hardhack</td>
</tr>
<tr>
<td><em>Ribes sanguineum</em></td>
<td>Flowering current</td>
</tr>
<tr>
<td><em>Gaultheria Shallon</em></td>
<td>Salal</td>
</tr>
<tr>
<td><em>Callicarpa profusion</em></td>
<td>Profusion Beautyberry</td>
</tr>
</tbody>
</table>

### General Use and Corner Bulge Planting

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sedum</td>
<td>species variable</td>
</tr>
<tr>
<td><em>Lavandula angustifolia ‘Munstead’</em></td>
<td>Munstead Lavender</td>
</tr>
<tr>
<td><em>Genista pilosa ‘Vancouver Gold’</em></td>
<td>Woodwaxen</td>
</tr>
<tr>
<td><em>Daphne cneorum</em></td>
<td>Rose Dalphne</td>
</tr>
<tr>
<td><em>Erica x darleyensis ‘Kramer’s Rote’</em></td>
<td>Kramer’s Red Heath</td>
</tr>
<tr>
<td><em>Lavandula angustifolia ‘Hidcote’</em></td>
<td>English Lavender</td>
</tr>
<tr>
<td><em>Helianthemum nummularium</em></td>
<td>Sun Rose</td>
</tr>
<tr>
<td><em>Escallonia ‘Newport Dwarf’</em></td>
<td>Dwarf Escallonia</td>
</tr>
<tr>
<td><em>Cistus x corbariensis</em></td>
<td>Rock Rose</td>
</tr>
<tr>
<td><em>Spiraea japonica ‘Walbuma’</em></td>
<td>Magic Carpet Spirea</td>
</tr>
<tr>
<td><em>Nassella tenuissi (formerly Stipa)</em></td>
<td>Mexican Feather Grass</td>
</tr>
<tr>
<td><em>Imperatata cylindrica ‘Rubra’</em></td>
<td>Japanese Blood Grass</td>
</tr>
<tr>
<td><em>Coreopsis verticillata ‘Moonbeam’</em></td>
<td>Coreopsis-Threadleaf</td>
</tr>
</tbody>
</table>

---

*Pink Heather*

*Flowering Currant*

*Profusion Beautyberry*
Raingardens

Raingardens will play both an aesthetic and rainwater management function in the Lynn Creek Town Centre. Raingardens should be integrated along major streets including Mountain Highway, on residential streets in curb bulges and along the length of the green spine.

The plant selection chosen for these raingardens includes species that are hearty, water tolerant and provide variety in form and texture. Bursts of colour through unique grasses and seasonally flowering species will highlight these important sustainable features, and provide interest in the public realm.

Each raingarden should include a mix of species and focus on one theme or colour selection.

The following species have been chosen as they are durable and easily maintained while offering a consistent and unique planting palette.

- **Western Swordfern**
- **Small Fruited Bullrush**
- **Silver Sage**
- **Blue Fescue**
- **Day Lily**
- **Evergreen Huckleberry**
# Raingarden Plant List (non submergible)

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helictorichon sempervirens</td>
<td>Blue Oat Grass</td>
</tr>
<tr>
<td>Hemerocallis var.</td>
<td>Day Lily</td>
</tr>
<tr>
<td>Pennisetum alopecuroides ‘Hamelin’</td>
<td>Hamelin Dwarf Fountain Grass</td>
</tr>
<tr>
<td>Polystichum munitum</td>
<td>Western Swordfern</td>
</tr>
<tr>
<td>Blechnum spicant</td>
<td>Deer Fern</td>
</tr>
<tr>
<td>Arctostaphylos uva-ursi</td>
<td>Kinnikinnick</td>
</tr>
<tr>
<td>Carex obnupta</td>
<td>Slough Sedge</td>
</tr>
<tr>
<td>Carex stipata</td>
<td>Sawbreak Sedge</td>
</tr>
<tr>
<td>Iris douglasiana</td>
<td>Douglas Iris</td>
</tr>
<tr>
<td>Juncus effusus</td>
<td>Common Rush</td>
</tr>
<tr>
<td>Vaccinium ovatum</td>
<td>Evergreen Huckleberry</td>
</tr>
<tr>
<td>Iris missouriensis</td>
<td>Western Blue Iris</td>
</tr>
<tr>
<td>Scirpus microcarpus</td>
<td>Small Fruited Bullrush</td>
</tr>
<tr>
<td>Festuca glauca</td>
<td>Blue Fescue</td>
</tr>
<tr>
<td>Salvia argentea</td>
<td>Silver Sage</td>
</tr>
<tr>
<td>Rubus calcynoides ‘Emerald Carpet’</td>
<td>Emerald Carpet Oriental Raspberry</td>
</tr>
</tbody>
</table>
Trees

Street trees will be a significant feature of all streetscapes in the Town Centre. Street trees will be installed in the zone along the curb, or as a buffer between sidewalk and bike lanes. Where possible, and in areas of less intensive pedestrian traffic, streetscapes will include boulevard strips for trees and understorey planting.

The District of North Vancouver has standards for street tree planting to improve tree health and longevity through the implementation of tree trenches, structural soil under sidewalks, specified growing medium, and other techniques to provide improved access for roots to soil and water. Please refer to the Development Services Bylaw for tree planting standards.

Tree lists have been divided into those species suitable for street trees as well as general trees suitable to park locations. Street trees can also be used in park settings. The selected species should provide variety, seasonal variation and a diversity of colour.

Species for street trees should be selected with reference to existing street trees on the same or adjacent blocks of the street with the intent to integrate new street trees with species already selected and growing on the same streetscape.
### Street Tree Selection

<table>
<thead>
<tr>
<th>Tree Type</th>
<th>Species</th>
<th>Street Trees</th>
<th>Park Trees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fraxinus americana 'Autumn Purple'</td>
<td><em>Fraxinus Americana</em> 'Autumn Purple'</td>
<td>White Ash</td>
<td>White Ash</td>
</tr>
<tr>
<td>Nyssa sylvatica</td>
<td><em>Nyssa sylvatica</em></td>
<td>Black Tupelo</td>
<td>Black Tupelo</td>
</tr>
<tr>
<td>Cercidiphyllum japonicum</td>
<td><em>Cercidiphyllum japonicum</em></td>
<td>Katsura</td>
<td>Katsura</td>
</tr>
<tr>
<td>Crataegus</td>
<td><em>Crataegus</em></td>
<td>Hawthorn</td>
<td>Hawthorn</td>
</tr>
<tr>
<td>Fraxinus pennsylvanica</td>
<td><em>Fraxinus pennsylvanica</em></td>
<td>American / Green Ash</td>
<td>American / Green Ash</td>
</tr>
<tr>
<td>Quercus palustris</td>
<td><em>Quercus palustris</em></td>
<td>Green Pillar Pin Oak</td>
<td>Green Pillar Pin Oak</td>
</tr>
<tr>
<td>Carpinus betulus fastigiata</td>
<td><em>Carpinus betulus fastigiata</em></td>
<td>Hornbeam</td>
<td>Hornbeam</td>
</tr>
</tbody>
</table>

### Park Tree Selection

<table>
<thead>
<tr>
<th>Tree Type</th>
<th>Species</th>
<th>Street Trees</th>
<th>Park Trees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salix babylonica</td>
<td><em>Salix babylonica</em></td>
<td>Willow</td>
<td>Willow</td>
</tr>
<tr>
<td>Quercus bicolor</td>
<td><em>Quercus bicolor</em></td>
<td>Swamp White Oak</td>
<td>Swamp White Oak</td>
</tr>
<tr>
<td>Acer rubrum 'Autumn Flame'</td>
<td><em>Acer rubrum 'Autumn Flame'</em></td>
<td>Red maple 'October Glory'</td>
<td>Red maple 'October Glory'</td>
</tr>
<tr>
<td>Acer rubrum 'October glory'</td>
<td><em>Acer rubrum 'October glory'</em></td>
<td>Chinese magnolia</td>
<td>Chinese magnolia</td>
</tr>
<tr>
<td>Magnolia soulangeana</td>
<td><em>Magnolia soulangeana</em></td>
<td>River Birch</td>
<td>River Birch</td>
</tr>
<tr>
<td>Betula nigra</td>
<td><em>Betula nigra</em></td>
<td>Serbian Spruce</td>
<td>Serbian Spruce</td>
</tr>
<tr>
<td>Picea omorika</td>
<td><em>Picea omorika</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Chinese magnolia \ American / Green Ash \ Hornbeam
Ensuring Longevity and Full Growth of Street Trees

Street tree longevity is directly impacted by four key factors:

1. Provision of adequate soil volumes
2. Ensuring soil remains uncompacted
3. Providing sufficient openings in hard surface
4. Tree spacing that prioritizes long term growth

Refer to the Design Services Bylaw for the District standards required for minimum separation of trees. Along priority corridors including Mountain Highway, larger soil volumes are encouraged to be a minimum of 15 cubic meters per tree with a minimum depth of 1.0m.

Soil volumes that remain uncompacted will be a direct result of the construction methods adopted by the District. Along Mountain Highway and other priority corridors within the Lynn Creek Town Centre, increased soil volumes are encouraged and may be integrated into the street design through continuous soil trenches. This provides infiltration opportunities and the opportunity for larger volumes of soil.

To accommodate for reduced compaction, alternate construction methods are encouraged to be utilized along Mountain Highway. Three primary methods are encouraged through the redevelopment process:

- Cast in place pavement bridge system
- Pre-cast pavement bridge system
- Open planter system

Open planter systems are suitable for areas with lower pedestrian traffic that can accommodate understory planting.

Sidewalk bridge systems allow for easy and efficient maintenance and restoration, while providing a large amount of un-compacted soil. Bridge system construction methods are to be developed in coordination with DNV engineering to meet the needs and requirement of each street type. Creative, cost effective solutions to provide a wide range of benefits for ensuring full tree growth are encouraged.
Tree Spacing

Street tree canopies are a direct result of the soil volumes in which they grow, but also dependant upon the space for which the canopy is provided for full maturity. Often in new developments trees are spaced closely to provide a more dense canopy in the short term. However, densley-spaced trees with less soil volume per tree will have smaller canopies and a shorter lifespan. Wider spacing which anticipates future growth and longevity of the streetscape will yield larger, fuller canopies and more mature tree growth.

Street tree spacing should be based on the needs of the particular species, placement within the street and the type of street.

Larger trees on major streets including Mountain Highway and Crown Street should be spaced 8-9m apart allowing for a fuller canopy and room to grow. Local streets may integrate smaller street tree species planted 5-6m apart. These could include ornamental varieties.
6 PUBLIC ART AND GATEWAYS
Public Art Opportunities

The District of North Vancouver values public art as an important means to help shape local community identity and character. Public art can have an aesthetic and/or functional role and can be expressed in a variety of different forms such as:

- artistic landmarks (gateway features, signage, community facilities, sculptures, murals)
- functional streetscape elements (street furniture, pavement treatment, tree grates, lighting, entranceways, fencing, playground equipment, and more)
- architectural features (bus shelters, canopy features, shelter elements, roof structures, bridges)
- natural environment elements (pathways, playgrounds, landscaping, wayfinding).

Appropriate artistic “themes” for Lynn Creek, based on staff and community input include:

- industrial and contemporary character: steel, rock, bold colours, geometric shapes, wood
- community connections (Lynn Creek to Lynnmour, CNV and Seymour areas)
- celebrating connections to Lynn Creek (history of annual cycle and activities)
- innovation and creative enterprises
- sustainability (district energy, stormwater management, etc.) and recycling of used materials
- outdoor recreation (mountain biking, hiking, fishing, etc.).

Potential locations for major public art installations in the Lynn Creek Town Centre are:

- the public plaza in the Town Centre core
- adjacent to the new community centre
- at the entrance to Seylynn Park
- the southeast corner of Crown Street and Mountain Highway
- colourful banners down along Mountain Highway
- other park areas.

Potential areas for functional art in the Lynn Creek Town Centre area include:

- street furniture, lighting, tree grates, pavement treatment in the Town Centre and especially on the Mountain Highway “High Street” area between Hunter and Crown Streets
- play areas in a redesigned Marie Place Park
- proposed pedestrian and...
cyclist bridge over Lynn Creek
• weather protection elements
• signage and wayfinding elements.

Potential areas for art within the natural environment in the LLTC area include:
• trails enhanced with wayfinding features and signage
• interpretive and/or historical signage describing history of place
• artwork associated with the river featuring salmon and local wildlife, especially at bridges
• artistic yet functional stormwater management water features.

**Gateways**

Gateways will play an important role in establishing the identity of the Lynn Creek Town Centre. Because of the town centre’s unique location bounded by bridges and overpasses at all access points; gateways can establish a sense of arrival, a sequence of focal points and an overall distinct identity.

Critical Gateways include:
• Phibbs Exchange Transit Hub
• Intersection at Orwell and Oxford Streets
• Keith Road Bridge (over Lynn Creek)
• Main Street City / District boundary
• Main Street Highway #1 overpass connection

Pedestrian crossings at:
• Hunter Street crossing Lynn Creek
• Crown Street crossing Lynn Creek
• Crown Street East Highway #1 overpass
• Fern Street Highway #1 overpass connection

These locations may be marked with pedestrian spaces, focal points, public art installations or significant architectural elements.
7 SITE FURNISHINGS & LIGHTING
Common Elements

A number of public realm design elements are intended to be used throughout Lynn Creek Town Centre. Together they will support an urban design character across areas although the core will have a greater concentration of public realm amenities due to its uses and density than surrounding residential, service commercial, and industrial areas.

Each streetscape has a typical cross-section illustrated in the Streets Section of these guidelines. In each streetscape, the public realm has vehicular and pedestrian zones. Within the pedestrian zone or sidewalk area, there is a zone for pedestrian movement that is kept free of any furnishings, trees, or other obstructions and a zone for furnishings where all street furniture, lights, trees, and other streetscape elements are located.

As part of the development process, applicants may propose similar or alternative fixture that may be reviewed and approved by DNV.
Paving Materials

The palette of paving materials is selected for durability and suitability to be installed incrementally over a number of years. Master Municipal Construction Documents and Design Services Bylaw standards apply for sidewalk minimum widths, corners, parking bays, and paving installation.

Paving in the street right-of-way and on adjacent private land where the public has right of passage should be integrated and seamless, to present an appearance of a generous and accessible public realm using the same paving materials and patterning of saw cuts where appropriate. The paving scheme should extend into entries and publicly accessible plazas and courtyards. Where driveways cross a sidewalk, the concrete paving should be patterned with a finer texture to indicate to pedestrians that vehicles may be expected to cross their path.

In the Town Centre core, the typical paving pattern is intended to mark a 1.5 meter wide strip with a saw cut joints adjacent to the curb, as shown below. Depending on available space in the right-of-way and the volume of pedestrian traffic, the street tree surround material may include an extended tree grate (1.5 meters by 4.5 meters), landscaping, or pavers.

Material Specifications

<table>
<thead>
<tr>
<th>Streets -- Curbs</th>
<th>Concrete with District standard curb letdowns at intersections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sidewalks</td>
<td>Concrete: standard concrete sidewalks in all areas except the Town Centre core; saw-cut concrete in Town Centre core areas; saw cut patterns to be designed in relation to standard pattern or modified to respond to design elements in adjacent architecture (entries, columns, pilasters, storefronts etc.)</td>
</tr>
<tr>
<td>Pedestrian Paths and Upper Sidewalks along Mountain Highway</td>
<td>Saw-cut concrete or concrete pavers in concrete colour or asphalt in areas outside the Town Centre core</td>
</tr>
<tr>
<td>Multi-Use Paths -- Off-Street</td>
<td>Asphalt or other appropriate material for use with DNV approval</td>
</tr>
</tbody>
</table>
Lighting

A family of LED lighting fixtures has been selected for the Lynn Creek Town Centre. The size of fixture will be larger along Mountain Highway than on the plazas, parks, pedestrian paths, and multi-use paths elsewhere within the Lynn Creek town centre. The fixtures are contemporary in character with flexibility to adapt size, arm extension length, and accessories like banner brackets to suit both streetscape and greenway/pedestrian path applications. For a consistent identity, the selected paint choice is RAL 7022 - umbra gray. This colour is to be matched as closely as possible for other painted furnishings such as garbage receptacles and bus shelters.

The lighting standard should be used along streets as they redevelop as well as in park settings. Pedestrian scale lighting should be integrated in key public realm locations including plazas, and along mountain highway, Crown Street, and Hunter Street. Pedestrian scale lighting may also be prioritized along other busier pedestrian and cycling streets potentially including Oxford Street.

<table>
<thead>
<tr>
<th>PLACE</th>
<th>LUMINAIRE</th>
<th>MOUNTING ARM</th>
<th>POLE AND BASE MOUNT</th>
<th>POLE SIZE</th>
<th>COLOUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Mountain Highway</td>
<td>Lumca CPG0401</td>
<td>CF23</td>
<td>Straight round pole with Nova Pole ‘Seymour’ base cover</td>
<td>9.1m</td>
<td>RAL 7022</td>
</tr>
<tr>
<td>• Fern Street</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• East Keith Road</td>
<td>Cooper OVF</td>
<td>N/A</td>
<td>Davit pole</td>
<td>9.1m</td>
<td>RAL 7022</td>
</tr>
<tr>
<td>Mountain Highway</td>
<td>Lumca CPS0401</td>
<td>CF28</td>
<td>Straight round pole with Nova Pole ‘Seymour’ base cover</td>
<td>4.3m</td>
<td>RAL 7022</td>
</tr>
<tr>
<td>pedestrian lighting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East Keith Road multi-use pathway</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Park Pathway</td>
<td>Cree ‘the Edge’</td>
<td>N/A</td>
<td>Octagonal post top pole</td>
<td>4.3m</td>
<td>RAL 7022</td>
</tr>
<tr>
<td>Plaza</td>
<td>Lumca CP1401</td>
<td>N/A</td>
<td>Straight round pole with Nova Pole ‘Seymour’ base cover</td>
<td>TBD</td>
<td>RAL 7022</td>
</tr>
</tbody>
</table>
Bicycle Racks

The preferred bike rack is a simple single ring design in matte stainless steel finish. This rack has the advantage of being readily sized to match anticipated demand.

The preferred location for bike racks is within the furnishing zone located between trees and adjacent to parking or bike lanes. In cases where space for bike racks is limited then placement adjacent to building frontages is the second choice location.

The preferred model is the Ring distributed by Landscape Forms:

**Bike Rack**

- **Manufacturer:** Landscape Forms
- **Model:** Ring
- **Material / Colour:** Titanium colour matte stainless steel finish
- **Frame made of steel**
- Bike rack holds 2 bikes and can be arranged in groups
Transit Shelters

Where feasible, transit shelters provided by building canopies or overhangs is preferred, as long as good visibility for transit passengers and bus drivers can be achieved.

Transit shelters should utilize paint colour coordinated with the palette of brushed stainless steel (e.g. bike rack). TransLink’s guidelines for transit-related infrastructure should be referenced for placement of transit shelters to ensure universal access and other design requirements.

Waste Management

The District’s standard waste receptacle is appropriate for Lynn Creek Town Centre. The need for bear-resistant waste receptacles should be considered and installed where needed.

Public spaces in the Town Centre should provide recycling receptacles in the public realm in strategic locations including, but not limited to, the central plaza and adjacent to the community/recreational facility. These units should be of the same design as the waste receptacles and finished in titanium to coordinate with adjacent standard streetscape furnishings. Implementation of recycling and expected future green initiatives must be done in coordination with District operations.

Waste Receptacle

Manufacturer: Victor Stanley  
Model: SDC-36  
Material / Colour: Titanium Finish  
36 gal (136 L)  
Side-Deposit  
Side-Door Opening

Recycling Receptacle

Manufacturer: Victor Stanley  
Model: RSDC-36  
Material / Colour: Titanium Finish  
two half moon plastic liners  
Side-Deposit  
Side-Door Opening
Seating
For intensively used open spaces and plaza areas, seating should be designed as part of the overall landscape concept to invite a variety of seating opportunities, including in singles and groups, with and without backs, and options that include arms to accommodate accessibility needs. Skate-guards could be considered if required and should be integrated into the design. Generally a concrete base with seating surfaces in wood slats is appropriate.

For applications where a comprehensive landscape plan is not available, such as along existing sidewalks and in parks, single benches with a corten steel frame / base and wood seating and backing for support should be used. The preferred bench is the Ideas L and T benches manufactured by Metalco.

Seating
Manufacturer: Metalco
Model: Ideas L-T Benches
Material / Colour: Corten Steel & Hardwood slats
Multiple Configurations including with or without back

Disponibile nei seguenti materiali e dimensioni: Available in the following materials and sizes:
Disponible dans les dimensions et matériaux suivants:
Disponible en los siguientes materiales y tamaños:
Disponível nos seguintes materiais e tamanhos:
Erhältlich in den folgenden Materialien und Größen:
Acciaio Corten / Corten Steel
Acier Corten / Acero Corten
Aço Corten / Corten-Stahl
Acciaio Zincato e Verniciato / Galvanized and Powder Coated Steel
Acier Galvanisé et Thermolaqué / Acero Galvanizado y Barnizado
Aço Galvanizado e Pintado / Stahl, Verzinkt und Pulverbeschichtet
Legno / Wood
Bois / Madera
Madeira / Holz
Vedi disegni a pag.: See drawings on page:
Voir plans page: Vea los dibujos de la pág.: Veja os desenhos em p.: Siehe Zeichnungen auf Seite:
Fissaggio: Fixings: Fixation: Fijación: Fixação: Befestigung:
Predisposizione per tasselli Pre-drilled for anchors
Réservation chevilles Predisposición para tacos
Preparação para buchas Mit Bohrungen für Verschraubung

Alfredo Tasca
Ideas L-T benches
**Tree Grates**

Street trees are to be located within generous tree grates along high traffic areas including Mountain Highway, Main Street and Crown Street. Other plaza, greenway and park conditions may warrant the use of tree grates.

The preferred standard is the 5’ Boston manufactured by Urban Accessories. In all cases the centre expansion should be removed to provide a 2’6” opening to ensure unrestricted tree growth.

In heavy pedestrian use areas multiple tree grates can be combined to create linear elements highlighting the material and the prominence of the street trees in the urban environment.

In special locations tree grates may be designed as part of a public art process. Dimensions, material and finish should be consistent, while the design may be varied in unique circumstances.

**Tree Grates**

Manufacturer: Urban Accessories
Model: 5’ Boston
Material / Colour: Ductile Iron Raw finish

Examples of Custom Designs

*Urban Accessories 5’ Boston Standard*
Stormwater Management

Innovative and visible stormwater management features should be integrated throughout the Town Centre; functioning to filter, infiltrate and convey surface runoff whenever possible. Establishing a consistent aesthetic for these systems will include treatments such as trench drains, that can be used in hardscape locations such as sidewalks and plazas.

Key opportunities for surface stormwater features are in the central open space corridor comprised of the Town Centre Plaza, Marie Place Park and the north-south green spine. Implementation of surface stormwater features along these corridors is encouraged.

Within the plaza and other sections in the Town Centre core, these surface features should have a contemporary, urban character. Along the pedestrian spine, stormwater features will be more naturalized in appearance. Where space is constrained, use of trench drain covers should be considered.

Trench Grates

Manufacturer: Urban Accessories
Model: Rainbow various lengths
Material / Colour: Ductile Iron Raw finish
Bollards

Should there be a requirement for bollards within the town centre, Metalco Moka Bollard should be used. These corten steel bollards are simple, robust, but not visually overpowering in a pedestrian space. They should be used sparingly to demarcate necessary pedestrian spaces. A suitable alternative may be necessary where bollards are required to be removable.

Should ground level lighting be required along the green spine or within park locations, the Vision bollard by Metalco is the preferred option. This product is similar in shape and material while providing lighting options.

Bollard
Manufacturer: Metalco
Model: Moka Bollard
Material / Colour: Corten Steel

Lighted Bollard
Manufacturer: Metalco
Model: Vision Bollard
Material / Colour: Corten Steel
Flood Protection and Resilience

The Lynn Creek Town Centre is located at the alluvial fan of Lynn Creek and has been identified as a Creek Hazard Development Permit Area. Potential future changes to creek management could result in the need for dike work along the south east side of the creek. However, site development has a key role to play in addressing flood risk and building flood resilient communities.

The Creek Hazard DPA aims to:
- Minimize the risk to people and property from creek hazards
- Ensure development and construction near creeks is done safely
- Reduce the impacts of flooding in developed areas

To achieve these goals in the Lynn Creek Town Centre, minimum flood construction levels (FCL) have been established ensuring that floor levels are raised above street level to mitigate potential flood issues. The FCL established for the Lynn Creek Town Centre is 0.6m measured from the gutterline of the street. This FCL applies to all residential development to ensure that habitable space is adequately protected from possible flooding. Alternate flood construction methods for commercial areas are encouraged as outlined on pg. 79.

Residential Development

Flood construction levels apply across all residential development within the Flood Hazard DPA. Higher density residential development should utilize similar flood resilient construction methods to provide accessible grade change within the building entrances.

Townhouse and other street-fronting residential forms should integrate stairs and ramps to provide grade changes into the landscape component of the residential setback. Utilizing industrial materials and stair access points that create interest along the streetwall are encouraged.
Commercial Development

Commercial space along the High Street requires an alternate approach to flood resiliency. To mitigate universal accessibility issues, storefronts should be accessed at grade from the sidewalk. No exterior stairs should be included within the sidewalk or setback space along commercial frontages.

The minimum commercial setback identified in the OCP Schedule B guidelines may need to be increased in some instances to accommodate the grade change and to maintain adequate space for sidewalks, street furniture, and utilities, while providing meaningful circulation space.

Setbacks should be consistent with the cross sections provided in Section 4: Streets.

Grade change between the curb and building front should not exceed a 3% slope. The remainder of the 0.6m can be accounted for in the following ways:

- Raised internal development
- Flood resilient construction

Raised internal strategies will create a more desirable street condition with commercial display space and internal activity positioned closer to the pedestrian level. This supports a more active commercial frontage and builds a consistent neighbourhood character. To address flood resiliency stairs or ramps can be integrated inside the building. Large format retail units should utilize ramp systems whenever possible to mitigate accessibility issues.

Smaller commercial units should utilize flood resilient construction methods whenever possible to mitigate accessibility concerns. This strategy includes the use of robust materials such as concrete and steel and would place all damageable materials above the minimum FCL level. See the Flood Hazard DPA for requirements.

Example of flood resilient construction and raised internal development
Sustainable Development

The OCP and Schedule B and other relevant District policy govern green building and sustainable policies in the District.

This section of the Design Guidelines outlines additional sustainability design considerations for development on private property.

- New development should seek to manage and re-use stormwater on site to promote watershed health. Rainwater features should be located in visible locations and integrated with both landscape and architecture.

- Green initiatives such as green walls, rooftop gardens, and the incorporation of sustainability into public art and community amenities are encouraged.

- Purposeful integration of sustainable design elements into the architecture is encouraged where appropriate.

- Opportunities to celebrate and display or reveal sustainable building elements such as external shading systems or other elements are encouraged. Thoughtful design consideration to integrate these elements into the architecture adds a level of interest and functional honesty to the building design. For example, solar hot water panels located on a south-facing sloped surface such as clerestory or a portion of a roof should be integrated into that surface.

- New development should consider opportunities for urban agriculture through the provision of community garden plots, usable green roof area, and private yard space.
Form and Character

This section of guidelines addresses the overall objectives for form and character including design principles; intended character; height and massing, materials; universal design; and sustainability, followed by specific guidelines that pertain to residential and industrial / commercial areas.

Design Principles

New development in the Lynn Creek Town Centre is encouraged to respond creatively to the context envisaged under the LLTC Implementation Plan while at the same time achieve a cohesive identity and character.

The aim of the Form and Character Guidelines is to identify existing and emerging neighbourhood characteristics that are distinct and intrinsic to the Lynn Creek area and to propose design principles that reinforce this character. The character intended for Lynn Creek is derived from a combination of the natural setting, the historical context, existing built patterns (industrial and residential), a trend towards simple contemporary design, a local culture of outdoor recreation, and sustainable development of energy efficiency and rainwater management.

Unless otherwise noted, the form and character design principles identified below supplement those identified in the OCP (Schedule B) and should be read in parallel.

Height and Massing

In general, building heights and massing objectives in these guidelines aim to promote a mix of sizes and scales of development that is appropriate to the scale of nearby streets, other public spaces, and buildings. Height and massing of new development is intended to respond to both the existing urban context and neighbourhood character as well as that envisioned by these guidelines.

The LLTC Implementation Plan provides guidance on the approximate building height for new development in the Town Centre.

- Buildings should frame public streets and open spaces to create a sense of enclosure, street vitality, and safety.

- At the scale of the streetscape, new development is encouraged to add interest through well-considered variations in building height, rooflines, and massing that are consistent with the proposed grain of the neighbourhood.

- New buildings should acknowledge and respect the importance of allowing sunlight into important public spaces and private outdoor spaces. Appropriate building setbacks and roofline articulation should be provided to allow light access to the street and broader views of the sky and to reduce the 'canyon' effect for pedestrians at street level. Building siting should take available opportunities to frame views to the mountains.
Urban Street Wall

Podium forms and street walls should maintain an appropriate pedestrian scale.

- New developments should have a strong relationship to the street to animate public spaces and enhance the sense of ownership and community spirit. Buildings should be oriented towards public streets, walkways, and amenities.
- Building façades should be modulated at grade level to encourage street activity such as browsing, outdoor cafés, and street entertainment, as well as to enable placement of seating, where appropriate.
- The edges of larger developments should be carefully considered to mediate differences in scale between multi-family buildings. Refer to OCP Schedule B Guideline A3.2 Scale. The design of new developments should create purposeful and intentional in-between transition zones. The edges of tower developments should mediate differences in scale between neighbouring buildings.
- Expanding on OCP Schedule B Guideline A1.11: Storefronts, shops that line larger format retail stores should be scaled to support the functioning of successful businesses and offer a meaningful variety of shopping options. The ceiling height of shopping spaces should be a minimum of 4.3 metres (14 feet).
- Residential-only buildings should have ground-oriented residential units with individual front doors and porches integrated into the streetscape.
- The urban edges of the Town Core’s central urban plaza should be animated by the programming of adjacent interior spaces.
- Building uses that have a public nature or that serve visitors of the plaza should have a direct relationship to the plaza.
- Consideration should be given to design elements such as covered transition spaces, generous openings, large areas of glazing in walls and seating.
- Buildings in the Town Centre Core should provide continuous weather protection to sidewalks along Mountain Highway.

Street wall with weather protection and visual interest
Refer to OCP Schedule B Guideline A3.12: Weather Protection.

- Interconnecting pedestrian mews are intended to provide connectivity to and through blocks. These mews will tend to be located adjacent to building faces.
- Building edges that are adjacent to mews and pedestrian paths should be a minimum of 1.5m in width to allow for sufficient space to provide visual and spatial separation of private and public space.
- Windows in walls facing the mews, including end walls, are encouraged, provided that potential overlook from passersby into residential units can be mitigated, e.g. with landscaped screening / window dressing. Terraced, landscaped, or architectural elements can be used to provide spatial separation from building faces to mews.
- Building and architectural elements adjacent to pedestrian mews should be scaled to relate to pedestrians e.g. tall, blank building faces should be avoided.
- Smaller developments that do not exceed 45m in length may incorporate a streetwall up to the maximum building height. This would need to be considered in the broader context.

Variation and interest in building form and relationship to street
Variation in Building Design

Referencing OCP Schedule B Guideline A3.1: Variation in Building Design, neighbouring buildings should be consistent with the emerging neighbourhood character, but differ subtly in their modularity, materiality and façade detail. The expression of neighbouring buildings should not be repetitive, but should relate sufficiently to appear of a family.

The modularity or “grain” expressed in the diagram below, should vary from one development to the next to reinforce a streetscape composition rather than modularity within an individual development in isolation.

Façade Modulation

Further to OCP Schedule B Guideline A1.10: Breaks in streetwall, which suggests the provision of breaks in the street façade of buildings exceeding 45 metres in length, the height of the dominant eave along the streetwall should also vary along its length (by 0.5m - 1.0m). This can minimize long monotonous lengths of building mass and provide greater clarity to building forms. The module created by these variations should generally be not less than 15m in length and not more than 45m in length. Larger variations in streetwall height up to the maximum building height, for example a full storey, may be permitted and in some instances encouraged.

Along some blocks within Lynn Creek, existing patterns are characterized by features such as horizontal building expression, large apertures, and varying heights and setbacks of adjacent box-like building forms. It is the legible scale and varying offsetting relationship between the simple forms (“modules”) that should establish the streetscape “grain.”
Material Selection

The following building materials are recommended to create a distinct look and feel for Lynn Creek Town Centre.

- A range of materials and combinations of materials may be appropriate towards the intended contemporary, functional aesthetic. Among these are: glass, architectural concrete, wood, metal, rough stone, rock dash stucco, and compressed cementitious fibreboard panels.
- Some design cues may be influenced by the simplicity and materiality of the industrial context, such as the occasional use of bold accent colours or the use of corten steel.
- The creative use of wood in soffits, entranceways and other areas is encouraged. When used as an exterior cladding material, wood should be appropriately protected from the weather.
- Façade materials should be durable and wear well to maintain a quality lasting appearance into the future incorporating the effects of weather.
- The use of ornate and traditional design elements and trim commonly associated with single family homes should be avoided.
- Façade composition should be simple and free of visual clutter by limiting the number of materials on a façade and maintaining a simple arrangement and composition of elements.
- Building exteriors should be designed to express relationships between building form, function, and materiality. Imitative materials or the imitative application of materials to represent building elements should be avoided. The application of finish materials should complement the overall composition of the development and facilitate the legibility of the building forms.
Residential Areas

A key objective for the residential area is to encourage a mix of residential built forms including mid and low rise apartments with some ground-oriented housing such as townhouses and rowhouses. In most cases, the streets in the area are relatively short and have low traffic volumes so that vehicles will access underground parking from adjacent roads, leaving the central part of blocks available for public and semi-private uses like pedestrian walkways, children’s play areas, a new neighbourhood park, and other social spaces.

The intent for general form and massing of residential buildings in Lynn Creek Town Centre is to take on the same modularity characteristics as streetwalls associated within the Town Centre core (described on pg. 87), but with a more residential focus. Contemporary expression, the use of durable and varied materials, the grain, module, and the breadth of building face on the streetscape one intended to be consistent throughout the Town Centre, while also encouraging individual building identity.

a. Buildings should exhibit a horizontal expression with variations in building heights and setbacks from the street, with rectilinear forms and flat, floating or low sloping roofs.

b. Provide front doors and steps to the street from individual street-fronting townhouses and apartments, where possible, with a change in elevation to support privacy as well as flood construction requirements.

Redevelopment is encouraged to occur on minimum lot assemblies of approximately 1500 square metres (approximately 4-5 residential parcels).
Industrial and Commercial Areas

Industrial and commercial areas in the Lynn Creek Town Centre are not anticipated to see much renewal and change to 2030. For new development that may occur, a key objective is to encourage new buildings to contribute in a simple manner to the intended contemporary character of basic forms with varying heights and setbacks.

- A broad range of design expression within the intended character is available. Opportunities for innovative departure from conventional commercial design responses is particularly encouraged to strengthen the Town Centre’s identity on sites that are highly-visible, such as the north corners of Main Street and Mountain Highway, which will convey the notion of a gateway to the Lynn Creek Town Centre.

- Main Street will remain as a destination retail area, but with more refined design elements that contribute to the above character.

- The design of new buildings in industrial and commercial areas should express simple box-like patterns or buildings of varying heights and setbacks that establish a rhythm with a human scale. This module adds interest both along the streetscape and in the lanes. New development should avoid long unvaried stretches of frontages.

- Where appropriate, consider the inclusion of design elements that offer pedestrian interest and engagement and that accommodate safe pedestrian guidance and movement. This may include covered well-lit walkways, small treed areas
for seating, large openings in building fronts, clear signage, and other visual or physical amenities.

- Residential use permitted above street level in the Commercial and Industrial Area on the north corners of the intersection of Main Street and Mountain Highway. New development incorporating residential uses at this location should take measures to mitigate vehicle noise from Main Street.
NOTES:
1. All units in metric (mm, kg) unless otherwise stated.
2. Stamp base plate “NP YY” (YY=year).
3. Steel silicon content:
   - Shaft: Si < 0.04%
   - Parts: Si < 0.04% or 0.15% < Si < 0.22%
4. Welding: CSA W59, W47.1
NOTES:
1. All units in metric (mm, kg) unless otherwise stated.
2. Stamp base plate "NP YY" (YY=year).
3. Steel Silicon content:
   - Shaft: Si < 0.04%
   - Parts: Si < 0.04% or 0.15% < Si < 0.22%
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3. Steel Silicon content:
   - Shaft: Si < 0.04%
   - Parts: Si < 0.04% or 0.15% < Si < 0.22%
4. Welding: CSA W59, W47.1
Disponibile nei seguenti materiali e dimensioni:
Available in the following materials and sizes:
Disponible dans les dimensions et matériaux suivants:
Disponible en los siguientes materiales y tamaños:
Disponível nos seguintes materiais e tamanhos:
Erhältlich in den folgenden Materialien und Größen:

Acciaio Corten / Corten Steel
Acier Corten / Acero Corten
Aço Corten / Corten-Stahl
Acciaio Zincato e Verniciato / Galvanized and Powder Coated Steel
Acier Galvanisé et Thermolaqué / Acero Galvanizado y Barnizado
Aço Galvanizado e Pintado / Stahl, Verzinkt und Pulverbeschichtet
Legno / Wood
Bois / Madera
Madeira / Holz

Vedi disegni a pag.: / See drawings on page:
Voir plans page: / Vea los dibujos de la pág.:
Veja os desenhos em p.: / Siehe Zeichnungen auf Seite:

697

Fixaggio: / Fixings: / Fixation: / Fijación: / Fixação: / Befestigung:
Predisposizione per tasselli / Pre-drilled for anchors
Réservation chevilles / Predisposición para tacos
Preparação para buchas / Mit Bohrungen für Verschraubung
Sjit

Moka

bollards

Disponibile nei seguenti materiali e dimensioni:
Available in the following materials and sizes:
Disponible dans les dimensions et matériaux suivants:
Disponible en los siguientes materiales y tamaños:
Disponível nos seguintes materiais e tamanhos:
Erhältlich in den folgenden Materialien und Größen:

Acciaio Zincato e Verniciato / Galvanized and Powder Coated Steel
Acier Galvanisé et Thermolaqué / Acero Galvanizado y Barnizado
Aço Galvanizado e Pintado / Stahl, Verzinkt und Pulverbeschichtet

Acciaio Corten / Corten Steel
Acier Corten / Acero Corten
Aço Corten / Corten-Stahl

Acciaio Inox / Stainless Steel
Acier Inox / Acero Inox
Aço Inox / Edelstahl

250 (80X80) mm
H 1004 mm

Disegni / Drawings / Plans / Dibujos / Desenhos / Zeichnungen/ p.: 709

Fissaggio: / Fixings: / Fixation: / Fijación: / Fixação: / Befestigung:
Pre-drilled for anchors - Below ground installation
Réservation chevilles - Scellement
Predisposición para tacos - Cimentación
Preparação para buchas - Cimentação
Mit Bohrungen für Verschraubung - Zementierung
Sjit

Vision
bollards

Disponibile nei seguenti materiali e dimensioni:
Available in the following materials and sizes:
Disponible dans les dimensions et matériaux suivants:
Disponible en los siguientes materiales y tamaños:
Disponível nos seguintes materiais e tamanhos:
Erhältlich in den folgenden Materialien und Größen:

Acciaio Zincato e Verniciato / Galvanized and Powder Coated Steel
Acier Galvanisé et Thermolaqué / Acero Galvanizado y Barnizado
Aço Galvanizado e Pintado / Stahl, Verzinkt und Pulverbeschichtet

Acciaio Corten / Corten Steel
Acier Corten / Acero Corten
Aço Corten / Corten-Stahl

Acciaio Inox / Stainless Steel
Acier Inox / Acero Inox
Aço Inox / Edelstahl

300 X 300 (200X200) X H 1000 mm
200 X 300 (100X200) X H 1000 mm

Disegni / Drawings / Plans / Dibujos / Desenhos / Zeichnungen / p.: 710

Fixaggio: / Fixings: / Fixation: / Fijación: / Fixação: / Befestigung:

Pre-drilled for anchors - Below ground installation
Réservation chevilles - Scellement
Predisposición para tacos - Cimentación
Preparação para buchas - Cimentação
Mit Bohrungen für Verschraubung - Zementierung
SPECIFICATIONS
- Material will be high quality 100% recycled grey iron; ASTM A48 class 35b or better; hardness 170-223 brinnell (unless specified otherwise; see below).

**Material:**
- Grey iron ASTM A48 (standard)
- Aluminum, ASTM B26
- Ductile iron, (required for all load ratings higher than pedestrian) ASTM A536 class 65-45-12.
- Nickel bronze (ASTM B30)
- Bronze (ASTM 826)

- Finish will be natural patina of raw iron (unless specified otherwise; see below).

**Finish:**
- Raw (standard)
- Rust conditioner
- Polyester Powder Coat*
- Liquid Coat (wet paint)*

**Color:**
*Please specify standard UA color or mfr. name and color code.
- Brush (bronze/nickel/aluminum only)
- Polish (bronze/nickel/aluminum only)
- Galvanized (grey iron and ductile iron only)
- Other:

- Dimensions are nominal.

**Notes**
1) Cast in four pieces.
2) Grate is 1 1/4" thick at edge.
3) Center opening expansion at 2'-6".
4) No openings greater than 1 1/2", in conformance with ADA Accessibility Guidelines.
5) Grate weighs 476 lbs.

**Comments:**

---

**Tree Grate**

**5' Sq. Boston**

Page 1 of 1 Date: 5/22/12
SPECIFICATIONS
- Material will be high quality 100% recycled grey iron; ASTM A48 class 35b or better; hardness 170-223 brinnell (unless specified otherwise; see below).

Material:
- Grey iron ASTM A48 (standard)
- Aluminum, ASTM B26
- Ductile iron, (required for all load ratings higher than pedestrian) ASTM A536 class 65-45-12.
- Nickel bronze (ASTM B30)
- Bronze (ASTM B26)

- Finish will be natural patina of raw iron (unless specified otherwise; see below).

Finish:
- Raw (standard)
- Rust conditioner
- Polyester Powder Coat*
- Liquid Coat (wet paint)*
- Brush (bronze/nickel/aluminum only)
- Polish (bronze/nickel/aluminum only)
- Galvanized (grey iron and ductile iron only)
- Other:

Notes
1) Grate is $\frac{3}{4}''$ thick at edge.
2) No openings greater than $\frac{1}{2}''$, in conformance with ADA Accessibility Guidelines.
3) By default, the last grate in a trench drain will be sheared to meet a drain length specified at the time of order. Alternately, the trench drain length may be adjusted to the nearest whole grate (tolerances in the grate size WILL compound across the overall run). Please provide instructions in the comments section below.
4) 20.5 sq. in. open area per grate.
5) Grate weighs 10 lbs.

Comments:

Trench Grate
4'' x 18'' Rainbow
C Guidelines for Ground-Oriented Housing

The built-form of ground-oriented multi-family development should be integrated with existing neighbourhoods.

1. Public Realm, Streetscape Elements and Neighbourhood Fit

Discussion:

The built-form of ground-oriented multi-family development should be integrated with existing neighbourhoods, while enhancing architectural variety. Development should reflect the streetscape character of the neighbourhood in which it is located, or in the case of larger developments, it should create its own successful streetscape character.

Ground-oriented housing should be designed so that it complements the neighbourhood character, with minimum impact on adjacent properties. Development will often occur incrementally as pre-existing lots on record are assembled and consolidated. Accordingly, the design must carefully consider both the existing and future relationships to surrounding properties.
C1.1: Height and Massing: The height and massing of buildings should be in keeping with a single family dwelling or townhouse height, which is typically less than 12 metres. Architectural treatments that reduce apparent building height such as the use of trim, colour accents, secondary roof elements, building recesses and stepped building forms are encouraged (see Figure 81).

C1.2: Roof Treatment: The gable orientation and roof pitch should be sympathetic to the design of neighbouring buildings and help to maximize the space and light between buildings (see Figure 81).

C1.3: Street Orientation: Units are encouraged to be oriented towards, and have a visual connection to the street (see Figure 82).

C1.4: Corner Lots: Buildings on corner lots should “wrap the corner” providing an opportunity to have units facing both streets (see Figures 83).

C1.5: Minimum Frontage: Generally, development parcels should have a minimum frontage of 20 metres.

C1.6: Setbacks: The front yard setback should relate to, or appropriately transition from, the established pattern in the area.
2. Site Planning and Landscaping

Discussion:

Good site planning and landscaping contribute to neighbourhood character and aesthetics, resident livability and environmental sustainability. In principle, site planning should strive to minimize building coverage, preserve natural features and minimize rainwater run-off. Mature trees shade and cool homes in the summer and absorb carbon dioxide and trap dust particles. Trees and other landscaping provide habitat, aid with energy conservation and absorb rain water, reducing stormwater run-off into creeks. Landscape plans should complement the building design and harmonize with the local setting and be prepared by a BC Registered Landscape Architect.

C2.1: Tree Retention: Healthy mature trees and natural features should be retained where possible.

C2.2: Sustainable Landscape Design: Sustainable landscape design should incorporate best practices for tree planting, rainwater management, accessibility and feature native and drought tolerant species. Sustainable landscape design should also be coordinated with building design, site servicing and utility placement.

C2.3: Street Interface: Landscaping and fencing should be kept low and open in the front yard to foster a strong relationship to the street and maintain visibility through to the front of the building (see Figure 84).

C2.4: Privacy: Incorporate planting and fencing to maximize privacy between dwelling units and neighbouring sites (see Figure 85).

C2.5: Shared Outdoor Space: Units should be clustered to create interesting shared outdoor spaces as well as usable and accessible private outdoor spaces. Encourage/integrate informal gathering, play and urban gardening opportunities (see Figure 86).

C2.6: Private Outdoor Space: At least 9 square metres of usable private outdoor space should be provided for all units (see Figure 87).

C2.7: Outward Facing Aspect: Units should be oriented such that windows from the principle living space of each unit are separated by a minimum of 9 metres from those of any other unit (see Figure 88).
C2.8: Rear Yard Setbacks: Rear yard setbacks should be at least 6 metres, with some variation so that a visual wall is not created along the rear property line.

C2.9: Side Yard Setbacks: Side yard setbacks should be a minimum of 1.2 metres, and up to 3 metres when facing a side street or a single family home.

C2.10: Pedestrian Access: The main pedestrian access route should be from the street rather than the lane or parking area.

C2.11: Parking: Parking spaces should be located off a private driveway, and should not be visible from the street (see Figure 89).

C2.12: Parking access: When parking is accessed from the front street the number of driveways should be kept to a minimum (see Figure 89).

C2.13: Shared Driveways: Where adjacent to another potential redevelopment site, the driveway should be designed so that it could in future be shared with the adjacent property (see Figure 89).

C2.14: Oil and Grit Separators: Oil and grit separators are required in all parking areas.
3. Architectural Character

Discussion:

The built form and character of new ground-oriented multi-family development should be consistent with and in harmony with the general rhythm, scale and height of the existing buildings in the neighbourhood. Ground-oriented housing is usually located in or adjacent to single family neighbourhoods. Building design therefore should generally have a single family character and incorporate west coast references while responding to local conditions such as topography, vegetation and heritage resources.

Consideration should be given to unit identity, roofscape, and other architectural elements, including fenestration, materials, and colour. Dormers and similar roof projections should read as subordinate or secondary architectural elements.

Ground-oriented housing should be designed in consideration of the needs of all residents regardless of their state of health, mobility or disabilities. Units should incorporate basic features that allow the units to be adapted to accommodate special needs without expensive retrofitting.

C3.1: Massing: The front façade of buildings should be broken up and portions stepped back to reduce the impression of bulk (see Figure 90).

C3.2: Variations in Design: Subtle design variations should be incorporated between neighbouring buildings to avoid a repetitive appearance.

C3.3: Cladding: Buildings should be clad primarily in natural materials although stucco accents may be used as a subordinate finish.

C3.4: Varied Rooflines: Varied roof lines with overhangs are encouraged.

C3.5: Roofing Materials: Laminated asphalt shingles or fire retardant treated cedar shakes are recommended as roofing materials. Tile roofing is discouraged.
C3.6: Noise Levels: Designs should demonstrate that the noise levels (A-weighted 24-hour equivalent LEQ sound level (the average sound level over the period of the measurement) in those portions of the dwelling listed below should not exceed the noise levels expressed in decibels set opposite such portions of the dwelling units. Examples include use of triple glazing, improved insulation etc.

<table>
<thead>
<tr>
<th>PORTION OF DWELLING UNIT</th>
<th>NOISE LEVEL (DECIBELS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>bedrooms</td>
<td>35</td>
</tr>
<tr>
<td>living, dining, recreation rooms</td>
<td>40</td>
</tr>
<tr>
<td>kitchen, bathrooms, hallways</td>
<td>45</td>
</tr>
</tbody>
</table>

C3.7: Heating and Ventilation Systems: Ventilation, heating and cooling systems should be designed and insulated to minimize noise and located to be visually unobtrusive to neighbouring developments.

C3.8: Accessible Entrance: A level, no step entrance should be provided to each dwelling. If not possible, then platform areas should be provided at the top and bottom of ramps to facilitate the turning of wheelchairs, strollers and other mobility devices (see Figure 91).

C3.9: Weather Protection: A canopy should be provided over the front entrance.

C3.10: Front Door Width: The front door opening should be no less than 0.9 metre in width.

C3.11: Accessible Doorbell: The front doorbell should be no higher than 1 metre above the entry way

C3.12: Legible Address: The address should be indicated in easy-to-read, 10 centimetre or taller numbers, shown in a clearly contrasting colour.

Figure 91
TRAFFIC STUDY
- FINAL Rev. 0

Residential Development
340 Mountain Highway, North Vancouver

May 23, 2018

Reviewed by:
Brendan Stevenson, P.Eng., PTOE
Project Manager/
Traffic Engineer-of-Record

Prepared by:
Kelly Bullivant, P.Eng.
Traffic Engineer

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Burnaby, BC V5G 4M5
Main: 604-420-1721
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1 INTRODUCTION

1.1 Background

R.F. Binnie & Associates Ltd. (Binnie) was retained by 1052759 BC Ltd. (the Client) to prepare a traffic study for a proposed residential development in the District of North Vancouver (the District). The proposed development will be constructed in the existing properties at 340 Mountain Highway and 1515-1537 Rupert Street. The project location is shown in Figure 1-1.

1.2 Study Objectives

The purpose of this study is to review the background conditions within the study area and to review any traffic related concerns caused by the proposed residential development. If any traffic issues are identified, this report will recommend necessary improvements to mitigate them. It is noted that traffic analysis for the proposed development will be included as part of the Lynn Creek Town Centre study conducted by the District.

In general, the objectives of this traffic study are to:

- Estimate the site generated traffic for the proposed development and the existing site
- Recommend the number of vehicle and bicycle parking spaces
- Provide a Travel Demand Management (TDM) plan for the proposed development
- Recommend necessary transportation improvements based on the study findings

Figure 1-1: Project Location
2 EXISTING CONDITIONS

2.1 Adjacent Road Network

2.1.1 Mountain Highway

Mountain Highway is classified as a major arterial route according to the District’s 2030 Transportation Plan, dated July 2012. Mountain Highway primarily travels in the north-south direction and connects with Main Street approximately 350 m west of the Main Street and Highway 1 full-movement interchange. Within the study area, Mountain Highway has a three-lane cross-section with the southbound curb lane marked as a transit/cyclist only lane from 6:00 AM to 10:00 AM during weekdays. On-street parking is provided on the east side of the roadway only. There are existing sidewalks on both sides of the road and the posted speed limit of Mountain Highway is 50 km/h.

2.1.2 Rupert Street

Rupert Street is a local two-way roadway that runs in the east-west direction that spans approximately 375 m between Harbour Avenue and Kaylela Place. Currently, Rupert Street provides access to a limited number of residential and commercial properties to the east and west of Mountain Highway, respectively, including the Harbour Front Centre commercial area. There are “NO EXIT” signs posted on the east approach at the Mountain Highway intersection facing eastbound traffic. There are no existing sidewalks on either side of Rupert Street along its entire length; however, the road is wide enough to accommodate on-street parking on both sides of the roadway. The posted speed limit of Rupert Street is 50 km/h.

2.2 Study Intersection

2.2.1 Mountain Highway and Rupert Street

Mountain Highway and Rupert Street is a four-legged, two-way stop-controlled intersection, with Mountain Highway operating as the free movement. Along Mountain Highway, the north approach has one shared left-turn/through lane and one shared through/right-turn lane, while the south approach has one shared movement lane. Along Rupert Street, both the east and west approaches have one shared movement lane.

The existing laning configuration and traffic control at the study intersection is shown in Figure 2-1.
2.3 Public Transit

Public transit services in the District are provided by TransLink. The development is located approximately 400 m northwest of the Phibbs Bus Exchange. As a result, several existing bus routes operate in the vicinity of the proposed development, including the following:

- Route #28 Joyce Station / Phibbs Exchange / Capilano University: This bus route connects Joyce-Collingwood Station to Capilano University, mainly via Boundary Road, Highway 1, and Lillooet Road.
- Route #130 Metrotown Station / Hastings / Kootenay Loop / Phibbs Exchange / Capilano University: This bus route connects Metrotown Station to Capilano University mainly via Willingdon Avenue, Highway 1, and Lillooet Road.
- Route #210 Upper Lynn Valley / Vancouver: This bus route connects Downtown Vancouver to Upper Lynn Valley, mainly via Powell Street, Highway 1, and Mountain Highway.
- Route #211 Vancouver / Phibbs Exchange / Seymour: This bus route connects Downtown Vancouver to Deep Cove, mainly via Powell Street, Highway 1, and Mt. Seymour Parkway.
- Route #227 Lynn Valley Centre / Phibbs Exchange: This bus route connects Phibbs Exchange to Lynn Valley Centre, mainly via Mountain Highway, Arborlynn Drive, and Lynn Valley Road.
- Route #239 Park Royal / Lonsdale Quay / Phibbs Exchange / Capilano University: This bus route connects Capilano University to Park Royal Shopping Centre, mainly via Cotton Road, 3rd Street, and Marine Drive.

The transit routes are shown in Figure 2-2.

Figure 2-2: Transit Routes (Source: TransLink)
3 PROPOSED DEVELOPMENT CONCEPT

3.1 Development Concept

The proposed residential development is located at 340 Mountain Highway and 1515-1537 Rupert Street. Based on the current information provided by the Client, the site is currently zoned as Single Family 6000 Zone (RS4). The site requires rezoning to a new Comprehensive Development Zone to facilitate the construction of a new 26-unit townhome building. Development access will be provided on the northeast end of the property off of Rupert Street.

The proposed residential development concept can be seen in Figure 3-1. The complete site plan for the proposed residential development by Iredale Architecture is attached in Appendix A.

Figure 3-1: Proposed Residential Development Preliminary Site Plan

3.1.1 Development Access

The proposed development two-way access is expected to be located at the northeast end of the property off of Rupert Street, approximately 35 m east of the Mountain Highway and Rupert Street intersection. The access intersection is expected to operate as a stop-controlled intersection with the development driveway operating as the stop-controlled movement. The stop sign should be placed in advance of the sidewalk to reduce the likelihood of conflicts between exiting vehicles and pedestrians.
The development driveway will provide access to the underground parking stalls. The internal drive aisles for the underground parking lot are required to be at least 7 m wide according to the District’s Bylaw requirements.

Additionally, a sidewalk is to be constructed on the south side of Rupert Street and the east side of Mountain Highway along the frontage of the study development to accommodate pedestrian access.

### 3.1.2 Phasing and Timing

The proposed study development is expected to be constructed in a single phase. For the purposes of this study, the Opening Day of the development is assumed to be in the 2020 horizon year.

### 3.2 Off-Street Parking Review

#### 3.2.1 Vehicle Parking

Based on the current information provided by the Client, the proposed study development will have 26 residential units. For a multiple unit residential development, the District’s current Zoning Bylaw 5114, No. 1001 requires one parking space per dwelling unit for residents plus one space per 100 m$^2$ of gross residential floor area (to a maximum of 2 spaces per unit inclusive of 0.25 per dwelling unit designated for visitor parking). Therefore, 45 resident parking stalls and seven visitors parking stalls will be required to satisfy the District’s off-street parking bylaw, with at least one accessible parking space. Additionally, up to 35% of the required parking spaces may be provided as small car spaces.

It is noted that the study development is applying for the District’s reduced Bylaw parking rate. Under the reduced parking rate, the development would be required to provide 1.5 parking spaces per townhome unit and 0.1 visitor spaces per unit. This results in a total of 39 resident and three visitor off-street parking spaces being required. In order to qualify for the reduced rate, the development must include TDM plan, which is described below in Section 3.3.

The required number of parking spaces under both scenarios is summarized in Table 3-1.

#### Table 3-1: Bylaw Parking Spaces Requirements for the Proposed Study Development

<table>
<thead>
<tr>
<th>Unit Type</th>
<th>Size</th>
<th>Rate in Zoning Bylaw</th>
<th>Proposed Rate</th>
<th>Assumptions</th>
<th>Proposed Number of Spaces Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple Unit Residential Building (Townhome)</td>
<td>26 Dwelling Units</td>
<td>1.00</td>
<td>26</td>
<td>1.50</td>
<td>Qualified for reduced rates</td>
</tr>
<tr>
<td>Multiple Unit Residential Building</td>
<td>31.5 100 sq. m.</td>
<td>1.00</td>
<td>19</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>Visitors</td>
<td>26 Dwelling Units</td>
<td>0.25</td>
<td>7</td>
<td>0.10</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>52</strong></td>
<td></td>
<td><strong>42</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the provided development site plan, the proposed development is expected to provide 44 residential parking stalls and three visitors parking stalls, including 13 small car spaces (28%) and two accessible parking stalls. The two provided accessible parking stalls are expected to be located immediately adjacent to the elevator, which satisfies the basic accessible design requirements found in the District’s Accessible Design Policy for Multi-Family Housing document. The number of parking stalls provided are summarized in Table 3-2. As such, the study development is expected to satisfy the District’s reduced bylaw requirements for on-site parking.
3.2.2 Bicycle Parking

The District’s current Zoning Bylaw 5114, No. 1008 requires Multiple Family Residential Buildings to have 0.2 Class 2 bicycle spaces per unit for any development containing five or more residential units. Therefore, at least five Class 2 bicycle parking spaces will be required to satisfy District’s off-street parking bylaw. Class 2 bicycle spaces are required to be provided in racks with a minimum width of 0.3 m per bicycle and be located in a convenient, well-lit location. Based on a review of the proposed site plan, the development is expected to provide a total of 31 secure bicycle lockers and 32 unsecure bicycle parking spaces in the underground parkade, and an additional 12 secure spaces in exterior storage rooms for the ground floor units. This results in a total of 75 bicycle storage spaces.

The proposed parking layout for the development can be seen in Figure 3-2. The complete preliminary site plan for the proposed development by Iredale Architecture is attached in Appendix A.
3.3 TDM Plan

As described above, in order to qualify for the reduced parking rate, the development must have a TDM plan that will decrease the demand for off-street parking stalls.

3.3.1 Public Transit

The proposed development is situated in a location that is well serviced by public transit; therefore, the future residents of this development will not be necessarily dependent on private vehicle ownership. As described in Section 2.3, the development is approximately 400 m northwest of the Phibbs Bus Exchange, which currently services 11 bus routes. Therefore, within a five-minute walking distance, residents of the proposed development have several bus routes that can be used to access popular destinations such as Lonsdale Quay, Capilano University, Park Royal Shopping Centre, Upper Lynn Valley, and Downtown Vancouver. It is expected that the developer will provide information on transit routes in the area to residents before they move in.

If necessary, the Developer may consider encouraging the use of public transit by the residents with a transit pass subsidy (30% to 50% for a three-zone pass) for one year. This strategy is expected to encourage residents to develop the habit of using public transit rather than a personal vehicle, which will in turn reduce the vehicle ownership.

3.3.2 Walking/Cycling

The proposed development is located approximately 300 m east of the Harbour Front Centre, a commercial area that includes several restaurants, a bank, and a big-box home goods store. It is also located approximately 400 m west of the Phibbs Bus Exchange. To encourage residents to walk to nearby commercial areas and to transit, a sidewalk will be constructed on the south side of Rupert Street along the frontage of the study development. This new sidewalk will also connect residents to the existing sidewalks located on both sides of Mountain Highway, which lead to additional nearby local attractions such as Seylynn Park.

To encourage bicycle ownership by residents of the proposed development, a total of 43 secure bike lockers and 32 unsecure bicycle parking spaces will be provided. A bike repair area can be provided in a convenient location adjacent to the elevator within the underground parking area as an additional incentive. It is noted that as part of the District’s ultimate plan, Mountain Highway will provide a raised bicycle lane in each direction, which will encourage cyclists of all ages and abilities. Additionally, residents who commute via bicycle can easily access the Mountain Highway southbound curb lane which is restricted to buses and bicycles only from 6:00 AM – 10:00 AM, Monday to Friday.

The Developer is also expected to provide information on cycling routes, cycling skills training, and destinations within walking distance to residents before they move in.
3.3.3 Car Share Provision

It is recommended that the Developer work with the District to provide at least one space for a co-op vehicle in the area for residents to use. The provision of a co-op vehicle dedicated parking stall will encourage families with no vehicle ownership to make their home within the study development and reduce the demand for off-street parking stalls. It is noted by the District that the co-op vehicle parking space is required to be at-grade and visible for the operating company to provide the service. As on-street parking is available on both sides of Rupert Street, it is anticipated that reserving a parking space along the frontage of the proposed development for the co-op vehicle will be possible.

Based on the TDM measures described above, it is expected that the proposed development will be able to qualify for the District’s reduced Bylaw parking rate.

3.4 Trip Generation

The forecast trip generation for the proposed study development and the existing single family residential units were derived from the Trip Generation 9th Edition, published by the Institute of Transportation Engineers (ITE). The trip generation rates published under the Residential Condominium/Townhouse (ITE Ref. 230) land use was assumed to be representative of the study development. For the existing trip generation, the Single Family Detached Housing (ITE Ref. 210) land use was used for the existing single family residential units.

3.4.1 Study Development

Based on the current information provided by the Client, the proposed study development will have 26 residential units. It is estimated that the proposed development will generate 12 vehicle trips during the weekday AM peak hour, with two vehicles entering and ten vehicles exiting the site. During the weekday PM peak hour, it is estimated that 14 vehicle trips will be generated by the site with nine vehicles entering and five vehicles exiting. The forecast site generated traffic for the proposed study development is shown in Table 3-3.

Table 3-3: Estimated Site Generated Traffic for the Proposed Study Development

<table>
<thead>
<tr>
<th>Description</th>
<th>Size</th>
<th>Unit</th>
<th>ITE Ref.</th>
<th>Avg. Trip Ends per Unit</th>
<th>Generated Trip Ends</th>
<th>% Entering</th>
<th>% Exiting</th>
<th>Vehicle Entering</th>
<th>Vehicle Exiting</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM Peak Hour</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential Condominium/Townhouse</td>
<td>26</td>
<td>Dwelling Units</td>
<td>230</td>
<td>0.44</td>
<td>12</td>
<td>83</td>
<td>17</td>
<td>2</td>
<td>10</td>
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<td></td>
</tr>
<tr>
<td>PM Peak Hour</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential Condominium/Townhouse</td>
<td>26</td>
<td>Dwelling Units</td>
<td>230</td>
<td>0.52</td>
<td>14</td>
<td>67</td>
<td>33</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Total:</td>
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</tbody>
</table>

3.4.2 Existing Development

Based on the ITE trip generation rates, it is estimated that the five existing single family detached homes generates four trips during the weekday AM peak hour, with one vehicle entering and three vehicles exiting the site. During the weekday PM peak hour, it is estimated that six vehicle trips are generated, with four vehicles entering and two vehicles exiting. The site generated traffic for the existing residential units is shown in Table 3-4.
Table 3-4: Estimated Existing Site Generated Traffic

<table>
<thead>
<tr>
<th>Description</th>
<th>Size</th>
<th>Unit</th>
<th>ITE Ref.</th>
<th>Avg. Trip Ends per Unit</th>
<th>Generated Trip Ends</th>
<th>% Entering</th>
<th>% Exiting</th>
<th>Vehicle Entering</th>
<th>Vehicle Exiting</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM Peak Hour</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45785 Alder Avenue Residential Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Family Detached Housing</td>
<td>5</td>
<td>Dwelling Units</td>
<td>210</td>
<td>0.75</td>
<td>4</td>
<td>25</td>
<td>75</td>
<td>1</td>
<td>3</td>
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<tr>
<td>PM Peak Hour</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>45785 Alder Avenue Residential Development</td>
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<td></td>
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<td></td>
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<tr>
<td>Single Family Detached Housing</td>
<td>5</td>
<td>Dwelling Units</td>
<td>210</td>
<td>1.01</td>
<td>6</td>
<td>63</td>
<td>37</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

Based on these findings, the proposed development is expected to generate eight new vehicle trips during the weekday AM peak hour, with one new vehicle entering and seven new vehicles exiting the site. During the weekday PM peak hour, the development is expected to generate eight new vehicle trips with five new vehicles entering the site and three new vehicles exiting the site.

### 3.4.3 Pass-by Trips

Pass-by trips are mainly associated with commercial developments and are defined as site trips diverted from existing vehicle trips on the adjacent roadway. For the purposes of this study, it is assumed that there will be no pass-by trips, based on the land use type.

### 3.4.4 Internal Site Capture

Internal site capture is mainly associated with mixed-use commercial developments and is defined as site trips for multiple land uses made by a single vehicle trip. Based on the current information provided by the Client, the land use intended for this property is for a residential development only; therefore, for the purposes of this study, it is assumed there will be no internal site capture.
4 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

The study development is located in the existing properties at 340 Mountain Highway and 1515-1537 Rupert Street and is expected to provide 26 new townhome units. The purpose of this study is to review the background conditions within the study area and to review any traffic related concerns caused by the proposed development. A summary of the study findings are as follows:

- The study development is located in close proximity to Highway 1. As a result, the surrounding road network was observed to experience congestion during the peak periods.
- The study development is located approximately 400 m away from the existing Phibbs Bus Exchange and as a result is within a five-minute walking distance to several bus routes, which provide connections to various points throughout Metro Vancouver.
- The development access will be located at the northeast corner of the site, approximately 35 m east of the Mountain Highway and Rupert Street intersection. It is expected that the egress movement from the development will be stop-controlled, while Rupert Street will operate as a free movement.
- The development is expected to provide 47 off-street vehicle parking stalls, including 13 small car spaces (28%) and two accessible parking spaces. The development will also provide a total of 31 secure bicycle lockers and 32 unsecure bicycle parking spaces in the underground parkade, and an additional 12 secure spaces in exterior storage rooms for the ground floor units.
- Based on review of the District’s Bylaw standard requirements, the development will require 52 off-street parking stalls, including seven visitor spaces and one accessible parking stall. Up to 35% of the required parking stalls may be provided as small car spaces. The development will also require five Class 2 bicycle parking spaces.
- Under the reduced District’s Bylaw parking requirements, the development will be required to provide 42 off-street parking stalls, including three visitors parking stalls and one accessible parking stall.
- The internal drive aisles in the parking facility will be required to be at least 7 m wide to satisfy the District’s Bylaw requirements.
- Based on the ITE trip generation rates, the development is expected to generate 8 new vehicle trips during the AM peak hour and 8 new vehicle trips during the PM peak hour.
4.2 Recommendations

Based on the study findings described above, the following recommendations are provided to support the proposed development:

- As shown in the proposed site plan, the development access should be located at the northeast corner of the development to maximize the distance from the Mountain Highway and Rupert Street intersection. The stop sign for the egress movement from the development shall be located in advance of the sidewalk.
- Internal drive aisles within the underground parkade are required to be at least 7 m wide in order to satisfy the District’s Bylaw requirements.
- In order to qualify for the District’s reduced Bylaw parking rate, the development must include a TDM plan, which is summarized below:
  - The development is within 400 m, which is a five-minute walking distance, of the Phibbs Bus Exchange which services several bus routes that can be used to access popular destinations such as Lonsdale Quay, Capilano University, Park Royal Shopping Centre, Upper Lynn Valley, and downtown Vancouver. The Developer is expected to provide information on transit routes to residents before they move in.
  - The Developer may consider a transit pass subsidy of 30% to 50% for a three-zone pass for one year to encourage the habit of using public transit rather than a personal vehicle.
  - A sidewalk will be constructed on the south side of Rupert Street along the frontage of the development to encourage residents to walk to nearby commercial areas, transit stops, and other local attractions.
  - The development is expected to provide a total of 43 secure bike lockers and 32 unsecure bicycle parking spaces, with space provided for bicycle repair in the underground parkade. The Developer is also expected to provide information on cycling routes, cycling skills training, and destinations within walking distance to residents before they move in.
  - The proposed ultimate configuration of Mountain Highway includes a raised cycle track in each direction, which will further promote the use of bicycles by residents of all ages and abilities.
  - It is recommended that the Developer work with the District to provide at least one space for a co-op vehicle in the adjacent area for residents to use. The co-op vehicle parking stall is recommended to be located along Rupert Street where it is at-grade and visible.
- A conceptual design of the District’s proposed ultimate configuration at the Mountain Highway and Rupert Street intersection is provided in Appendix B. The Developer should construct the south side of Rupert Street and the east side of Mountain Highway, along the frontage, to the District’s proposed ultimate configuration.
5 CLOSING

We trust you find the information outlined in this traffic study suitable for your requirements. Should you have any questions or comments on the information contained herein, please do not hesitate to contact the Project Manager.

Prepared by:  
Kelly Bullivant, P.Eng.  
Traffic Engineer

Reviewed by:  
Brendan Stevenson, P.Eng., PTOE  
Project Manager/  
Traffic Engineer-of-Record
APPENDIX A
PROPOSED SITE PLAN
APPENDIX B

CONCEPTUAL INTERSECTION DESIGN
CONSTRUCTION TRAFFIC MANAGEMENT

340 Mountain Highway Townhouse Project

Redic Development Inc.
1. Project Details

1.1. Introduction and background

Redic Development Inc are proposing developing a 26 unit stacked townhouse in place of existing single family lots 340 Mountain Highway and 1515 – 1537 Rupert St. The existing homes will be demolished and a 5 story building will replace them. The project also includes re-development of site frontage along both Rupert and Mountain highway.

This is a traffic management plan that addresses the offsite civil construction, the onsite civil and building construction.

This plan will include:

- Construction Overview
- Schedule
- Mobility impact: impact to pedestrians, cyclists, transit and general traffic caused by construction related trucks and traffic
- Community impact: both area and construction parking
- Work zone traffic control
- Communication plan

This is a working document as there are details of construction that cannot be confirmed at this stage and have only been estimated. We will update this report as work progresses

1.2. Construction Overview

The scope of work includes the following:

- Demolition of existing buildings
- Excavation
- Below grade parking structure
- Above grade wooden structure and finishing
- On-site civil and landscaping
- Off-site civil and landscaping

Demolition and excavation (anticipated duration: 2 months)
This includes demolition of existing building and removal of debris and existing landscaping. Excavation and shoring will follow for below grade parking.

Below grade parking structure (Anticipated duration: 2 months)
Construction of underground parking level including the concrete foundations, slab on grade, perimeter walls and suspended slab

Above grade wooden structure and finishing (Anticipated duration: 8 months)
Construction and erection of wooden frames for the 5 story residential area and all the mechanical, electrical and architectural finishing both inside and outside the building
On-site civil and landscaping (Anticipated duration: 1 month)
Landscaping and civil work in and round the building within the property lines

Off-site civil and landscaping (Anticipated duration: 2 months)
Offsite sidewalk and green area plus all the upgrade to existing services, paving both Mountain Highway and Rupert along the frontage of the building and rebuilding Mountain Highway and Rupert intersection

2. Schedule

2.1. Construction Schedule and working hours
Total construction of the building is anticipated to take around 14 months starting around March 2018 and finish by May 2019. It is anticipated that Off-site civil work can be performed at the same time that building finishing and in-site civil is happening.

The hours of work will be in compliance with District of North Vancouver Noise Bylaw 7188 that prohibits any noise or sound that disturbs peace and comfort of neighborhood or exceeds maximum sound level 80dB or maximum Daytime Average Sound Level of 65dB.

The hours of work will be limited to:

- 6:30 AM to latest 8:00 PM weekdays however work after 15:30 PM is not very likely.
- 9:00 AM to 5:00 PM Saturdays

No work will be performed on Sundays.

Any possible night work will be performed only with specific resolution of DNV council however, no night work is anticipated at this moment.

3. Mobility Impact:
This section explains how project will impact road users including pedestrians, cyclists and motor vehicles.

Mountain highway is a major road with relatively high traffic which is also used by busses. However, Rupert Street is a local road with low traffic volume.

3.1. Truck routes and volume
Main access to the project will be through Mountain highway, Main Street and Highway 1.

On the way to site, trucks will use exit 23A on Highway one to enter Main Street and then drive towards West and turn right into Mountain Highway.

On the way back, they will travel Mountain highway towards North to Keith Road and from there to Highway 1.

Based on proposed construction schedule the following heavy vehicle traffic volumes are estimated:

<table>
<thead>
<tr>
<th>Phase</th>
<th>Activity</th>
<th>Average Daily Vehicle per Day</th>
<th>Max Vehicles per Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Demolition and excavation</td>
<td>8</td>
<td>3</td>
</tr>
</tbody>
</table>
### Below Grade Parking Structure

<table>
<thead>
<tr>
<th></th>
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### Above grade wooden structure and finishing

<table>
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<tr>
<th></th>
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</table>

### On-Site civil and landscaping

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<thead>
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<th></th>
<th>On-Site civil and landscaping</th>
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<th>4</th>
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</thead>
<tbody>
<tr>
<td>4</td>
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</table>

### Off-Site Civil and landscaping

<table>
<thead>
<tr>
<th></th>
<th>Off-Site Civil and landscaping</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3.2. Mitigation Measures

The following measure will be implemented to mitigate any potential impact on daily commute of road users:

#### General Measures:

1. Site and construction work will be separated from public using fencing, hoarding and signs
2. Sidewalk on the Mountain highway side will remain open and clear until start of off-site Civil and landscaping operations through which the whole sidewalk and street paving will be upgraded.
3. There is no sidewalk on Rupert side. A new sidewalk will be built as part of this development and will be accessible to pedestrians at the end of the project.
4. Bike routes, after constructed will remain open to cyclists.
5. There won’t be any restriction to emergency vehicles at any time. They will have priority access in all time.
6. Any activity that may affect the emergency vehicles (fire, police and ambulance) will be coordinated in advance.
7. All truck marshalling will happen inside the property
8. Trucking companies will be provided with copies of this plan and assigned routes.
9. All heavy trucks will have radios so they can be delayed, diverted or cancelled when needed in order to prevent any unnecessary clogging of access routes.
10. Sedimentation control will be in place in order to mitigate silt, mud and debris:

   10.1. Trucks will be covered while in transit
   10.2. A site sediment and erosion control will be installed and maintained inside the property including wheel wash during excavation.
   10.3. The trucking and excavation contractors will be responsible to make sure the adjacent streets will not be soiled due to their activity.
11. Flaggers will handle any entrance, exit and in general any interruption to normal street traffic.

#### Demolition and Excavation period measures:

1. All trucks will access and leave the site through the truck routes mentioned in this report
2. Certified flaggers will handle entrance and exit of trucks to and from the property.
3. To minimize the impact on local traffic, deliveries to and from the site will be scheduled outside peak hours (between 9:00 AM and 4:00 PM)
4. Work force generated traffic will be minimal (less than 4 vehicles) and will happen before peak hour in the morning and will leave before afternoon peak

#### Below Grade Parking Structure:

1. Biggest truck traffic will happen during concrete placement. The concrete placement will be scheduled outside peak hours.
2. The Trucks will be using the predefined routes in this report
3. Construction traffic will be handled by certified flag persons
4. Workers will arrive before morning traffic peak leave before afternoon traffic peak

Above Grade Wooden Structure and Finishing

Delivery by trucks are scattered throughout the period and thus no high traffic of deliveries in a certain day is expected.

1. The Trucks will be using the predefined routes in this report
2. Construction traffic will be handled by certified flag persons
3. Workers will arrive before morning traffic peak leave before afternoon traffic peak

On-site Civil and Landscaping

Delivery is minimal in this phase and only pertains to landscaping material. Deliveries will be phased and now high traffic is expected

1. The Trucks will be using the predefined routes in this report
2. Construction traffic will be handled by certified flag persons
3. Workers will arrive before morning traffic peak leave before afternoon traffic peak

Off-Site Civil and Landscaping:

This phase includes upgrading the sidewalks, water and sanitary main in both Rupert and Mountain Highway and re-paving both streets along the frontage of development. Thus the traffic will be impacted. Please note this phase will happen at the same time of On-site civil and landscaping and probably last month of Building Finishing.

1. Timing of each operation will be coordinated with DNV through permit application process.
2. Specific traffic management plan for each activity will ensure minimal impact and safe path for road users.
3. The Trucks will be using the predefined routes in this report
4. Construction traffic will be handled by certified flag persons
5. Workers will arrive before morning traffic peak leave before afternoon traffic peak

4. Community Impact:
This section will explore how construction will affect parking availability.

4.1. Construction Parking Demand:
The exact number of parking will be assessed and estimated at a closer time to start of construction.

However, we have 4000 sqf of property adjacent to the development that can serve as parking or temporary staging area.

5. Traffic Control Signs and Devices
This section will describe use of traffic control devices and the required plans including markings, signages, delineators, flaggers and site access points.
All traffic control devices should be installed and used in accordance to BC Workers Compensation Board Section 18, BC MOT Traffic Control Manual for Work on Roadways and the TAC Canadian Manual of Uniform Traffic Control Devices.

5.1. Traffic Control Plans
Separate drawings for each phase of construction has been prepared to show proposed site arrangements and traffic control systems installed.

Certified flaggers will ensure implementation of the plan and control of traffic and any entrance or exit to and from the property.

6. Communication Plan
This section explains how the neighbors impacted by project activity will be notified ahead of time about the activity and how it would impact their daily commute.

6.1. Public Notification
A notification will be sent to all neighbors and busses that may be affected by project activity prior to start of the construction and each specific task with potential impact on their commute to notify them about the nature, timing and impact of the activity on their daily commute.

A copy of the notice will be sent to DNV as well. Appendix ...... shows the address of neighboring properties that will be notified.

6.2. Coordination with Adjacent Developments
Copy of the traffic plans will be shared with all adjacent developments and any lane closure will be coordinated with them.

6.3. Project Contact Information:

Main contact number: Redic Developments 604-338-8496

General Contractor: TBD
Rupert Street Townhomes, District of North Vancouver BC | Project No. 17044
18-05-07

LEVEL 3 PLAN
IREDALE ARCHITECTURE

RUPERT STREET

PROPERTY LINE
10'-0" ROAD DEDICATION

PROPERTY LINE
10'-0"

MOUNTAIN HWY.

COMMON WALKWAY
OPEN TO COURTYARD BELOW
LIVING WALL FEATURE

UNIT E
1,787 SF UNIT

UNIT F
1,587 SF UNIT

UNIT G
1,245 SF UNIT

UNIT H1
1,381 SF UNIT

UNIT H2
1,381 SF UNIT

UNIT H2
1,355 SF

UNIT H2
1,355 SF

UNIT H2
1,355 SF

UNIT H2
1,355 SF

UNIT H2
1,355 SF

UNIT H2
1,355 SF

UNIT H2
1,355 SF

UNIT H2
1,355 SF

UNIT H2
1,355 SF

UNIT B
1,567 SF
Landscape Design Rationale:

The Lower Lynn neighborhood evolving fast - changing from its modest manufacturing roots into one of Metro Vancouver’s last urban centers. Situated at the foot of the North Shore’s awe-inspiring wilderness, the overall design of the landscape fuses the community’s simple, working class legacy with contemporary design in the outdoors. We endeavor to create a place where people can reconnect with their neighbours and experience the outdoors in ways they may have done in years past.

As the building is perched about 3’ above the street, an instant overlook onto the public realm is established. Each townhome’s street face is accessed by individual stairs opening onto a modest terrace. This provides opportunities for social engagement between homeowners and pedestrians on the street. Fencing is proposed to be at a minimum to reduce hard edge verticality at the public realm interface. Vertical separation is managed with low stepped walls and tall planting that offers much seasonal interest.

The establishment of clearly defined multi-modal travel routes is intended to increase foot and bike traffic, which in turn will increase interaction amongst residents of this project and the surrounding neighborhood. Enhanced and custom site furnishings, street tree plantings, buffer strips and stormwater management amenities are utilized to create an inviting and activated pedestrian experience while aligning with the new Lynn Creek Public Realm Guidelines.

The courtyard presents an interesting opportunity for social engagement and the free range play of the development’s children. The structure below the green space is depressed enough to allow for flush planting and easy access across the garden. In order to provide additional soil depth and a sense of privacy and buffering across the courtyard, raised beds and planting, deciduous and evergreen trees are utilized to break sight lines across the garden. To buffer at higher levels, fastigiate trees are used to accomplish the same thing. The bisecting pathway forms part of this designated play area intended for kids and parents. Offering textures and materials in the pathways, edible plantings and seating.

To provide the courtyard with as expansive a feel as possible, fenced terrace enclosures are not proposed in the courtyard. Rather, as a means of demarking the residents’ limited common property assignment, two colours and opposing orientation of the same paver is proposed. One colour and direction for the terraces and another colour and direction for the common pathway.
Tree Management Plan

Relative to the point of view on the property, the trees to be removed are:

- Existing Tree to be Removed

Legend:
- Existing Tree to be Removed

Note:
- To be read in conjunction with Arborist’s report from Radix Tree & Landscape Consulting Inc. September 18, 2017.

Scale: 1:100

Project: Rupert Street Townhouses

Legend:
- Existing Tree to be Removed

Note:
- To be read in conjunction with Arborist’s report from Radix Tree & Landscape Consulting Inc. September 18, 2017.
**RUPERT STREET**

- **Concrete pavers**
- **Property line**
- **Extent of parkade slab**

**Concrete pavers**
- Concrete pavers in contrasting colour and orientation to demark terrace from public walkway.
- Water feature and planter against stair wall forms focal point to influence from street.

**Sitting/socializing area**
- Play area for toddlers.
- Resilient surfacing, planters for edibles out of way of dogs, boulders and stumps.

- **Wood block seating elements**
- To match dimension of storage closet across the walkway.

**Access path in planting**
- Access gate for maintenance.

**Transformer**
- Access gate for maintenance.

**Corner seating area**
- Main courtyard entrance.

**Ramp**
- Access path in planting.

**Guardrail**
- Bike racks.

**Property line**
- Extent of parkade slab.

**Concrete pavers**
- Concrete pavers in contrasting colour and orientation to demark terrace from public walkway.
- Water feature and planter against stair wall forms focal point to influence from street.

**Corner seating area**
- Main courtyard entrance.

**Ramp**
- Access gate for maintenance.

**Guardrail**
- Bike racks.

**Property line**
- Extent of parkade slab.

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- Concrete pavers in contrasting colour and orientation to demark terrace from public walkway.
- Water feature and planter against stair wall forms focal point to influence from street.

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**Access path in planting**
- Access gate for maintenance.

**Transformer**
- Access gate for maintenance.

**Corner seating area**
- Main courtyard entrance.
**Hard Landscape Plan - Level 1**

**SITE FURNISHINGS - OFF SITE**

<table>
<thead>
<tr>
<th>ID</th>
<th>DESCRIPTION</th>
<th>SIZE</th>
<th>MODEL</th>
<th>MANUFACTURER</th>
<th>COMMENT</th>
<th>COLOUR</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bench</td>
<td>Vary</td>
<td>Custom</td>
<td>Corten/ Hardwood</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Trash Receptacle</td>
<td>36 gal.</td>
<td>SDC-36</td>
<td>Victor Stanley</td>
<td>Side deposit, Titanium</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Tree Grate</td>
<td>3648 x 1216mm</td>
<td>MKT-48-18-144</td>
<td>Dobney</td>
<td>Natural</td>
<td>4</td>
<td></td>
</tr>
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</table>

**SITE FURNISHINGS - ON SITE**

<table>
<thead>
<tr>
<th>ID</th>
<th>DESCRIPTION</th>
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<th>MANUFACTURER</th>
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<th>COLOUR</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Bench</td>
<td>Vary</td>
<td>Custom</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Bike rack</td>
<td>3mm</td>
<td>Ring</td>
<td>Landscape Forms</td>
<td>Titanium</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Play equipment</td>
<td>custom</td>
<td>selected boulders and low sitting stumps</td>
<td>5.1</td>
<td>Play equipment</td>
<td>3' dia galvanized planter</td>
<td>galvanized</td>
</tr>
<tr>
<td>6</td>
<td>Steel Planter</td>
<td>Custom</td>
<td>Corten</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>6.1</td>
<td>Concrete patio pavers</td>
<td>3&quot;x18&quot;x4&quot;</td>
<td>Broadway 318</td>
<td>Barkman Concrete</td>
<td>Stack bond, Natural</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.2</td>
<td>Concrete patio pavers</td>
<td>3&quot;x18&quot;x4&quot;</td>
<td>Broadway 318</td>
<td>Barkman Concrete</td>
<td>Stack bond, Charcoal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Broom Finish Concrete</td>
<td></td>
<td></td>
<td></td>
<td>Saw cut joints, Natural</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Stone Flag</td>
<td>random</td>
<td>split face</td>
<td>Basalt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Resilient Rubber surfacing</td>
<td></td>
<td>Marathon</td>
<td>domes- solid rose, fields- 3 solid colours</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MATERIALS**

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<th>DESCRIPTION</th>
<th>SIZE</th>
<th>MODEL</th>
<th>MANUFACTURER</th>
<th>COMMENT</th>
<th>COLOUR</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Concrete pavers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Concrete pavers</td>
<td>24&quot; x 24&quot;</td>
<td></td>
<td></td>
<td>Natural</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Resilient Rubber surfacing</td>
<td></td>
<td>Marathon</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Bike racks</td>
<td></td>
<td>Landscape Forms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Play equipment</td>
<td></td>
<td>selected boulders and low sitting stumps</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Property line</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Extent of parking slab</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**LEGEND**

- **HOBB BIB**
- **IRRIGATION STUBOUT**
**PLANT LIST OFF-SITE**

<table>
<thead>
<tr>
<th>ID</th>
<th>QTY</th>
<th>LATIN NAME</th>
<th>COMMON NAME</th>
<th>SPACING</th>
<th>SCHEDULED SIZE</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>Fraxinus americana 'Autumn Purple'</td>
<td>white ash</td>
<td>as shown</td>
<td>6cm cal/B&amp;B</td>
<td>2m standard</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Nyssa sylvatica</td>
<td>Tupelo</td>
<td>as shown</td>
<td>7cm cal/B&amp;B</td>
<td>2m standard/full crowns</td>
</tr>
</tbody>
</table>

**SHRUBS & PERENNIALS**

<table>
<thead>
<tr>
<th>ID</th>
<th>QTY</th>
<th>LATIN NAME</th>
<th>COMMON NAME</th>
<th>SPACING</th>
<th>REMOVED SIZE</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>110</td>
<td>Euonymous fortunei Emerald Gaiety</td>
<td>Variegated Winter Creeper</td>
<td>457mm</td>
<td>#1 cont.</td>
<td>full/bushy plants</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Physocarpus opulifolius Tiny Wine</td>
<td>Tiny Wine Ninebark</td>
<td>1219mm</td>
<td>#2 cont.</td>
<td>full/bushy</td>
</tr>
</tbody>
</table>

**LAWN**

Non-Netted, grown on sand

**NOTES:**

1. All landscape to conform to the current edition of the BC Landscape Standards for Level 2 Groomed Landscape Treatment.
2. All trees to be positioned in accordance with the property line and Extent of parkade slab.

**PROPERTY LINE**

Extent of parkade slab

**NOTE:**

The District of North Vancouver is responsible for the on-going maintenance of street trees on off-site areas. Please ensure that the developer is aware that on-going maintenance of shrubs/groundcover on off-site areas is the responsibility of the future property owner.
ALL PLANTS TO BE PLANTED須經手

ALL PLANT MATERIAL TO BE INSPECTED PRIOR TO DELIVERY TO SITE. CONTRACTOR TO PROVIDE FILL DURING INSPECTION PER FIGURES OF THE CURRENT EDITION BSCLA STANDARDS.

All plant material to be inspected prior to delivery to site. Contractor to provide fill during inspection per figures of the current edition BSCLA standards.

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All plant material to be inspected prior to delivery to site. Contractor to provide fill during inspection per figures of the current edition BSCLA standards.
Section- Across courtyard

Scale: 1:50

2

Feature wall TBD
Berm
Wood block seating
Depressed slab for soil depth and garden accessibility for residents

Walkway
Terrace

Section- Building Face to Mountain Highway

Scale: 1:50

4

Exposed concrete to have surface texture face tasks item
Pavement facing an entry alongside

Section- Building Face to Rupert

Scale: 1:50

3

Dripstrip at building face
Stepped planter to preclude necessity for guardrails
Planted back of sidewalk

Section- Through courtyard to sidewalk

Scale: 1:50

1

Courtyard entry
Planted Berrines
Play area
Planted Berrine Lawn
Water Feature

Section- Building Face to Mountain Highway

Scale: 1:50

5

1840mm
914mm
102mm
1829mm
1219mm
1524mm
1219mm
1134mm
1219mm

Rupert

Dripstrip at building face
Stepped planter to preclude necessity for guardrails
Planted back of sidewalk

Professional Seal

18-5-23
21722 Rupert St Townhomes Master.vwx
Plot Date:
1. **Groundcover Planting on Slab**
   - Scale: 1:12
   - 610mm (24") min. growing medium, planting pit to be 2x rootball size

2. **Shrub Planting on Slab**
   - Scale: 1:12
   - 750mm (32") min. growing medium, planting pit to be 2x rootball size

3. **Hedge Planting on Slab**
   - Scale: 1:12
   - 1219mm typ.

4. **Concrete Paving Off-Slab**
   - Scale: 1:12
   - 101mm (4") thickness - reinforced with 10M bars @ 16" e/w
   - 152mm (6") of crush-compacted sub-base

5. **Unit Paving On-Slab**
   - Scale: 1:12
   - 2-3/8" concrete pavers
   - 2" of 9mm clear crush min.

6. **Tree Planting on Slab**
   - Scale: 1:24
   - Growing medium on filter fabric on 4" drainage rock on protection membrane on waterproof membrane on structural slab

Detailed specifications for various elements are included in the document, covering aspects such as drainage, planting media, and structural components.
1052759 BC Ltd.
RESIDENTIAL DEVELOPMENT
340 MOUNTAIN HWY. & 1515-1537 RUPERT ST. NORTH VANCOUVER, BC

PROJECT LOCATION

LEGEND

DRAWING LIST

COVER
C1.1 SITE SERVICES PLAN
C1.2 STORM WATER MANAGEMENT PLAN
C2.1 ROADWORKS - MOUNTAIN HWY. & INTERSECTION PLAN
C2.2 ROADWORKS - RUPERT ST.
C2.3 WATERWORKS - MOUNTAIN HWY.
C2.4 WATERWORKS - RUPERT ST.
C2.5 STORM & SANITARY SEWER - RUPERT ST.
C4.1 MOUNTAIN HWY. CROSS SECTIONS
C4.2 RUPERT ST. CROSS SECTIONS
P.S.1 FIRE TRUCK MOVEMENT
P.S.2 MEDIUM EAGLE UNIT TRUCK MOVEMENT
MINUTES OF ADVISORY DESIGN PANEL MEETING HELD ON JANUARY 11, 2018

ATTENDING: Mr. Jordan Levine (Chair)
Mr. Tieg Martin (Vice Chair)
Ms. Amy Tsang
Ms. Diana Zoe Coop
Mr. Samir Eidnani
Mr. Charles Leman
Mr. Darren Burns

REGRETS: Sgt. Kevin Bracewell
Mr. Steve Wong
Mr. Stefen Elmitt

STAFF: Ms. Tamsin Guppy (Item 3.b)
Mr. Alfonso Tejada
Mr. Kevin Zhang
Ms. Casey Peters (Item 3.c)
Mr. Adam Wright

The meeting came to order at 7:10 pm.

b.) Inauguration of New Panel Members

Ms. Tamsin Guppy, discussed the role of the Panel and invited existing and new Panel members to introduce themselves and describe what they see as their role in the Panel.

Ms. Tamsin Guppy welcomed both Mr. Charles Leman and Mr. Darren Burns as the newest members of the Panel, who were both nominated by AIBC for positions as “Architect” each were and appointment to two-year terms by District Council.

Ms. Tamsin Guppy advised that the Panel required a Chair and Vice Chair for the 2018 term and nominations for these positions were discussed.

Mr. Jordan Levine was nominated for the position of Chair. Mr. Levine accepted the nomination and was acclaimed in the position.

Mr. Tieg Martin was nominated for the position of Vice Chair. Mr. Martin accepted the nomination and was acclaimed in the position.

The Panel discussed the style of meeting minutes and agreed that adding a summary of items on the final page of the minutes may be redundant and could lead to misrepresentations as information and items are synthesized and interpreted.
Ms. Tamsin Guppy indicated that in order to limit the length of meetings, that it would be important to limit meeting agendas to include a maximum of three (3) small or medium sized items, or two (2) large items. As a result of cutting back on meeting length so that meetings do not extend for more 3.5 hours, a second meeting may occasionally be required. When required it was suggested it be scheduled on a successive Thursday evening.

Ms. Tamsin Guppy reminded the Panel members of the materials available to them including:
- Electronic links to all relevant design guidelines
- A binder on all design guidelines
- A copy of sample panel motions
- A list of panel members

The offer of individual binders or resource materials for Panel members was made, and it was noted that anyone who at any time would like their own copies of materials just has to ask staff who will be happy to provide it.

Ms. Tamsin Guppy asked the panel if they were satisfied with the cold suppers provided of sandwiches and salads. The Panel agreed to continue these cold suppers. Ms. Guppy suggested that Panel members speak to her if they have any catering preferences for future meetings including switching to hot meals or varied meals in the future.

The 2018 Advisory Design Panel Schedule was distributed among Panel members, and given the year's holidays all meetings can occur as normally scheduled on the second Thursday of the month.

c.) 340 Mountain Hwy & 1515-1537 Rupert St - Detailed Planning Application – Rezoning and Development Permit for a stacked townhouse development

Ms. Casey Peters, Development Planner, introduced the project and explained the context.

The Chair welcomed the applicant team from who held a presentation on the project. Peter Hildebrand from Iredale Architecture and Daryl Tyacke from ETA Landscape Architecture presented the details of the project and noted changes that were made from the preliminary application.

The Chair thanked the applicant for their presentation and asked if there were any questions of clarification from the Panel. The following questions were posed by the Panel:

- Which lots adjacent to the project site will be assembled in the future? Four lots to the east of the site on Rupert St.
- How will the lane be affected? The lane south of Rupert St. will remain open in the short term and will be assembled with the site to the south in the future.
- Is the garbage accessed through the courtyard? Yes
- Is that a closet under the stairs in level three? Yes
• What type of trees will be planted, and how high will they grow? Ginkgo, approximately 25 feet.
• Some rooms in the parkade are not labelled. The rooms will likely be bike storage.
• Will the electrical room be located in the parkade? No, because of flood hazard.
• Is the only electrical room at the courtyard level? There is another one at the main entrance next to stairwell.
• Can you explain the east elevation and amenity space? That's a private patio space for one unit in the rear of the building. The east face is limited in terms of the unprotected openings that we can have.
• Is there centralized hot water? Yes, in-floor heating with in-unit gas-fed boilers. The heating system will be able to tie into district energy when available.
• Is there a municipal requirement for a side yard setback or a zero lot line on the east elevation? The municipality is requiring that the driveway access be shared (underground) but that the buildings be distinct.
• Has project been brought for code review? Yes.
• Are you proposing a living wall feature? No, a glass feature wall instead.
• Could you tell us about the materials? We wanted to have a timeless look, and link to an industrial character, with beige brick, dark fibre cement panels, and corten-steel.

Mr. Alfonso Tejada, District Urban Design Planner, provided the following comments for consideration:

• Exterior design is repetitive and not in keeping with the Lynn Creek guidelines for asymmetrical design.
• The building needs to "turn the corner" at Mountain Hwy and Rupert St.
• The urban streetwall should have upper storeys setback. The proposal achieves this on the north elevation but not on the west elevation.
• The proximity of the buildings across the courtyard is problematic and at odds with the design guidelines. As the courtyard is enclosed on all sides the light in the courtyard and to the lower units will be very limited.
• East façade will be clearly seen from adjacent park and requires better detailing.
• Materials are not in accordance with the design guidelines which emphasize wood, steel, concrete, stone, and natural materials.
• The building does not read as a residential building.

The Chair invited comments from Panel members, and the following comments and items for consideration were provided:

• Additional clarification required on landscape plan as it is difficult to determine location of the trees in the courtyard.
• Additional review of the parkade to address usability including door conflicts.
• Given space constraints, and landscape berm, drainage may benefit from pavers on pedestals.
• Given that this project is proposing to share driveway access and connect the two parkades, consider addressing the security between the parkade and rest of site, as well as future connections to neighbouring site – fire alarms on the two projects will need to be connected.

• Need to ensure emergency response clearance in exterior. Existing condition would provide challenges for emergency responders.

• Reconsider garbage location as the courtyard location could be challenging.

• Look at the insulated assemblies that also have venting and coordinate with the sprinkler design. Would benefit from a review from a sprinkler engineer.

• Concur with Mr. Tejada's comments with regards to the repetitious modulation on the Rupert Street elevations which is reinforced by the narrowness of the windows. There is an opportunity through modulation to keep the style of the proposal but address the design guidelines for the area.

• Overall width of the building isn't excessively long, garage element is only non-detailed facade.

• Unit entries still feel like they are commercial store fronts.

• Support the design to define the private space using landscaping within the courtyard without adding additional barriers which might block light. The courtyard design offers opportunities for socialization.

• Ensure that water feature is safe for small children.

• May want to consider another screen element than Oakleaf Hydrangea, as it may be challenging in winter.

• A model would have helped with the review of this project.

• Consider route of venting for gas-fed boilers.

• Future heat exchange room and water entry room may present a challenge given the proposed headroom limitation.

• May need to review door swing plans, and potentially introduce pocket doors to mitigate conflicts.

• Shadow studies are not complete and as provided highlight concerns about lack of light in the courtyard.

• East elevation will be the dominant view from the park. Majority of panel members expressed concerns that not enough has been done to modulate this elevation and properly finish this view of the building.

• Support expressed for the formality of the project.

• Entrance needs refinement to be successful.

• Painted glazing feature could be fantastic – printed or blasted, perhaps water running through it. This feature could enhance the entry experience.

• Tight, well-planned units, but not at the expense of some luxury.

• Diverging from the design guidelines may be acceptable as we are looking for a variety of architectural character in this urban centre. There are simple and strong aspects to this approach.

• Aluminum guard rails – may not look as nice as steel.
• Challenge yourself to maintain your vision and character, but also align with the design guidelines.

One of the panel members who was unable to attend the Advisory Design Panel meeting emailed in the following comments for consideration:

• Exterior materials would be enhanced by further clarity. Renders, elevations and schedules would be improved by more detailing, completeness, and consistency.

The Chair invited the project team to respond. The team appreciated all of the comments from the Panel and were happy to continue to challenge themselves in improving the design. The project team explained that they have a better understanding of the context and the suggestions of the Panel and that they can improve the east façade greatly while taking into account the function, context and the design guidelines.

The Chair invited the Panel to compose a motion:

MOVED by Ms. Amy Tsang and SECONDED by Mr. Samir Eidnani:

THAT the ADP has reviewed the proposal and recommends APPROVAL of the project SUBJECT to addressing to the satisfaction of staff the items noted by the Panel in its review of the project.

CARRIED

4. OTHER BUSINESS

None.

5. ADJOURNMENT

The meeting was adjourned at 9:20 p.m.

6. NEXT MEETING

February 8th, 2018
September 18, 2017

Redic Developments  
Attn: Armin Khatoonabadi  
#200 – 1111 W Hastings Street  
Vancouver, BC  
V6E 2J3  

RE: Arborist report for trees at 340 Mountain Highway &  
1515, 1521, 1529 & 1537 Rupert Street, NV  

ASSIGNMENT:  
This report is in response to your request to assess some trees located at 340 Mountain Highway and 1515, 1521, 1529 & 1537 Rupert Street. The intent of this report is to determine the mode of tree protection that would be recommended to preserve these trees from any damage due to the proposed lot assembly and re-development of these sites. Also, to determine which trees would be candidates for removal based on the site plans provided indicating their proximity to the building envelopes and the heavy construction activities that are likely to occur at this site.

Picture 1. Aerial View of property

TREE & SITE DETAILS:  
A site visit was conducted on August 17th where 14 trees were assessed for this report. A site survey and a site plan were provided prior to the site visit. These are all mature trees that have been growing in this location for some time and are well established.
For the purpose of this report the trees have been assigned a reference number for identification. All trees within 5.0 m of the property boundaries (outside the site) have also been considered and included in the inventory. The species have been identified; the diameters measured at 1.3 meters above grade (D.B.H); their heights approximated and any observations are represented in the inventory table below (Figure 1).

<table>
<thead>
<tr>
<th>Tree #</th>
<th>Species</th>
<th>DBH (cm)</th>
<th>Ht (m)</th>
<th>Canopy Radius (m)</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>English Oak – <em>Quercus robur</em></td>
<td>58</td>
<td>13.7</td>
<td>7.5</td>
<td><strong>Good</strong> – located on City Blvd at northeast corner of site; approx 5.0 m east of driveway at 1537 Rupert St; phototropic lean west; falls within proximity to zones of heaviest construction &amp; excavation activities – retain &amp; monitor; tree protection req’d</td>
</tr>
<tr>
<td>2</td>
<td>Orchard Apple – <em>Malus</em> sp</td>
<td>28 &amp; 35</td>
<td>3.6</td>
<td>3.5</td>
<td><strong>Poor</strong> – located at 1537 Rupert St; decay cavities present; previously topped at 3.0 m; falls within proposed bldg footprint &amp; within zones of heaviest construction &amp; excavation activities – removal is recommended</td>
</tr>
<tr>
<td>3</td>
<td>Orchard Apple – <em>Malus</em> sp</td>
<td>30 &amp; 32.5</td>
<td>4.5</td>
<td>4.5</td>
<td><strong>Poor</strong> – located at 1537 Rupert St; decay cavities at base; phototropic lean north; falls within proposed bldg footprint &amp; within zones of heaviest construction &amp; excavation activities – removal is recommended</td>
</tr>
<tr>
<td>4</td>
<td>Orchard Cherry – <em>Prunus</em> sp</td>
<td>70</td>
<td>6.1</td>
<td>4.0</td>
<td><strong>Poor</strong> – located at 1537 Rupert St near south PL; canopy dieback; decay cavities; insect frass present; falls within proposed bldg footprint &amp; within zones of heaviest construction &amp; excavation activities – removal is recommended</td>
</tr>
<tr>
<td>5</td>
<td>Orchard Pear – <em>Pyrus</em> sp</td>
<td>31</td>
<td>4.5</td>
<td>3.5</td>
<td><strong>Fair</strong> – located 1537 Rupert St; adjacent west PL; phototropic lean northwest; falls within proposed bldg footprint &amp; within zones of heaviest construction &amp; excavation activities – removal is recommended</td>
</tr>
<tr>
<td>6</td>
<td>Common Hazel – <em>Corylus avellana</em></td>
<td>3 to 12</td>
<td>6.1</td>
<td>4.5</td>
<td><strong>Fair</strong> – located at 1537 Rupert St at south PL; multi-stemmed; sprouting off old stump; falls at edge of proposed bldg footprint &amp; within zones of heaviest construction &amp; excavation activities – removal is recommended</td>
</tr>
<tr>
<td>7</td>
<td>Bitter Cherry – <em>Prunus emarginata</em></td>
<td>20, 18, 15, 10, 10 &amp; 8</td>
<td>12.2</td>
<td>5.0</td>
<td><strong>Fair</strong> – located at 1515 Rupert St at southeast corner; multi-stemmed; falls at edge of proposed bldg footprint &amp; within zones of heaviest construction &amp; excavation activities – removal is recommended</td>
</tr>
<tr>
<td>8</td>
<td>Mountain Ash – <em>Sorbus aucuparia</em></td>
<td>14</td>
<td>6.1</td>
<td>1.5</td>
<td><strong>Poor</strong> – located on City Blvd at west PL; under 3-phase hydro lines; previously topped at 4.5 m; falls within zones of heaviest construction &amp; excavation activities – removal is recommended</td>
</tr>
<tr>
<td>9</td>
<td>Vine Maple – <em>Acer circinatum</em></td>
<td>6 &amp; 12</td>
<td>3.6</td>
<td>3.5</td>
<td><strong>Poor</strong> – located at City Blvd at west PL; stem dieback; falls within proximity zones of heaviest construction &amp; excavation activities – removal is recommended</td>
</tr>
<tr>
<td>No.</td>
<td>Species Name</td>
<td>Location</td>
<td>Diameter (cm)</td>
<td>Height (m)</td>
<td>Condition</td>
</tr>
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<tr>
<td>10</td>
<td>Alberta Blue Spruce – <em>Picea glauca</em> cv5</td>
<td>9</td>
<td>2.1</td>
<td>0.5</td>
<td><strong>Fair to Good</strong> – located on City Blvd at northwest corner of site; low trunk taper; high live crown ratio; falls within zones of heaviest construction &amp; excavation activities for curb &amp; blvd realignment – <strong>removal is recommended</strong>; possible candidate for transplanting to another location on site or relocated to another location</td>
</tr>
<tr>
<td>11</td>
<td>Smoke Bush – <em>Cotinus</em></td>
<td>7, 8, 5, 5 &amp; 6</td>
<td>3.6</td>
<td>3.0</td>
<td><strong>Fair</strong> – located at north PL at 1515 Rupert St; appears to be straddling PL &amp; thus deemed ‘shared’ with City Blvd; growing in raised planter bed; falls within zones of heaviest construction &amp; excavation activities – <strong>removal is recommended</strong></td>
</tr>
<tr>
<td>12</td>
<td>Japanese Maple – <em>Acer palmatum</em></td>
<td>10, 10 &amp; 9</td>
<td>3.0</td>
<td>3.0</td>
<td><strong>Fair to Good</strong> – located at east PL of 340 Mountain Hwy; appears to be straddling PL &amp; thus is deemed ‘shared’ with 1515 Rupert St; growing in raised garden bed; falls within proposed bldg footprint &amp; within zones of heaviest construction &amp; excavation activities – <strong>removal is recommended</strong></td>
</tr>
<tr>
<td>13</td>
<td>Japanese Maple – <em>Acer palmatum</em></td>
<td>22, 23.5 &amp; 13</td>
<td>6.1</td>
<td>5.0</td>
<td><strong>Good</strong> – located at north PL of 1529 Rupert St; appears to be straddling PL &amp; thus would be deemed ‘shared’ with City Blvd; falls at edge of proposed bldg footprint &amp; within zones of heaviest construction &amp; excavation activities – <strong>removal is recommended</strong></td>
</tr>
<tr>
<td>14</td>
<td>Japanese Maple – <em>Acer palmatum</em></td>
<td>16, 13 &amp; 15</td>
<td>5.4</td>
<td>3.8</td>
<td><strong>Fair to Poor</strong> – located on City blvd at north PL of 1529 Rupert St; decay in lower stems; falls at edge of proposed bldg footprint &amp; within zones of heaviest construction &amp; excavation activities – <strong>removal is recommended</strong></td>
</tr>
</tbody>
</table>

**Figure 1.** Inventory Table

**Picture 2.** Site trees - view south from along Rupert St

Initial observations are that all six (6) lots are on a relatively level grade. There is a laneway at the south side with a 3-phase Hydro line was noted as running parallel with the west side along Mountain Highway. There were also services lines attaching to each house from the north side along Rupert St.
Picture 3. Tree #1 – blvd tree

View east towards Blvd tree at northeast corner

Picture 4. Tree #1

View east towards base of Blvd tree at northeast corner
Picture 5. Tree #2 – west of shed

View east towards site tree at 1537 Rupert St

Picture 6. Tree #2 – extensive decay

View towards site tree showing extensive decay cavities in stems
Picture 7. Tree #3 – southwest corner of shed

Picture 8. Tree #4 – south PL

View southeast towards site tree at 1537 Rupert St

View southwest towards site tree at west PL of 1537 Rupert St
Picture 9. Tree #4 – decay in stems

Picture 10. Tree #5 – west PL.
Picture 11. Tree #6 – south PL

Picture 12. Tree #7 – south PL
Picture 15. Tree #9 – blvd tree

Picture 16. Site trees – view east from along Mountain Highway
Picture 17. Tree #10 – blvd tree at NW corner

Picture 18. Tree #11 – north PL
Picture 19. Tree #12 – view southwest

Picture 20. Trees #11 & #12
View north towards site trees at north PL of 1529 Rupert St

Picture 21.
Trees #13 & #14

View towards base of tree #14 showing decay

Picture 22. Tree #14 – decay at base
As I understand it the re-development consists of townhouse structures constructed above an underground parkade. This will require extensive excavation which is anticipated to occur right up to the property lines on all sides to be able to pin the site. The extent of excavation will impact all the trees including the boulevard trees that are adjacent to the property lines. As well there is improvements proposed to the curb which includes realigning it for a new pedestrian walkway on both the north and west sides along with additional street parking.

A few of the trees were also noted as having a phototropic lean in the stems. *Phototropism* is a natural phenomenon that plants have adapted themselves to be able to grow in the direction of its light source and is not an indication of or representative of a potential failure. A number of these trees have also been previously topped or poorly managed throughout their growth period.

For the most part these trees are considered to be in varying conditions overall with a few of them being identified as being in poor condition or are considered marginal at best. There were no outward signs of chlorosis or excessive cone production. There were no outward signs of root decay. There is no apparent indication of shifting or heaving in the root plates at the time the site visit was conducted.

**RECOMMENDATIONS:**

1. Removal would be recommended for 13 trees located within the property boundaries of the subject sites and are located either straddling the property line ‘shared’ with the blvd or are on the DWV blvds along Rupert St & Mountain Hwy as outlined in Removal, Retention & Protection Plan attached at the end of this report. There are nine (9) private property trees and four (4) boulevard trees that are recommended for removal because they are either considered to be in either marginal or poor conditions and have been poorly managed; fall within the proposed building footprints or are within the zones of heaviest excavation & construction activities for the excavation for the underground parkade; will experience an increased probability of failure due to the proposed changes to the stand support (ie: increased windthrow due to loss of stand support) and or fall within the areas of heavy excavation and construction activities for the new pedestrian walkways or curb re-alignment. Many of these site trees have been poorly maintained or managed over their entire growth period and would not be deemed worthy of posing material constraints on the construction activities for the proposed redevelopment therefore removal and replacement would be considered reasonable.

2. Although tree #10 is recommended for removal it could be deemed a suitable candidate for transplanting and could reasonably be relocated to another area on the site or salvaged & relocated to another location such as a park or nearby blvd. Care and attention will be required to ensure its survival throughout the course of construction or until such time that it becomes established in its new location. Please refer to item #9 for proper care of newly planted or transplanted trees.

3. Please refer to Appendix A for further information on how trees are impacted by construction.
4. One (1) tree is deemed reasonable for retention and monitoring at this time. Although it falls on the DNV boulevard and appears farther away from these works a protection zone is required and should be constructed to delineate a zone around the tree with fencing to prevent encroachment of equipment as well as prevent items from being stored within the root zones. The fencing should be high enough (1.2 metres (4 ft)) to deter anyone from entering the root zones. Signage should be placed on the fencing to convey to workers the purpose for the fence. Wooden frame and orange poly fencing or something equivalent is suitable for this application. It is to remain in place for the duration of any construction activities until there is no further possibility that the trunk(s) and root zone(s) will be damaged. Care must be taken when construction activities occur within close proximity to the critical root zone (CRZ) of any tree. The tree protection zone has been determined based on site findings, the CRZ criteria and in consideration of the Corporation of the District of North Vancouver – Tree Protection Bylaw No. 7671. The TPZ specifications can be found within the Inventory & Recommendations Table attached at the end of this report. Additionally please refer to the Removal, Retention and Protection Plan attached at the end of this report.

<table>
<thead>
<tr>
<th>Tree #</th>
<th>DBH</th>
<th>Tree Protection Zone</th>
</tr>
</thead>
</table>
| 1      | 58  | ☳ TPZ to be placed at no less than 3.6 m (12 ft) from base of tree; to encompass tree on all sides affected. Please note to allow for the neighbouring site to maintain access into their property from the roadway along Rupert St.  
      |     | ☳ A qualified Certified Arborist should be on-site if any excavation & construction activities fall within 4.6 m (15 ft) of the tree location and within the protection zone specified for this tree. |

5. Please refer to Appendix B for further information on tree protection barriers.
6. A qualified Certified Arborist must be on-site during any periods of excavation or construction that falls within or within close proximity to the protection zones of the retained tree(s) to observe, assess and ensure that the integrity of the CRZs are maintained and conduct any subsequent root pruning (if req’d). Regular inspections throughout the course of the project are recommended and may be required to document the progress, observe and monitor the trees during and post construction. These inspections are to be executed by a qualified Certified Arborist to ensure that all aspects of their preservation are being adhered to and properly addressed.
7. If installation of any utilities, or pipes required for drainage etc, are to be installed within, or cross sect the CRZs of any of these trees, then it is recommended to reconsider their placement and or conduct the excavation for these like items by using an Air Spade® or like equipment to ensure that there are no structural roots severed or damaged during their installation as well as attempting to maintain as many viable feeder roots as possible. This AirSpade® excavation and any subsequent root pruning are to be conducted by or under the direct supervision of a qualified Certified Arborist.
8. Replacement planting is strongly recommended to ensure that the site has sufficient canopy coverage based on the parameters as set out by the Corporation of the District of North Vancouver – Tree Protection Bylaw No. 7671. Only a concept plan was provided at this time however it is reasonable that any replacement plantings be incorporated as part of the overall landscape plans for the new site layout. The location of the replacement plantings can be in any available areas remaining throughout the property(ies) or as part of the overall landscape plan. Ensuring that the newly planted trees have adequate planting depth, soil volume, drainage and are a suitable species that will encourage long term retention at the site is strongly recommended. The replanting ratio required is at 3:1 for every significant tree removed. **This will require verification by the DNV.**

9. The installation of any replacement trees should be executed in accordance with the specifications as set out by the Canadian Landscape Standards (1st Edition) for proper planting practices. This includes but is not limited to the following items such as exposing the root flare prior to planting, planting it at a proper depth, watering in the plant once it’s been installed, staking and mulching etc.

10. Any new plant material requires care in the first 2 to 3 growing seasons until they get established. It is important to note that newly planted trees rely on the moisture held within their root balls until they can get their roots out and established. This may take a few seasons therefore it is important to ensure that the root ball does not dry out even if the soil around it is moist, the root ball could still be dry. It is important that from time to time to get in there and check with your hands. Regular and thorough watering to the selected replacement plant(s) is required. An automated in-ground irrigation system would be suitable for this site. It is important to note however that despite an automated system being in place many landscapes require additional supplementary water to meet the needs of the new or transplanted plant material. **One option** is to use soaker hoses to direct water directly to the root zone of the new plant(s). The soaker hose(s) can be attached to a supply hose directed to the closest hose bib and attached a battery operated timer to assist with watering within the guidelines provided through the GVRD Water Conservation Practices. The **second option** would be to manually provide water or use a tree watering bags which are commonly available at Rona, Home Depot and Lee Valley Tools.

11. Organic mulch should be placed around the base of any newly planted trees within the critical root zone. This promotes moisture retention in the soil and helps reduce the establishment of competing weeds or grass. Do not place the mulch up against the tree itself, place it several inches away. Mulching at approximately 5 cm – 7.5 cm coverage over the entire root system area to improve overall tree health is recommended. The mulching should be spread out over the critical root zone and not placed right up against the trunk.

12. It is recommended to maintain the existing grade within the CRZ of any retained trees. Changing the grade around the tree(s) proposed for retention could possibly change the water table and the sites drainage creating other problems such as standing water, anaerobic soil conditions & or root rot etc. It would be discouraged to change the grade by importing fill to level out an area.
13. Pruning may be required to raise the crown slightly or reduce end weight to accommodate clearance or reduce overhang issues however this is not foreseen at this time. This work however should be limited only to the offending branches. Proper pruning practices must be adhered to and be in conformity with the ANSI Standards ANSI A300 and the ISA Best Management Practices for pruning. These are generally expected and accepted practices for qualified Certified Arborists and reputable tree service companies. This pruning work is to be conducted by or under the direct supervision/instruction of a qualified Certified Arborist.

14. Monitoring the tree(s) during and post construction is to be executed by a qualified Certified Arborist to ensure that all aspects of their preservation are being adhered to and properly addressed. Site visits to document the progress and observe the trees may be required through the duration of the project and beyond completion.

15. No vehicles, equipment or construction materials or like items are to be stored within the CRZ of these trees.

16. **Turf is not recommended** to be installed as part of the landscape within the root zone of any tree.

**CONCLUSION:**

In conclusion, care must be taken if construction activities occur within the root zone of any tree. Tree protection to enforce this is strongly recommended to prevent potential damage to the CRZ of these trees. Constructing a tree protection zone made of wooden frame and orange poly fencing will be an effective way to achieve the protection of the lower trunk and root zones from the heavy construction activities. It should remain in place for the duration of the construction until there is no further possibility of damage. In order to preserve trees on a construction site, it is important to understand that mature trees are much less adaptable to site changes that occur during or are associated with construction. Please refer to Appendices A and B accompanying this report for further information on the impact that construction can have on trees as well as additional parameters for tree protection barriers.

At this time 13 trees would be recommended for removal and replacement as it is concluded that they would be directly impacted by the lot assemblies and redevelopment proposed for the site. These trees fall within the proposed building envelopes and or are within close proximity to the zones of heavy excavation and construction activities. Also many have not been well maintained through their entire growth period and a few of them are deemed to be in either marginal or poor condition overall. They would not be deemed worthy of imposing a material constraint on the proposed re-development and or any construction related to the re-development of this site. Replacement planting in restitution for the removed trees is reasonable and can be incorporated as part of the overall landscape plan for the site.

The recommendations noted above are acceptable to achieve the balance of reducing the overall impact of the construction on the trees, acknowledging their preservation over the long term, and achieving the proper specifications required for any construction. Site visits by a qualified Certified Arborist at different stages of construction may be required to
ensure that the temporary measures to preserve the retained trees and their CRZs is sufficient.

The recommendations outlined within this report may be subject to change based on any further information provided or findings that are uncovered after this report is submitted. It is important to note that there are many different factors causing stress to trees. For example, imposed stress could be things such as environmental factors like climate change to cultural conditions such as soil compaction or mechanical damage to the roots, but is likely to be a combination of factors. Trees play an important role in the urban ecology, and all of us must be stewards to ensure a tree’s survival and our own safety.

Testing and Analysis:
The assessment completed on the trees defined within this report, consisted of a visual and physical inspection from the ground and was based upon the principals of Visual Tree Assessments. No invasive tests, such as using a resistograph or increment borer, were used during the testing for this report.

Assumptions and Limiting Conditions:
1. The information contained in this report covers only those items that were examined and reflect the condition of these items at the time of inspection. The inspection is limited to visual examination of accessible components without dissection, excavation or probing. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the trees or property in question may not arise in the future.
2. The opinions in this Report are given based upon observations made using generally accepted professional judgment, however, because trees and plants are living organisms and subject to change, damage and disease, the results, observations, recommendations, and analysis as set out in this Report are valid only as at the date any such testing, observations and analysis took place. No guarantee, warranty, representation or opinion is offered or made by Radix Tree and Landscape Consulting Inc as to the length of the validity of the results, observations, recommendations and analysis contained within this Report.
3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the appraiser/company can neither guarantee nor be responsible for the accuracy of information provided by others.
4. All tree work is to be completed under the supervision of an ISA Certified Arborist and in compliance with ISA, BC Hydro and WCB standards.
5. Alteration of any part of this report invalidates the entire report.

If you have any questions or concerns please feel free to contact me.

Sincerely yours,

Michelle McEwen
ISA Certified Arborist (PN-6707A)
ISA Qualified Tree Risk Assessor (TRAQ)
Wildlife/Danger Tree Assessor BC (P-1453)
CoFQ #00317-LH-08
Certified Horticulturist
Radix Tree and Landscape Consulting Inc
BC LAND SURVEYOR’S PROPOSED
SUBDIVISION AND TOPOGRAPHICAL
SURVEY PLAN OF LOTS 1-6
BLOCK 43 DISTRICT LOT
GROUP 1 NWD PLAN 1340

Please refer to Recommendations section of report for further info on protection parameters for site trees

Possible candidate for transplanting to another location on or off site

A qualified Certified Arborist must be on-site when excavation or construction activities are occurring within the protection zones prescribed for the site trees.
APPENDIX ‘A’

IMPACT OF CONSTRUCTION ON TREES

BACKGROUND OF APPROACH

A tree’s decline and mortality on construction sites results primarily from damage to the root system. During construction, roots are frequently cut when installing foundations, water, sewer lines or other utilities, driveways, curbs, sidewalks etc. Many roots are also lost when soil is removed during grading. Fine absorbing roots occur primarily within the top 6 to 8 inches of soil. Removing just a few inches of soil during grading can result in the elimination of many of these roots. Loss of fine roots will reduce water and nutrient absorption which will eventually lead to decline. Cutting larger roots could compromise stability and increase the probability of failure.

Compaction of the soil or placing fill over a tree root system during grading is equally as destructive. All plant cells, including those in the roots, require oxygen to survive. Root cells obtain oxygen from the pores space in the soil. When the soil over the root systems is compacted, or fill soil is added during construction, the amount of soil air is greatly reduced. At the same time, gases toxic to plant roots tend to accumulate in the soil. These adverse factors result in root mortality and tree decline.

Mechanical injuries to the stems and limbs also contribute to tree decline. Bark injuries inhibit transport of water and nutrients to the crown and allow entrance of decay and other disease organisms. Storing of supplies and materials within the root zone and soil contamination due to spills of materials such as fuel etc will also damage the root system.

The Critical Root Zone (CRZ) is the area of soil around the tree where the majority of the roots are located. The roots within this area provide stability and are responsible for the uptake of water and nutrients to maintain tree health. Any level of compaction limits root growth due to lack of available oxygen.

The stress of compaction and low soil fertility, coupled with other physical, environmental and human forces acting against these trees, it is reasonable to expect that the Critical Root Zones of these trees will be impacted, to some degree, due to the proposed construction activity that will occur near the trees. Providing protection for the trees is recommended to reduce any impact to the trees and their root systems.
APPENDIX ‘B’

TREE PROTECTION BARRIERS FOR TREES

![Diagram of tree protection barrier]
To select checklist points, click and select point values from the drop-down list for each item.

<table>
<thead>
<tr>
<th>Builder</th>
<th>Redic Development Inc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>340 Mountain Highway, 1515 - 1537 Rupert</td>
</tr>
</tbody>
</table>

**Summary**

1 - Energy and Envelope: 44 points  
2 - Materials and Methods: 43 points  
3 - Indoor Air Quality: 17 points  
4 - Ventilation: 12 points  
5 - Waste Management: 11 points  
6 - Water Conservation: 10 points  
7 - Business Practices: 8 points  
TOTAL POINTS: 145 points (GOLD) OK!

**I. ENERGY AND ENVELOPE**

This section awards points for construction methods and types of products that contribute to lower energy consumption, as well as alternative heating and electrical systems.

Minimum Energy Modelling 25 Points Required for Bronze, 30 points for Silver, 35 points for Gold, and 40 points for Platinum.

Find BUILT GREEN® Approved products that help earn your build points towards certification by viewing our online Product Catalogue: www.builtgreencanada.ca/i-envelope-and-energy-systems

### I.0: Energy Modelling

1.0 Energy modelling is a requirement for Section I (Energy and Envelope). Model the performance of your HD Project with any approved government software, such as EE4, eQuest, or CanQuest. Points will be awarded for efficiency gains noted above the reference codes. A building achieving greater than 100% efficiency is net-positive and can earn bonus points for generating more energy than it consumes.

The energy requirement for each certification level is based on the percent improvement. In other words, the energy model rating must meet the required percent improvement over the reference building. Input the modelling method and the % improvement. The checklist will automatically calculate the points earned.

Over NECB 2011:

- Bronze certification: building rating meets the code and earns 25 points.
- Silver certification: building rating is 10% improvement and earns 30 points.
- Gold certification: building rating is 20% improvement and earns 35 points.
- Platinum certification: building rating is 30% improvement and earns 40 points.

Over ASHRAE 90.1 2010

- Bronze certification: building rating is 5% improvement and earns 25 points.
- Silver certification: building rating is 15% improvement and earns 30 points.
- Gold certification: building rating is 25% improvement and earns 35 points.
- Platinum certification: building rating is 35% improvement and earns 40 points.

Note: future versions of this checklist will reference the updated NECB/ASHRAE standards, after the industry has adapted more fully to their use.

The remaining action items and points hereafter in Section I may be used for additional points to be earned in your overall score; however, these points will not impact the earned energy points determined by the % improvement over reference building.
<p>| | | | |</p>
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</thead>
<tbody>
<tr>
<td><strong>1.1.1</strong></td>
<td>Window to wall ratio does not exceed 40%.</td>
<td>2</td>
<td>NC</td>
</tr>
</tbody>
</table>
| **1.1.2** | Install additional roof insulation above amounts already required by building code:  
(i) +R5 (for 1 point);  
(ii) +R10 (2 points); or  
(iii) +R15 (3 points). | $ - $$$ | 1, 2 or 3 |
| **1.1.3** | Install additional insulation on exterior of above grade walls, above insulation amounts already required by building code:  
(i) +R5 for 2 point; or  
(ii) +R10 for 4 points. | $ - $$$ | 2 or 4 |
| **1.1.4** | Install additional insulation on exterior of foundation system, above code required amounts for interior insulation:  
(i) +R7.5 (for 1 point);  
(ii) +R10 (2 points); or  
(iii) +R15 (3 points). | $$$ | 1, 2 or 3 |
| **1.1.5** | Install insulation under the entire basement slab above amounts already required by code:  
(i) +R5 (for 1 point);  
(ii) +R8 (2 points); or  
(iii) +R12 (3 points). | $ - $$$ | 1, 2 or 3 |
| **1.1.6** | Attached garage or parking structure walls are insulated to minimum R12, and ceilings are insulated to minimum R35. | $ - $$$ | 1 |
| **1.1.7** | Attached garage, parking, and/or loading dock overhead doors are insulated with R8 to R12 (for 1 point) or greater than R12 (for 2 points). | $ - $$$ | 1 or 2 |
| **1.1.8** | Structural design eliminates the need for headers, or use insulated headers with minimum insulation value of R10. | $ - $ | 1 |
| **1.1.9** | Structural design eliminates the need for rim/band joists, or use manufactured rim/band joists insulated to minimum R10. | $ - $ | 2 |
| **1.1.10** | Install weather-stripped and insulated (R20 minimum for 1 point and R28 for 2 points) manufactured interior attic hatch, or have no interior attic access. | NC - $ | 1 or 2 |
| **1.1.11** | Install opaque doors that are a minimum R6, and any glazed sliding or swing doors at minimum R4 (for 1 point). | $$ | 1 |
| **1.1.12** | All decks or balconies are thermally broken from the building envelope by:  
(i) Minimum R10 (for 1 point); OR  
(ii) Are fully separated (for 3 points); OR  
(iii) There are no decks or balconies (for 3 points). | $ - $ | 1 or 3 |
| **1.1.13** | Windows are rated for high performance:  
(i) Windows are ENERGY STAR labeled at greater than 90% of all windows (3 points); OR  
(ii) All windows have U value of less than 2.2 W/m2k (1 point); less than 2.0 W/m2k (2 points); or less than 1.8 W/m2K (3 points). | $ - $$$ | 1, 2 or 3 |
| **1.1.14** | Window systems are installed to be air tight:  
(i) Non-HCFC expanding foam around all windows, door openings, and exterior wall penetrations (2 points); AND/OR  
(ii) All sill plates are sealed with foam gaskets or a continuous bead of acoustical sealant (1 point); OR  
(iii) The building has a contiguous window-wall or curtain-wall (3 points). | $ - $$$ | 1, 2 or 3 |
| **1.1.15** | All electrical back-boxes in exterior walls and ceilings are air tight (e.g. molded plastic). | 1 | NC - $ |
| **1.1.16** | Design all fire separations to be air tight, effectively sealing adjacent units from one another and from common space. | 2 | $ - $ |
| **1.1.17** | Building includes passive solar shading, the benefits of which are demonstrated through an energy model:  
(i) exterior or interstitial solar shading devices for glazing (2 points); OR  
(ii) exterior operational shading devices (4 points), with automated control (1 additional point). | $ - $ | 2, 4 or 5 |
| **1.1.18** | Use roofing material with a high solar reflectance index (SRI) of ≥78 (for roof slopes ≤ 2:12), or ≥29 (for roof slopes > 2:12). Roof areas that are covered by energy generation appliances (e.g. solar panels or wind turbines) or by vegetation (e.g. green roofing materials) are exempt. | $ - $ | 1 |
| **1.1.19** | Builder utilizes a certified building envelope engineer for the design of the building envelope (1 point). | 1 | $$$ |
I.2: Mechanical Systems

1.2.1 Calculate design heat loss and properly size HVAC equipment using CSA F280-M90 or ASHRAE/ACCA Standard 183.

1.2.2 Centrally locate HVAC systems inside the building’s heated envelope and reduce duct length.

1.2.3 District Energy used for primary space conditioning (heating and cooling):
   (i) The building is designed for, and ready to connect to, a district heating system within one year of opening (1 point);
   (ii) The building will be connected to a district heating system from occupancy (1 additional point);
   (iii) The district energy system will also provide cooling (1 additional point).

1.2.4 Install high efficiency heating systems for all units and systems serving common areas (minimum 90% AFUE gas furnace; minimum 85% AFUE oil furnace; or minimum 85% AFUE oil/gas boiler).

1.2.5 Implement a boiler management system to match the system operation to building loads and optimize controls for maximum energy savings.

1.2.6 Install high efficiency cooling systems for all units and systems serving common areas (minimum 14 SEER central A/C; or minimum ENERGY STAR individual appliance for each unit).

1.2.7 Install heat pumps to supply majority of space heating and cooling loads: ground/water with minimum COP of 4 or SEER 15, or air source with minimum COP of 2 or SEER 15.

1.2.8 Install a centralized high efficiency domestic hot water heating system with minimum 85% AFUE boiler; minimum 0.67 EF gas water heater; or instantaneous tankless systems in each unit (3 points). For commercial boiler, the minimum thermal efficiency is 90 Et for oil and 95 Et for gas.

1.2.9 Install heat pump-based DHW heating system (ground-, water-, or air-sourced, EF of 1.5 for 2 points; EF of 2 for 3 points) to supply a minimum of 35% of the peak DHW heating load and 70% of the total DHW energy load.

1.2.10 Hot water storage tanks insulated by manufacturer to a minimum R-12.5.

1.2.11 Insulate DHW piping:
   CASE 1: Where dwelling units contain independent DHW systems:
   (i) insulate the first three feet of the water lines from the hot water tank (1 point); OR
   (ii) insulate all hot water lines to all locations (2 points).
   CASE 2: Where DHW systems are common among multiple units:
   (i) insulate all hot water lines (including traps) for the first six feet from the central hot water tank (1 point); OR
   (ii) insulate all hot water lines to all locations (2 points).

1.2.12 Install ENERGY STAR labeled bathroom exhaust fans for each unit.

1.2.13 Fireplaces are all electric (2 points) or gas with sealed combustion and electronic ignition (2 points), or are EPA or CSA certified high-efficiency wood stove or pellet stove with a minimum efficiency of 72% (1 point) or 85% (2 points).

1.2.14 All fireplaces, wherever installed, include a fan kit to circulate warm air into the room (2 points).

1.2.15 Engage and independent Commissioning Engineer to review the Owner's HVAC and lighting system requirements, and perform a review of drawings and specifications (approx. 90% working drawings (2 points); AND Verify installation and operation of HVAC and lighting systems (3 points); AND/OR
   Carry out a follow-up onsite review of HVAC and lighting warranty items including comfort, controls, and energy efficiency (1 point).

I.3: Metering and Controls

1.3.1 Provide electricity (1 point) and/or natural gas (1 point) direct metering for each unit.

1.3.2 Provide programmable thermostats in each individual unit capable of managing at least two different daily schedules per week (e.g. weekday and weekend settings) (2 points total for all units).

1.3.3 Parkade/garage heating setpoint is no higher than 4 degrees C, or garage/parkade is unheated.

1.3.4 Units contain multiple heating/cooling zones with independent programmable thermostat control for each zone (2 zones = 2 points; 3 zones = 3 points; 4 zones = 4 points).

1.3.5 Install premium efficiency pump drive motors on all motors 1 hp or greater.

1.3.6 Install HVAC systems with variable speed drives on all motors where there is a variable flow requirement.
I.4: Re-Use or Recovery of Waste Energy

1.4.1 Install and balance ventilation energy recovery systems:
   (i) individually controlled active Heat/Energy Recovery Ventilator (HRV/ERV) for each dwelling unit (4 points);
   AND/OR
   (ii) solar/geo fresh air pre-heating for each unit (3 points); AND/OR
   (iii) same for all common areas (2 points).

          4 $ - $$$$  2 to 9

1.4.2 Install drain water heat recovery (DWRH) units on the main drain stack to recover heat from shower drain water.
   DWRH units must be CSA certified to B55.1 and B55.2:
   (i) 1 point for units less than 42% efficient;
   (ii) 2 points for units greater than or equal to 42% efficient;
   (iii) 1 additional point for units that are fully insulated.

          $$ - $$$  1, 2 or 3

1.4.3 Install a properly supported and wired ceiling fan in every dwelling unit.

          $  1

I.5: Appliances

1.5.1 Electric ranges are induction based, or are otherwise certified to use below 480 kWh/year on the EnerGuide Rating System.

          $ - $  1

1.5.2 Refrigerators are ENERGY STAR labeled products.

          1 $ - $  1

1.5.3 Dishwashers are ENERGY STAR labeled products.

          1 $ - $  1

1.5.4 Clothes washer or combo washer-dryers are ENERGY STAR labeled products.

          1 $ - $  1

1.5.5 Provide energy efficient clothes drying facilities for each unit (1 point each, maximum 2 points total):
   (i) Clothes dryers are ENERGY STAR labeled;
   (ii) Clothes dryers have an "auto sense" dry setting that utilizes a humidity sensor for efficiency;
   (iii) Each dwelling unit is provided outdoor clothes drying facilities (e.g. clothes lines).

          2 $ - $  1 or 2

1.5.6 All other eligible appliances supplied by the builder are ENERGY STAR rated (i.e. TV, LCDs, security systems).

          $ - $  1

I.6: On-Site Energy Generation

1.6.1 Building is built "Solar Ready" following the guidelines from either Natural Resources Canada (NRCan) or the Canadian Solar Industries Association (CanSIA):
   (i) Minimum 10% of the total roof area is designed to support future solar collectors, is not shaded by other structures, and is structurally capable of supporting solar panels;
   (ii) A suitably sized conduit/chaseway is provided for routing solar energy conductors (wires and/or fluid lines) from the roof to the mechanical room (6 inches for a central shared solar system, or 4 inches conduit per dwelling unit);
   (iii) The purchaser of the unit is given information upon sale showing them where future solar panels would be installed (e.g. building drawings with a clearly indicated location for future solar panels).

          NC - $  1

1.6.2 Install active solar hot water heating system. Sized for 30% of DHW load (5 points), 50% (6 points), 80% (8 points).

          $$ - $$$$  5, 6 or 8

1.6.3 Install on-site wind or solar (PV) electrical generation that supplies a portion of the designed electrical load (other than heat) in private dwelling areas: 10% for 4 pts, 25% for 8 pts, 50% for 12 pts, 75% for 16 pts, and 100% for 20 pts.

          $$ - $$$$  4, 8, 12, 16 or 20

1.6.4 Install on-site wind or solar (PV) electrical generation that supplies 50% (2 point) or 100% (4 points) of electrical needs for the common areas. This does not include electric heat.

          $ - $  2 or 4

1.6.5 Any exposed exterior accessibility ramps are heated with renewable energy or waste heat.

          $  2

1.6.6 Buildings are built ready for plug-in electric vehicles for minimum 5% of allocated parking spaces: 1 point for 240V plugs in the vehicle parking area, 2 points for certified charging stations.

          2 $ - $  1 or 2

I.7: Lighting and Automation

1.7.1 Exterior lighting follows IESNA illuminance requirements for recommended practice manual: Lighting for Exterior Environments.

          NC - $  2

1.7.2 All exit signage is photo-luminescent or LED based.

          2 NC - $  2
1.7.3 Common areas are illuminated with high efficiency (ENERGY STAR or LED) lighting.

1.7.4 Dwelling units are illuminated with high efficiency (ENERGY STAR or LED) lighting throughout: minimum 25% of all lighting (2 points); 50% (3 points); 75% (4 points); or 100% (5 points).

1.7.5 Insulated ceilings have no recessed lights, or advanced air-sealing methods are employed to ensure that recessed lights are fully air-tight (e.g. air tight and insulation contact rated recessed lights).

1.7.6 Install interior motion sensor light switches in over 25% (1 point), 50% (2 points) or 75% (3 points) of all common interior spaces, including hallways/Corridors, stairwells, laundry, garage, etc.

1.7.7 Install interior motion sensor light switches in each dwelling unit. 1 point per switch, to a maximum of 3 points (averaged across all dwelling units).

1.7.8 Install lighting with an automation control system capable of unified automation control of lighting loads for all common areas.

1.7.9 In all garages/parkades, provide automatic lighting system (2 points) and/or ventilation system (2 points) triggered by movement or CO levels.

1.7.10 Paint interior exposed surfaces of parkade (including walls, columns, and ceilings) semi-gloss white to reduce number of required lighting fixtures.

1.7.11 Install a master “all-off” switch in each dwelling unit that disables all non-essential electrical loads in the home.

1.7.12 Install a home automation system in each dwelling unit that is capable of monitoring and adjusting:

(i) heating, cooling, and humidity (2 points);
(ii) lighting greater than 4 locations/rooms (1 point);
(iii) if system can be controlled through a Wi-Fi, a smart phone, or app (1 additional point);
(iv) all lighting and/or blinds to adjust to hourly sun schedule (1 point)
(v) Domestic Hot Water (1 point);
(vi) pre-set irrigation systems to account for weather (1 point);
(vii) and a “vacation or away” mode that can turn off all non-essential electrical loads (1 point).

1.7.13 Install home energy monitoring system that monitors and reports use and consumption patterns of all energy (gas, electricity, oil) in the home (1 point). An additional 1 point may be gained if the system is integrated with onsite renewable energy generation and storage technology.

TOTAL SECTION POINTS 44

II. MATERIALS AND METHODS

This section rewards the use of environmentally preferred materials and building construction methods: recycled/reclaimed content, materials from renewable or sustainably managed sources, alternatives to dimensional lumber, more durable construction methods, and reducing the overall amount of material used.

Minimum 20 Points Required

Find BUILT GREEN® Approved products that help earn your build points towards certification by viewing our online Product Catalogue: www.builtgreencanada.ca/ii-materials-and-methods

2.1: Material Efficient Framing

2.1.1 Use Insulated Concrete Forms (ICF) or other systems that eliminate the need for traditional formwork: 3 points for below grade, and/or 4 points for 75% of above grade.

2.1.2 Use Optimum Value Engineering (OVE) for framing design:

(i) Exterior and interior wall stud spacing at minimum 19.2 inches on-center.
(ii) Elimination of headers at non-bearing interior and exterior walls.
(iii) Use of header hangers instead of jack studs.
(iv) Elimination of cripples on hung windows.
(v) Elimination of double plates, using single plates with connectors by lining up roof framing with wall and floor.

OR:
Use concrete floors and roof with cambering of slabs to reduce slab thickness and column sizes with a total project concrete savings of at least 8%.

2.1.3 Walls and roof designed on 24 inch modules to reduce waste.

2.1.4 Reduce dimensional lumber use by using engineered stud material for minimum 10% of structural stud wall framing.

2.1.5 Finger-jointed plate material and/or engineered plate material used for all framing plates.
2.1.6 Structural insulated panel system (SIPS) or other panelized construction systems are used for walls (3 points) and/or roofs (2 points).

2.1.7 Use insulating sheathing on the exterior of steel studs, or with corresponding structural bracing (metal fasteners) instead of non-insulated exterior wood sheathing.

<table>
<thead>
<tr>
<th>2.2: Environmentally Preferable Materials</th>
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<tbody>
<tr>
<td><strong>2.2.1</strong> Use environmentally engineered flooring system, such as reclaimed/recycled/rapidly renewable wood waste, cross-laminated timber, concrete with minimum 30% fly ash or other SCM, or minimum 75% recycled steel (1 point) from third-party certified, sustainably harvested sources (CSA, SFI, or FSC for 2 points). The use of third-party certified subfloor sheathing for 1 extra point.</td>
</tr>
<tr>
<td><strong>2.2.2</strong> Use environmentally engineered products for all load-bearing beams, such as reclaimed/recycled/rapidly renewable wood waste, concrete with minimum 30% fly ash or other SCM, or minimum 75% recycled steel.</td>
</tr>
<tr>
<td><strong>2.2.3</strong> Use environmentally engineered products for all exterior window and door headers, such as reclaimed/recycled/rapidly renewable wood waste, concrete with minimum 30% fly ash or other SCM, or minimum 75% recycled steel.</td>
</tr>
<tr>
<td><strong>2.2.4</strong> Deck, balcony, or veranda surfaces (1 point) and/or structure (1 point) made from a third-party certified, sustainably harvested wood source (CSA, SFI, or FSC) or third-party certified sustainable concrete.</td>
</tr>
<tr>
<td><strong>2.2.5</strong> Dimensional lumber from a third-party certified sustainably harvested source (CSA, SFI, or FSC) used for floor framing (1 point), wall framing (2 points), and/or roof framing (1 point).</td>
</tr>
<tr>
<td><strong>2.2.6</strong> Finger-jointed studs for minimum 90% of non-structural (1 point) and/or minimum 90% of structural (1 point) wall framing.</td>
</tr>
<tr>
<td><strong>2.2.7</strong> Steel studs made from minimum 75% recycled steel are used for interior walls (1 point) and exterior walls (1 additional point).</td>
</tr>
<tr>
<td><strong>2.2.8</strong> Recycled and/or recovered content gypsum wallboard, minimum of 40% post-consumer recycled content.</td>
</tr>
<tr>
<td><strong>2.2.9</strong> Recycled content exterior wall sheathing (minimum 50% pre- or post-consumer).</td>
</tr>
<tr>
<td><strong>2.2.10</strong> Concrete used in the building has a minimum supplementary cementitious material of 25% (1 point), 30% (2 points), or 40% (4 points) within the scope of proper engineering practices.</td>
</tr>
<tr>
<td><strong>2.2.11</strong> Insulation used in walls, roofs, and exposed floors (cantilevers) is certified by a third-party to contain a minimum recycled content: 25% (1 point) or 50% (2 points).</td>
</tr>
<tr>
<td><strong>2.2.12</strong> Overhead garage door is made of 75% or greater recycled material.</td>
</tr>
</tbody>
</table>
| **2.2.13** Floor Coverings:
  (i) Install carpet that has a minimum of 50% recycled content or 30% renewable content. | NC - $ 1 |
  (ii) Natural or 100% recycled-content carpet pad (e.g. made from textile, carpet cushion, or tire waste, rebond qualifies). | NC - $$ 1 |
  (iii) Save materials by eliminating carpet: have minimum of 20% concrete floor finished (e.g. stamped, acid-etched, etc.) and left exposed. | NC - $ 3 |
  (iv) Install ecologically preferred bamboo, cork, or hardwood flooring in each dwelling unit (1 point); more than 40% of all indoor floors (2 points) or more than 80% of all indoor floors (3 points). Products must be third-party certified from sustainably managed forests or certified sustainable sources (e.g. Rainforest Alliance, FSC, CSA, or SFI). | $ - $$$$ 1 to 3 |
  (v) All ceramic tile installed in any dwelling unit has a minimum of 25% recycled content. | $$$$ 2 |
| **2.2.14** Paints or finishes are manufactured with minimum 20% recycled content. | $ - $ 1 |
| **2.2.15** Shelving made from 100% agricultural waste or 100% recycled wood particle board, including shelving inside cabinets. | 2 $ - $$$$ 2 |
| **2.2.16** Doors:
  (i) Exterior doors contain minimum 15% recycled and/or recovered content. | $ 1 |
  (ii) Interior doors contain minimum 25% recycled and/or recovered content. | $ 1 |
  (iii) Minimum 50% of interior doors made from third-party certified, sustainably harvested wood (CSA, SFI, or FSC). | 2 NC - $$ 2 |
  (iv) Minimum 50% of interior doors have been salvaged from another project. | NC - $$ 3 |
| **2.2.17** Windows:
  (i) Exterior window frames contain minimum 10% recycled or reclaimed content. | $$ 1 |
  (ii) Exterior window frames made from third-party certified, sustainably harvested wood (CSA, SFI, or FSC). | $$$ 3 |
| **2.2.18** Parapets (2 points) or fascia and soffit (1 point each) made from minimum 50% recycled and/or recovered content (pre- or post-consumer). | $ 1 or 2 |
2.2.19 Exterior cladding materials contain a minimum of 50% recycled and/or recovered content for 25% of the building’s exterior (1 point); or more than 50% of exterior (2 points); or more than 75% of the exterior (3 points); or more than 90% of the exterior (4 points).

2.2.20 Exterior trim materials include at minimum 50% recycled and/or recovered content. This should include window, door, corner, and deck trim complete with any associated flashing.

2.2.21 Exterior trim materials are manufactured from OSB, which must have no added formaldehyde.

2.2.22 MDF and/or finger-jointed casing and baseboard used throughout (1 point), and in all jambs (1 point).

2.2.23 Solid hardwood from third-party certified, sustainably harvested sources (CSA, SFI, or FSC) used for millwork and/or cabinets in all kitchens (2 points) and/or all bathrooms (2 points) in all dwelling units and common areas.

2.2.24 More than 90% of all wood used for flooring, cabinets, and millwork is from:
(i) domestic (i.e. North American) sources (4 points),
(ii) recovered or re-milled sources (5 points),
(iii) salvaged or re-used (6 points).

2.2.25 Minimum 25% recycled-content roofing system, including underlay and finish for 2 points, 50% recycled content for 4 points.

2.2.26 Provide a green roof over 50% (3 points), 75% (5 points), or 100% of total roof area (7 points), excluding any roof area used for energy generation (e.g. wind turbines or solar panels).

2.2.27 Use of miscellaneous salvaged materials derived from local sources for any building assembly or component not otherwise listed above (1 point for each different product used, to a maximum of 3).

2.3: Durable Construction

2.3.1 Minimum 30-year manufacturer warranty roofing material (2 points plus 1 point for each additional 5 years). “Lifetime” warranties have terms/conditions that ultimately have a limit in real years, and will not be considered unless clarified. Inspection by certified roofing inspector or an envelope engineer for 1 point.

2.3.2 Low VOC water or damp proofing on foundation walls. (SCAQMD Rule 1113, 2004 VOC limits: Waterproofing sealers <=250 g/L / Waterproofing Concrete or Masonry Sealers: <=400 g/L).

2.3.3 Use a rain screen system to separate cladding from the wall sheathing with a drainage plane (2 points), made from 60% or more recycled content (additional 1 point for 60% OR additional 2 points for more than 90% recycled content). Integrate windows into drainage plane by angling bottom sills slightly down towards the exterior, and install window flashing to direct moisture out towards the drainage plane (additional 1 point).

2.3.4 All exterior doors and windows manufactured from fiberglass (1 point for windows and/or 1 point for doors).

2.3.5 Natural cementitious stone/stucco/brick, metal cladding, or fiber cement siding, or combination thereof for 25% of exterior cladding (1 point), 50% (2 points), 75% (3 points) or more than 90% (4 points).

2.3.6 Fascia and/or soffit made from fiber cement (1 point each).

2.3.7 Exterior trim materials made from alternatives to solid lumber.

2.3.8 All exterior trim is clad with pre-finished metal (1 point over wood backings, 2 points without wood backings).

2.3.9 Deck, veranda, and balcony surfaces made from environmentally preferable low-maintenance materials (e.g. stone, concrete, tile, composites, etc.) that do not need maintenance of any kind, including painting, for a minimum of 5 years.

2.3.10 Install durable flooring (e.g. laminate, finished concrete, tile, hardwood, etc.) in all high traffic areas (halls, kitchen, living space) (1 point); more than 30% of all indoor flooring (2 points); more than 60% of all indoor flooring (3 points); or more than 90% of all indoor flooring (4 points).

2.3.11 Countertops are made from durable materials such as granite, concrete, recycled glass, metal, or local natural stone, for all kitchen counters (2 points), or all other countertop areas (1 point), or both (3 points total).

2.3.12 Lifetime finish on all faucets.

2.3.13 Lifetime finish on all door hardware.

2.3.14 Install only Type 1 or 2 grade door hardware with lifetime mechanical warranty.

TOTAL SECTION POINTS 43
### III. INDOOR AIR QUALITY

This section focuses on the quality of the air within the finished building. Products listed here include materials that are low in VOCs, products made from all natural materials as well as various air cleaning and ventilation systems.

Minimum 15 Points Required

Find BUILT GREEN® Approved products that help earn your build points towards certification by viewing our online Product Catalogue: www.builtgreen canada.ca/iii-indoor-air-quality

#### 3.1: Air Treatment

<table>
<thead>
<tr>
<th>Points per item</th>
<th>Relative cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 NC - $$</td>
<td>1, 2, 3 or 6</td>
</tr>
</tbody>
</table>

3.1.1 Install air filtration on all air handling systems:
(i) pleated media filter with minimum MERV rating of 7 (1 point) or 12 (2 points); OR
(ii) an electrostatic air cleaner (2 points); OR
(iii) an electronic air cleaner (3 points); OR
(iv) a HEPA filtration system (6 points).

3.1.2 Install ultraviolet air purification in air handling systems. $$ 2

3.1.3 Provide thermostats in each dwelling unit or zone that indicates the need for the air filter to be changed or cleaned. $ 1

3.1.4 The HVAC design includes humidity control within each dwelling unit, zone and/or common area. $ 2

#### 3.2: Contaminant Source Elimination

<table>
<thead>
<tr>
<th>Points per item</th>
<th>Relative cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 NC - $</td>
<td>1</td>
</tr>
</tbody>
</table>

3.2.1 All combustion space and water heating equipment located within building are sealed with no possibility of backdraft. $ 1

3.2.2 Provide soil gas/radon protection:
(i) either verify that radon gas levels are within government-approved safe limits at the site, or provide passive sub-slab ventilation (1 point); OR
(ii) actively depressurizing the sub-slab (i.e. add a fan for 2 points).

3.2.3 Seal all permanent ductwork upon installation, removing seals once all phases of construction are complete. 1 NC - $ 1

3.2.4 Prior to occupancy, but after all interior construction is substantially complete and all finishes have been installed, perform a full flush of the air within the building by running the air handler (on maximum speed if a variable speed device) for a minimum of 48 hours (combined over not more than 4 sessions), and provide new filters in the air handler after the flush is complete. $ 2

3.2.5 Central vacuum system exhausted outside conditioned space. $ - $$ 1

3.2.6 Insulation used is third-party certified to have zero formaldehyde. $ 2

3.2.7 Low formaldehyde sub floor sheathing (third-party certified to less than 0.18 ppm). $ - $$$ 2

3.2.8 Low formaldehyde underlayment is used throughout (third-party certified to less than 0.21 ppm). $ 1

3.2.9 Low formaldehyde particle board/MDF used for cabinets: more than 0.21 ppm for 1 point, or zero formaldehyde for 2 points. $ - $ 1 or 2

3.2.10 Low formaldehyde particle board/MDF used for shelving: more than 0.21 ppm for 1 point, or zero formaldehyde for 2 points. $ - $ 1 or 2

3.2.11 All interior wire shelving is factory coated with low VOC/no off gassing coatings. $ - $$ 2

3.2.12 All hardwood floors are site-finished with water-based urethane finishes, or are factory finished. $ - $$ 2

3.2.13 Water-based lacquer or paints are used on all site-built and installed millwork, including doors, casing, and baseboards (less than 200 grams/litre of VOCs for 2 points or less than 50 grams/litre for 3 points). $ 2 or 3

3.2.14 Interior paints used have low VOC content (less than 200 grams/litre of VOCs for 1 point or less than 50 grams/litre for 2 points). 1 NC - $ 1 or 2

3.2.15 Interior paints have no VOCs in base paint prior to tint (1 point) or in tint (2 additional points). Alternatively, for a full 3 points, use natural finishes such as lime plasters (NOTE: If taking points in 3.2.15, then also take point in 3.2.14). $$$ 1 to 3

3.2.16 All ceramic tiles are installed with low VOC adhesives (less than 65 grams/litre) and plasticizer-free grout. $ 1

3.2.17 All vinyl flooring is replaced with natural linoleum installed with low VOC adhesives, or other hard-surface flooring. $ - $$ - $$$ 2
3.2.18 All flooring is installed with low VOC (less than 60 grams/litre) adhesives (for 1 point), or with zero VOC adhesive (2 points), or no adhesive (2 points).

3.2.19 Carpet and Rug Institute (CRI) IAQ label on all carpet used. Gemeinschaft umweltfreundlicher Teppichboden's (GUT) production information system PRODIS is also recognized.

3.2.20 Carpet and Rug Institute (CRI) IAQ label on all underlay used. Gemeinschaft umweltfreundlicher Teppichboden's (GUT) production information system PRODIS is also recognized.

3.2.21 Natural material-based carpet (e.g. wool) in all living areas (for minimum 150 ft²).

3.2.22 Carpet-free design: all flooring surfaces are hard (including stairs).

3.2.23 For all permanent or significant entryways leading from outdoors, install an entryway system of at least 10 feet in length to captures dirt and particulates (i.e. grates/grills/slotted systems or roll-out mats that are maintained weekly by a service organization).

**TOTAL SECTION POINTS 17**

### IV. VENTILATION

This section covers the mechanical ventilation systems in the building, including air filtration and heat recovery.

Minimum 5 Points Required

Platinum Level Note: Platinum level homes must use item 4.1.

Find BUILT GREEN® Approved products that help earn your build points towards certification by viewing our online Product Catalogue: www.builtgreencanada.ca/iv-ventilation

| 4.1 | Ventilation system is designed and installed according to CSA Standard F326 or ASHRAE 62.1. | 4 | $ - $$$ | 4 |
| 4.2 | All ductwork thoroughly sealed along all seams, joints, connections, penetrations, etc., in accordance with local prevailing code and industry best practice (2 points) or test/verify duct leakage to be less than 8 cfm (at 25 Pa) per 100 ft² of conditioned floor area (2 additional points). | NC - $ | 2 or 4 |
| 4.3 | Install in-line ventilation fan with programmable timer (separate switch from lighting) in each unit. | 1 | $ | 1 |
| 4.4 | Install motorized damper on all bathroom/exhaust fans. | $ | 2 |
| 4.5 | All bath fans have a noise level of 1 sone or less. | 2 | NC - $ | 2 |
| 4.6 | Provide local bathroom exhaust fan controls in each unit using either an occupancy sensor, automatic humidistat controller, automatic timer, or continuously operating exhaust fan. | 1 | $ - $ | 1 |
| 4.7 | Install timer switches, occupancy sensors or central BAS controls on all local exhaust fans outside of individual units (i.e. laundry, recreation, storage areas, etc.). | $ - $ | 1 |
| 4.8 | Install passive Heat Recovery Ventilator (HRV, for 2 points) or an active Heat Recovery Ventilator/Energy Recovery Ventilator (HRV or ERV, 4 points) either centrally or in each unit. | 4 | $ - $$$ | 2 or 4 |
| 4.9 | Install permanent (de)humidification control in each unit (ERV's are considered acceptable). | $ - $ | 1 |
| 4.10 | For indoor pool areas, install a designated dehumidification system designed by a consulting engineer or qualified contractor to match the water and air temperatures maintained in the area. | $ - $ | 1 |

**TOTAL SECTION POINTS 12**

### V. WASTE MANAGEMENT

This section deals with the handling of waste materials on the construction site and encourages recycling.

Minimum 7 Points Required

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| 5.1 | Comprehensive recycling program during construction for building site including education, site signage, and bins. | 2 | $ | 2 |
5.2 Implement a recycling program: collection of waste materials from site by a waste management company that is a current member of a provincial recycling council or equivalent association and verifies that a minimum of 25% of the materials collected from the construction site have been recycled.

5.3 Suppliers and trades recycle their own waste, including leftover material and packaging (1 point per trade—maximum 4 points).

5.4 Minimum 25% (1 point), 50% (2 points), 75% (3 points), or 90% (4 points) by weight or volume of waste materials collected from construction site is diverted from waste stream.

5.5 Waste reduction for remote projects: for projects occurring in regions that are minimum 100km away from the nearest population center with minimum 30,000 residents, the project may earn 1 point if the total amount of waste produced on the construction site is less than 4 lbs/ft², 2 points are available for less than 3 lbs/ft², and 3 points for less than 2 lbs/ft², and 4 points less than 1 lbs/ft².

5.6 Metal or engineered durable form systems used for concrete foundation walls.

5.7 Install permanent recycling center in each residential unit with two or more 26L bins (1 point), or four or more 26L bins (2 points), located in, or conveniently close to, the kitchen. Multiple bins are intended to facilitate sorting of different recyclables, potentially including compost. Equivalent bin configurations will be accepted where aligned with local recycling program requirements.

5.8 Provide a central recycling center for the housing project including, as a minimum, separate bins for paper, glass, and metal (1 point), and/or install a trash compactor (1 point).

5.9 Existing dwellings onsite from prior to construction are recycled (greater than 50% diverted from landfill for 3 points) or relocated (6 points) rather than demolished.

TOTAL SECTION POINTS 11

VI. WATER CONSERVATION

This section encourages a reduction in the amount of water used in the building.

Minimum 10 Points Required

Find BUILT GREEN® Approved products that help earn your build points towards certification by viewing our online Product Catalogue: www.builtgreencanada.ca/vi-water-conservation

6.1: Indoor Water Conservation

6.1.1 Install a calibrated water meter in every unit.

6.1.2 Install ultra efficient toilets with average flow rates less than or equal to 3L/flush for 2 points each (up to 6 points).

6.1.3 Install efficient toilets with average flow rates less than or equal to 4.5L/flush for 1 points each (up to 3 points).

6.1.4 Install waterless urinals in all public washrooms for men.

6.1.5 Install hot water recirculation system with all hot water lines insulated (2 points) with local activation/call switches installed at all points of use (additional 2 points), or point-of-use instant DHW system (1 point each, maximum 4).

6.1.6 Install low-flow aerated faucets for all lavatories (less than 5.7 lpm) including kitchen (less than 6.8 lpm) for 2 points, and all showers and tub/showers (less than 7.5 lpm) for 1 additional point.

6.1.7 Provide front-loading clothes washer (2 points), or condensing combination wash/dry unit (4 points), or top-loading clothes washer having a rated water factor of less than 25 litres per cycle per cubic foot (3 points).

6.1.8 Install water-saving dishwasher that uses less than 20.0 L/water per load.

6.2: Outdoor Water Conservation

6.2.1 Install permeable paving materials for all driveways and walkways (minimum 70% of hardscaped area).

6.2.2 Design all impermeable hardscape surfaces to direct rainwater to an on-site infiltration feature (i.e. vegetated swale, rain-garden, cistern, etc.).

6.2.3 Provide a minimum of 8 inches of topsoil or composted yard waste as finish grading throughout site.
6.2.4 Provide a list of drought-tolerant plants and a copy of the local municipality water usage guide to building manager(s)/occupants with closing package.  

6.2.5 Reduce lawn/turf to 50% of landscaped area.  

6.2.6 Provide permeable landscaping that is water efficient (for 1 point), xeriscaped (50% of landscaping for 2 points, 100% for 4 points), or is 100% plant-free landscaping (4 points).  

6.2.7 Install efficient irrigation technology including (for 1 point each, to maximum 3 points):  
(i) has head-to-head coverage;  
(ii) uses high efficiency spray heads with distribution uniformity of 0.7 or greater;  
(iii) uses a square spray patterns to increase efficiency and reduce overspray onto non-permeable surfaces;  
(iv) uses drip irrigation for minimum 50% of planting bed area, including all larger shrub bed areas;  
(v) includes a flow sensor, central shut-off valve, and sub meter;  
(vi) has a pressure regulating device;  
(vii) includes a moisture sensor/rain delay controller.  

6.3.1 Provide one rain barrel per unit, complete with insect screen, drain, and overflow spouts, and connect to building downspout (1 point).  

6.3.2 Provide a central rainwater collection cistern (minimum 50L per unit) to offset domestic water usage either indoors (e.g. atrium water, toilet flushing) or outdoor (e.g. irrigation for atria or gardens) (3 points for above grade, 5 points for below grade).  

6.3.3 Grey water: rough-in a system for collecting waste water from sinks, showers, and/or kitchens to capture and treat for use in toilets or irrigation (3 points), or complete the system by installing greywater treatment equipment (6 points).  

6.3.4 Install on-site black water treatment system or engineered wetland for reprocessing local sewage (8 points).  

6.4 Provide water conserving fixtures and an updated water use guide to building manager(s)/occupants with closing package.  

7.1.1 Builder has a written environmental policy defining their commitment (must include an office recycling program, a staff education program, appropriate signage in the builder's offices, and energy efficient lighting). The policy must be signed by a senior executive and published on the company website.  

7.1.2 Builder's environmental policy includes and prioritizes milestones for future net-zero housing developments.  

7.1.3 Manufacturer and/or supplier has a written environmental policy with defined environmental commitments (must include an office recycling program and energy efficient lighting). (1 point per supplier/manufacturer—maximum of 2 points).  

7.1.4 Products used for the building are manufactured within 800 km of build site (1 point for each 2 products to maximum 5 points).  

7.1.5 Manufacturers and/or suppliers purchase 50% or more of their power needs from solar, wind, or renewable electricity (1 point per supplier to maximum 3).  

7.1.6 Builder’s office and show homes/presentation centers purchase a minimum of 50% (1 point) or 100% (2 points) of their energy from renewable resources such as solar, wind, or biogas.  

7.1.7 50% (2 points) or 100% (4 points) of electricity used during construction of the project is generated by wind power or equivalent green power certificate. Usage from a typical 6 month construction period or a recent similar project can be used to determine the monthly average.  

7.1.8 50% (2 points) or 100% (4 points) of electricity used by occupants during first year of occupancy is generated by wind power or an equivalent renewable energy supply (prepaid by builder).  

VII. BUSINESS PRACTICES  
This section deals more with manufacturers and builders office and business practices.  
Minimum 8 Points Required  
Find BUILT GREEN® Approved products that help earn your build points towards certification by viewing our online Product Catalogue: www.builtgreencanada.ca/vii-business-practices  

7.1: Builder's Internal Policies  

7.1.1 Builder has a written environmental policy defining their commitment (must include an office recycling program, a staff education program, appropriate signage in the builder's offices, and energy efficient lighting). The policy must be signed by a senior executive and published on the company website.  

7.1.2 Builder's environmental policy includes and prioritizes milestones for future net-zero housing developments.  

7.1.3 Manufacturer and/or supplier has a written environmental policy with defined environmental commitments (must include an office recycling program and energy efficient lighting). (1 point per supplier/manufacturer—maximum of 2 points).  

7.1.4 Products used for the building are manufactured within 800 km of build site (1 point for each 2 products to maximum 5 points).  

7.1.5 Manufacturers and/or suppliers purchase 50% or more of their power needs from solar, wind, or renewable electricity (1 point per supplier to maximum 3).  

7.1.6 Builder’s office and show homes/presentation centers purchase a minimum of 50% (1 point) or 100% (2 points) of their energy from renewable resources such as solar, wind, or biogas.  

7.1.7 50% (2 points) or 100% (4 points) of electricity used during construction of the project is generated by wind power or equivalent green power certificate. Usage from a typical 6 month construction period or a recent similar project can be used to determine the monthly average.  

7.1.8 50% (2 points) or 100% (4 points) of electricity used by occupants during first year of occupancy is generated by wind power or an equivalent renewable energy supply (prepaid by builder).
### 7.1: Building 

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Points</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1.9</td>
<td>When building in winter, builder uses best-practice cold-construction techniques to minimize energy wasted during construction (e.g. no propane heaters with tarps: consider radiant heaters, manufacturing components indoors, etc.).</td>
<td>NC</td>
<td>1</td>
</tr>
<tr>
<td>7.1.10</td>
<td>Perform air-tightness inspections at the pre-drywall stage (1 point) with optional door-fan depressurization test where applicable (1 additional point).</td>
<td>2 $</td>
<td>1 or 2</td>
</tr>
<tr>
<td>7.1.11</td>
<td>Builder's show home(s) or presentation centres (i.e. the building(s) incorporating model suites) incorporate permeable landscaping, which is water efficient or xeriscaped (50% of lawn for 2 points, 100% for 4 points).</td>
<td>$ - $$$$</td>
<td>2 or 4</td>
</tr>
<tr>
<td>7.1.12</td>
<td>The builder integrates innovative sustainable building practices above and beyond what is contained within the checklist section and provides supporting documentation. The innovation must apply to the project and will be reviewed by the Technical Standards Committee at the time of submission.</td>
<td>NC - $$</td>
<td>1 to 5</td>
</tr>
</tbody>
</table>

### 7.2: Community Development & Transportation

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Points</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.2.1</td>
<td>Implement a Construction Traffic/Truck Management Plan to avoid high congestion areas during construction by (as a minimum): (i) identifying potentially sensitive neighbours; (ii) ensuring that all vehicles can manoeuvre and park efficiently; (iii) avoiding vehicle idling; (iv) scheduling vehicle movements appropriately.</td>
<td>1 NC</td>
<td>1</td>
</tr>
<tr>
<td>7.2.2</td>
<td>Project site has a designated delivery area where truck wheels are washed/treated during construction (to contain dirt).</td>
<td>0 NC - $$</td>
<td>1</td>
</tr>
<tr>
<td>7.2.3</td>
<td>Builder's company vehicles are electric, hybrid, or bio-diesel vehicles (1 point per vehicle—maximum of 3 points).</td>
<td>NC - $</td>
<td>1 to 3</td>
</tr>
<tr>
<td>7.2.4</td>
<td>Development site provides community amenity space for not-for-profit (NFP) community services.</td>
<td>NC - $$$$</td>
<td>2</td>
</tr>
<tr>
<td>7.2.5</td>
<td>Development site provides for Publicly Accessible Private Space.</td>
<td>NC</td>
<td>1</td>
</tr>
<tr>
<td>7.2.6</td>
<td>Trees and natural features on site are protected during construction. (Point not available where there is nothing to protect.)</td>
<td>NC</td>
<td>1</td>
</tr>
<tr>
<td>7.2.7</td>
<td>Development includes a diversity of housing types, including minimum 20% live/work units (2 points) and/or minimum 25% mixed use facilities (2 points).</td>
<td>NC</td>
<td>2 or 4</td>
</tr>
<tr>
<td>7.2.8</td>
<td>Masterplan to encourage shared transportation: (i) Provide minimum one parking stall for a car-sharing vehicle (1 point); AND/OR (ii) Provide a shared vehicle as an asset owned by the condominium association (3 points); AND/OR (iii) Provide permanent bicycle storage on site that is convenient, secure, and sheltered (1 point).</td>
<td>$ - $$$$</td>
<td>1, 2, 3, 4 or 5</td>
</tr>
</tbody>
</table>

### 7.3: Training

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
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<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.3.1</td>
<td>Builder provides BUILT GREEN® building owner manual, completed BUILT GREEN® checklist, and educational walkthrough for building manager(s)/owner(s) upon closing.</td>
<td>$ - $$</td>
<td>2</td>
</tr>
<tr>
<td>7.3.2</td>
<td>Contracted trades, suppliers, and/or supporting design professionals have successfully taken and maintained BUILT GREEN® Training (1 point per trade organization, maximum 5).</td>
<td>$</td>
<td>1 to 5</td>
</tr>
<tr>
<td>7.3.3</td>
<td>Builder's Site Superintendent has successfully taken and maintained BUILT GREEN® Orientation Training status (1 point), or Building Science Training endorsed by Built Green Canada (e.g. NRCan's Energy Advisor or R-2000 courses, or related formal schooling) (2 additional points).</td>
<td>$</td>
<td>1, 2 or 3</td>
</tr>
</tbody>
</table>

### 7.4: BUILT GREEN® Promotion

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Points</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.4.1</td>
<td>Builder's construction site and sales office signage clearly display the BUILT GREEN® logo and promotes the fact that the project is registered as a BUILT GREEN® project.</td>
<td>1 $</td>
<td>1</td>
</tr>
<tr>
<td>7.4.2</td>
<td>Builder's primary place of business (i.e. office) is certified via a recognized third-party best practice program.</td>
<td>$$</td>
<td>3</td>
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<tr>
<td>7.4.3</td>
<td>Builder agrees to construct and label a minimum of 50% of all their buildings in all their projects to the applicable BUILT GREEN® standard each calendar year (3 points for 50%, 5 points for 100%).</td>
<td>$ - $$</td>
<td>3 or 5</td>
</tr>
</tbody>
</table>

**TOTAL SECTION POINTS**: 8

**TOTAL CHECKLIST POINTS**: 145
1052759 B.C. Ltd.
200 – 1111 W Hastings Street
Vancouver, B.C.
V6E 2J3

May 29, 2017
File: 14905

Attention: Hamid Ahmadian

Re: Geotechnical Investigation Report: Proposed Residential Development
17044 Mountain Highway – 1537 Rupert Street, North Vancouver, B.C.

1.0 INTRODUCTION

We understand that a residential development is considered for the above referenced property. Preliminary information provided indicates that the site would be redeveloped with 26 stacked townhouses with a courtyard and a 5 storey wood-frame building with one level of underground parking. We expect concrete construction for below grade and wood frame above.

This report presents the results of a preliminary geotechnical investigation and provides recommendations for design and construction of the proposed development.

The report was prepared exclusively for 1052759 B.C. Ltd. for their use and the use of others on their design and construction team. We assume that the report would be relied upon by the District of North Vancouver during their permit review process.

2.0 SITE DESCRIPTION

The site is rectangular in shape and measures around 31.2 m north to south and of 60.3 m west to east. It consists of properties with addresses of 340 Mountain Highway and 1515, 1521, 1529 and 1537 Rupert Street. The site is bounded by Mountain Highway to the west, a municipal laneway to the south, Rupert Street to the north and neighboring property to the east. The site is currently developed with single family residential.

The location of the site and existing conditions is shown on the attached plan, Drawing 14905-1, following the text of this report.

3.0 FIELD INVESTIGATION

GeoPacific completed two test holes at the site on May 3, 2017. The site was investigated using a track mounted ODEX drill rig. The drilling was done in areas accessible to the drilling rig and judged to be clear of services. The test holes were terminated at depths around 8.8 metres below existing site grades. Two groundwater monitoring wells were installed in TH17-01 and TH17-02 to 9 m below existing grades.
The test holes were logged by a geotechnical engineer from our office and backfilled immediately following the completion of logging and sample collection. The approximate locations of the test holes with respect to the site boundaries are shown on our Drawing No. 14905-01 following the text of this report.

4.0 SUBSURFACE CONDITIONS

4.1 Soil Conditions

According to the Geological Survey of Canada Map 1484A, the surficial soils consist of channel deposited Salish Sediments of medium to coarse gravel and sand up to 15 metres thick, or more.

The subsurface conditions were observed to consist of approximately 1 m to 1.5 m thin fills underlain by asphalt. The fill is underlain by a layer of compact to dense sand and gravel in TH17-01 up to a depth of 1 m. The sand and gravel layer extends to the end of the borehole to a depth of 8.8 m and contains a lense of compact to dense sand between 4.2 m and 5.8 m. Test hole TH17-02 consists of 1.5 m loose sand and gravel fill, underlain by compact to dense sand and gravel. The sand and gravel with traces of silt was observed to be grey in color, wet and with varying cobble content.

Please refer to the test hole logs located in Appendix A for specific subsurface soil descriptions.

4.2 Groundwater Conditions

The static groundwater level was measured on May 11, 2017 to be at a depth of approximately 3.7 and 3.6 metres below grade at monitoring wells MW17-01 and MW17-02 respectively. Based on the proximity of the site to Seylynn Creek to the west, we expect that the groundwater levels to vary seasonally with the water level in the creek as well as with precipitation rates. A monitoring program is required to record the seasonal fluctuations in groundwater level to assist in building designs.

5.0 DISCUSSION

We expect that the 5 storey wood frame building will contain 1 level of below grade parking and therefore founded at a depth of 3 m below grade. We further expect the proposed building will be constructed to, or near to, some of the property lines. Therefore, we expect that shoring will be required on all sides of the excavation that are in proximity to property lines.

The soil conditions at the site consist of some fill over dense to very dense sand and gravel (till-like). Our review of the ground conditions indicates that buildings can be founded on normal spread footings on very dense sand and gravel.

Based on the expected position of the water table, the construction of 1 level of below grade parking slab would be somewhat above the static groundwater level identified at the time of our site investigation. Due to fluctuation of the groundwater, there could be a need for special construction methods to account the groundwater. Detailed recommendations for this option may be provided at a later date once additional groundwater data has been collected.

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

6.1 Site Preparation

Prior to construction of foundations or floor slabs, all concrete, organic material, debris, and loose or otherwise disturbed soils must be removed from the construction areas to expose a subgrade of sand and gravel. We expect that the depth of stripping will be dictated by the quality of soils on site for the townhouses and by the proposed foundation elevations for the 5 storey building.

It is very important that the stripped subgrade should be blinded and protected with 100 mm of clean crushed gravel to preserve their bearing qualities and that it remain dry and free of ponded water prior to pouring concrete for footings.

“Engineered Fill” is generally 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% of the ASTM D1557 (Modified Proctor) maximum dry density at a moisture content that is within 2% of optimum for compaction.

Based on our experience in the area cobbles and boulders should be anticipated in the till. These may require splitting to facilitate removal.

*Site stripping must be reviewed by the geotechnical engineer prior to the placement of foundation concrete.*

6.2 Foundations and Bearing Capacity

We expect that footings will be founded on sand and gravel which can provide satisfactory support for the proposed development on conventional strip and pad foundations. Footings which are founded on undisturbed sand and gravel may be designed on the basis of a serviceability limit state (SLS) bearing pressure of 400 kPa. Factored Ultimate Limit State (ULS) bearing pressures may be taken at 1.5 times the SLS bearing pressures provided.

For foundations designed based on our recommendations we expect that settlements should be limited to less than 25 mm total and 1:300 differential. Irrespective of specified bearing pressures, footings should not be less than 450 mm in width for strip footings and not less than 600 mm in width for square or rectangular footings.

Foundation soil should be inspected by a member of our technical team prior to blinding or pouring of concrete. In the event poor quality or disturbed soils are encountered at the proposed footing locations and elevations, it may be required to excavate through the unsuitable layer to a more competent layer below and reinstate the grade. For the bearing pressures provided, any grade reinstatement beneath the foundations must be carried out using minimum 5MPa lean mix concrete.

*The geotechnical engineer shall be contacted for the review of all foundation subgrades.*

6.3 Slab-On-Grade Floors

In order to provide suitable support for slab-on-grade floors we recommend that a 150 mm thick layer of 1933 clear crushed gravel be placed under the slab. The fill should be 19 mm clear crushed gravel and compacted to equivalent of 95% Standard Proctor (ASTM D698) maximum dry density.

*Slab-on-grade fill compaction must be reviewed by the geotechnical engineer.*
6.4 Seismic Design of Foundations

The soils at the site are dense coarse grained soils which are not liquefiable under the 2012 BC Building Code (BCBC) design earthquake. Thus, as defined in Section 4.1.8.4 of the 2012 BCBC the site qualifies as a “Site Class C” in accordance with Table 4.1.8.4.A. The peak ground acceleration (PGA) for 2% probability of exceedance in 50 years for the site is 0.450 g based on the 2010 National Building Code Seismic Hazard Calculator.

6.5 Temporary Excavation, Shoring and Dewatering

Based on the expected foundation depth, shoring will be required for excavations near the property lines. Vertical cuts may be supported with the use of conventional shotcrete with pre-tensioned soil anchors. Due to the cohesionless nature of the existing soils the use of hollow core "IBO" anchors will likely be required for the majority of the excavation. IBO anchors are grouted continuously during drilling to form a continuous column of grout around the anchor bar. Conventional solid bar is not expected to be feasible due to the likely collapse of the anchor holes during drilling.

Some face saving measures may also be required due to the slumping of shoring panels that can occur in these soil conditions. We envision that these may include plywood or spiles. As well, preliminary grouting of the soils in panels prior to excavation may also be required to limit slumping.

Some excavation induced ground movements are unavoidable, irrespective of the shoring method used. Given the depth of excavation contemplated for this project, we expect movements at the perimeter of the excavation to be on the order of 10 to 15 mm at the excavation face, decreasing to half that within 3 m away from the excavation face. This magnitude of excavation induced ground movement is normally tolerable for in ground services on City property in sound structural condition as well as adjacent buildings.

Excavation below the water table will encounter heavy seepage. The magnitude of that seepage will be a function of the depth below the water table, soil conditions encountered, and the size of the area excavated. The use of large sump pumps or well points may be considered to control groundwater levels. Where the area of excavation is large these dewatering methods may not be feasible and a groundwater cut off with, for example, jet grout may be required. District of North Vancouver regulations may also limit discharge volumes to the storm and sanitary sewer systems.

_The geotechnical engineer shall be contacted for the review of shoring installation and temporary excavations._

6.6 Temporary and Permanent Groundwater Control

We recommend that any building elements below the groundwater table be tanked to provide permanent groundwater control. Construction of these elements, including any elevator pits and sumps will require temporary de-watering to permit construction in these areas. For two levels of below grade construction, we expect that the slab-on-grade would be near the static groundwater table and any penetrations through the basement slab during the high peak rainfall could be locally de-watered using sumps and sump pumps.

The groundwater elevation relative to the basement floor slab should be reviewed prior to construction, once additional groundwater data and design drawings are available.
6.7 Lateral Pressures on Foundation Walls

Earth pressures against the foundation walls are dependent on factors such as, available lateral restraint along the wall, surcharge loads, backfill materials, compaction of the backfill and drainage conditions. We assume that the walls will be backfilled with granular fill, such as clean sand or pitrun sand and gravel, compacted to achieve a minimum of 95% of its Modified Proctor Maximum Dry Density (ASTM D1557). We recommend that the foundation walls be designed to resist the following lateral earth pressures:

Static: Triangular soil pressure distribution of 4.5H kPa, where H is equal to the total wall height in metres.

Hydrostatic: Water pressure equivalent to 9.8H kPa, beginning at the high water mark and extending to the base of the foundation wall. The high water mark will be confirmed based on the final slab elevation and the groundwater study.

Seismic: Inverted triangular soil pressure distribution of 3.5H kPa, where H is equal to the total wall height in metres.

Uplift at the base of the slab or raft should be taken as a uniform pressure of 9.8D kPa, where D is the depth of the slab below the design groundwater elevation. The design groundwater level shall be further evaluated based on the results of the groundwater monitoring program.

Any additional surcharge loads located near the foundation walls should be added to the earth pressures given.

_The geotechnical engineer should be contacted for the review of all backfill materials and procedures._

7.0 DESIGN REVIEWS AND CONSTRUCTION INSPECTIONS

The preceding sections make recommendations for the design and construction of the proposed development. We have recommended the review of certain aspects of the design and construction in this report. It is the responsibility of the contractor(s) undertaking the work to contact GeoPacific at least 24 hours in advance of construction for the required field reviews. In summary, reviews are required for the following construction activities.

1. Stripping
   Review of site stripping
2. Excavation
   Review of temporary cut slopes and soil conditions.
3. Shoring
   Review of shoring installation and anchor testing
4. Engineered Fill
   Review of fill materials and compaction.
5. Foundation
   Review of foundation subgrade.
6. Slab on-grade
   Review of subgrade and under slab fill materials and compaction.
7. Backfill
   Review of backfill materials and placement against foundation walls and Decommissioning of Shoring on City Property.

It is important that these reviews are carried out to ensure that our intentions have been adequately communicated. It is also important that any contractors working on the site review this document prior to commencing their work.
8.0 CLOSURE

This report is prepared solely for the use of our clients design and construction team for this project, as described, to the general standards of similar work for similar projects in this area and no other warranty of any kind is expressed or implied. GeoPacific Consultants Ltd. accepts no responsibility for any other use of this report.

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

For:
GeoPacific Consultants Ltd.

Reviewed by:

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

Farshid Bateni, PhD., E.I.T.
Geotechnical Engineer-in-Training
APPENDIX B

LABORATORY TESTING RESULTS
# Test Hole Log: TH17-01 (MW17-01)

**File:** 14905  
**Project:** 25 TOWNHOUSES  
**Client:** 1052759 BC LTD  
**Site Location:** 340 MOUNTAIN HWY AND 1537 RUPERT ST, NORTH VANCOUVER B.C.

## Inferred Profile

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<tr>
<th>Depth (m)</th>
<th>Symbol</th>
<th>Soil Description</th>
<th>DCPT (blows per foot)</th>
<th>Groundwater / Well</th>
<th>Remarks</th>
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<td>Ground Surface</td>
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<td>0.9</td>
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<td>45</td>
<td>hard slow drilling from 2.7-4.3m</td>
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<td></td>
<td></td>
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<td>becomes cobbly from 2.7-4.3m</td>
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<td>becomes wet after 4.3m</td>
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<td>Sand and Gravel [FILL]</td>
<td>compact to dense SAND and GRAVEL, medium to coarse grained, some gravel, trace silt, grey, wet</td>
<td>4.3m estimated water table depth</td>
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<td>hard drilling from 5.8-8.8m</td>
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Logged: SH  
Method: ODEX  
Date: 2017-May-03  
Datum: Ground elevation  
Figure Number: A.01  
Page: 1 of 1
## Test Hole Log: TH17-02 (MW17-02)

**File:** 14905  
**Project:** 25 TOWNHOUSES  
**Client:** 1052759 BC LTD  
**Site Location:** 340 MOUNTAIN HWY AND 1537 RUPERT ST, NORTH VANCOUVER BC

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<td>8.8</td>
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**Logged:** SH  
**Method:** ODEX  
**Date:** 2017-May-03  
**Datum:** Ground elevation  
**Figure Number:** A.02  
**Page:** 1 of 1
APPENDIX A

TEST HOLE LOGS
## MOISTURE CONTENT REPORT
### ASTM D2216

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**COMMENTS:**

**DISTRIBUTION:**

Steve Hasegawa - GeoPacific

Per: Kootenay Alder
Junior Lab Technician

Reviewed By: Dion Lauriente, B.A.Sc., EIT

MAY 08 2017
Lab Manager
17 May 2018

1052759 BC LTD
200 – 1111 West Hastings St
Vancouver, BC V6E 213

Attention: Hamid Ahmadian
Via Email: hamid@redicdev.com

Re: Flood Hazard Assessment
340 Mountain Highway to 1537 Rupert Street

This letter report summarizes the flood hazard assessment (FHA) study conducted for the proposed development to be located at 340 Mountain Highway to 1537 Rupert Street (the subject property) within the District of North Vancouver (DNV).

1 INTRODUCTION

The development proposed at 340 Mountain Highway to 1537 Rupert Street is to construct 26 stacked townhouses with open courtyards in a five-storey wood-frame building. The building is proposed to include underground parking with access from Rupert Street to the north. Site plans and topographic survey are attached in Appendix A. It is possible that in addition to underground parking the underground area could include storage, and electrical or mechanical equipment room below grade.

The subject property is located on the historic floodplain of Lynn Creek, at an elevation of approximately 7.5 m to 8.9 m. The mainstem channel of Lynn Creek is approximately 500 m to the west; the Seymour River is approximately 700 m to the east; and Burrard Inlet is approximately 1500 m to the south (Figure 1). All three bodies of water could impose hydrotechnical hazards on the subject property. DNV recognizes the hazards and has mapped the property within the DNV’s Creek Hazard Development Permit Area, and a flood hazard assessment is required prior to obtaining building permits.

This report is to identifies and evaluates flood hazards that may affect the safe development and use of the property with respect to the proposed development. The assessment is based on the criteria specified by:

- DNV’s SPE 106 Creek Hazard Report and SPE 107 Flood Hazard Report Master Requirements; and
- Professional Practice Guidelines - Legislated Flood Assessments in a Changing Climate in BC
  prepared by the Association of Professional Engineers and Geoscientists of BC (APEGBC, 2012).

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1 Hydrotechnical hazard refers to hazards such as flooding, erosion, deposition, scour, and avulsion imposed by channelized or coastal waters.
Based on the scale of the proposed development, the risk of exposure of vulnerable populations appears to be moderate to high. This warrants a Class 3 flood hazard assessment as defined by the provincial flood assessment guidelines (AEPGBB, 2012). For compliance with local and provincial guidelines, completed DNV Master Requirements SPE 106 and SPE 107 as well as the APEGBC Flood Hazard and Risk Assurance Statement are attached in Appendix B. The preliminary drawings of the subject property have been reviewed for the purposes of this FHA, however the final design package should be reviewed by a qualified professional to ensure that the confirm to the determined flood construction level (FCL). The preliminary drawings do not include elevations.

Figure 1. Subject property overview map

2 SITE DESCRIPTION

A site inspection was conducted by Greg Grzybowski, EIT (NHC) on May 3, 2017 to evaluate the current condition and flood hazard context of the site. A digital surface of the area was constructed using 2014 ‘bare-earth’ LiDAR data at 1 m resolution obtained from DNV ‘s Open Data GIS to assist with the site assessment. Figure 2 shows the topographic map of the study area based on the digital surface. The proponent provided topographic survey information attached in Appendix A.

The subject property currently consists of five single-detached homes with ground elevations ranging between 7.4 m and 8.7 m (Photo 1 and 2, Appendix C). The local community is in an area of mixed development that includes multi-family and single-family residences, and low-rise commercial and

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Flood Hazard Assessment – 340 Mountain Highway to 1537 Rupert St
industrial sites. The proposed development is bounded by Rupert Street to the north, Mountain Highway to the west, a lane to the south, and adjacent residential properties to the east. Rupert street (Photos 3 and 4) runs east-west and leads to a cul-de-sac adjacent to Highway 1 (Photo 5) that is bisected by the Orwell St pathway (Photo 6). Phibbs Exchange, a major public transit bus exchange, is located southeast of the proposed development.

In general the ground slopes south towards Burrard Inlet. West of the project, Mountain Highway slopes gradually down from north to south. Phibbs Exchange, 250 m east of the site, is the lowest ground near the site, with a ground elevation as low as El. 2.2 m. The railway 350 m south of the subject property provides an east-west aligned embankment with an elevation of roughly El. 7.0 m.

Based on the provided survey data, the elevation of Rupert Street on the north side of the project varies from El. 8.9 m at the northeast to El. 8.6 m at Mountain Highway (northwest corner). Along the lane at the south side of the project (Photos 7 and 8), the elevation is approximately El. 7.9 m at both the southeast and southwest corners. Localized high and low elevations exist along Rupert Street (El. 9.1 to 8.6 m) and along the lane (El. 7.9 to 7.4 m). Photos at the end of this document illustrate the grounds surrounding the subject property.
Figure 2. Topographic map of the subject property, compiled using 2014 DNV LiDAR data, north at top of page

3 BACKGROUND REVIEW

The following information has been reviewed as part of our assessment:

- *Design Brief on the Floodplain Mapping Study: Seymour River, North Vancouver* (BC MoE, 1995b)
- *Climate Change Adaptation Guidelines for Sea Dikes and Coastal Flood Hazard Land Use* (BC MoE, 2011)
- *Creek Hazard Report – Section 219 Covenant, Master Requirement SPE 107* (DNV, 2011b)

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*Flood Hazard Assessment – 340 Mountain Highway to 1537 Rupert St*
• Schedule B Development Permit Areas (DNV, 2012)
• Creek Hazard Development Permit Area Map 2.2 (DNV, 2012b)
• Coastal Floodplain Mapping Guidelines and Specifications (FLNRO, 2011)
• Lynn Creek Management Plan (KWL, 2004)
• Lynnmour / Inter-River Local Plan, Flood Protection Assessment (KWL, 2006)
• Creek Hydrology, Floodplain Mapping and Bridge Hydraulic Assessment study, North Vancouver (KWL, 2014)
• Flood Assessment Study, North Vancouver (NHC, 2010).

Applicable background review findings are discussed later in the report.

4 FLOOD HAZARD ASSESSMENT

The subject property is located approximately 700 m west of the Seymour River, 500 m east of Lynn Creek, and 1500 m north of Burrard Inlet (Lynnwood Marina). Each could pose hydrotechnical hazards and are separately assessed in the sub-sections that follow.

4.1 River Flood Hazard Assessment

Seymour River and Lynn Creek can impose hydrotechnical hazards on properties within their floodplain through:

• High water level inundating property with flood water and debris;
• Erosion of river banks;
• Scouring of the river bed potentially undermining and failing adjacent banks;
• Deposition or blockage within the river directing flow towards or over bank and possibly leading to erosion (gradual lateral migration of the river) or avulsion (sudden relocation of the river channel).

Such hazards have been assessed based on site conditions, river hydrology (flood flow), and expected hydraulics. Hydraulic conditions have been estimated through hydraulic modelling for a range of flood scenarios based on flood flow, channel deposition, and partial channel blockage.

4.1.1 Seymour River Watershed and Reach Description

The Seymour River has a watershed area of 176 km² which drains the southern slopes of the Pacific Ranges from an elevation of 1,727 m at Cathedral Mountain to sea level at Burrard Inlet. The river is regulated by Seymour Falls Dam at the south end of Seymour Lake, approximately 16 km upstream from the river mouth at Burrard Inlet.
Downstream from Seymour Lake, Seymour River flows within a relatively confined bedrock canyon surrounded by undeveloped forest. Development along the shores begins roughly 3.5 to 3.8 km upstream from the river mouth. On December 7, 2014, a rock slide occurred within the canyon, temporarily blocking the river less than 1 km upstream of urban development. Although not directly affecting the subject property, this event does reinforce the expectation that debris can be sourced downstream of Seymour Lake and can play a role in flooding of the lower Seymour River.

4.1.2 Lynn Creek Watershed and Reach Description

Lynn Creek has a drainage area of approximately 58 km² and is the largest unregulated watershed on the North Shore. The main stem of the creek originates at Lynn Lake (El. 800 m) and flows in a southerly direction for 17 km before draining into Burrard Inlet.

The creek is often considered as three main reaches:

i) Upper reach - the reach roughly upstream of Rice Lake Bridge (KM 6.8+, El. 180 m+)

ii) Lynn Canyon reach - between Rice Lake Bridge and Inter-River Park (KM 3.8 to 6.8, El. 40 to 180 m)

iii) Downstream reach - the reach from Inter-River Park to Burrard Inlet (KM 0 to 3.8, El. 0 to 40 m).

The upper reach generally dictates the flow in downstream reaches. High flow events are a result of intense fall and winter storms, often intensified due to recent snow accumulation to a moderate to low elevation.

The canyon reach is the reach most likely to affect the site through sediment and debris. This reach consists of a series of cascading bedrock canyons separated with intermittent boulder, cobble, and gravel deposition zones within high steep banks of till. The channel is confined within the canyon. Natural blockages can form within this reach from deposition or failed banks. Such blockages can fail suddenly during high flows triggering a debris flood. The gradient is sufficiently steep to initiate and transport large amounts of bedload, suspended sediment, and woody debris.

Downstream of the canyon, the creek flows through a confined valley before it reaches the apex of its alluvial fan, roughly 3.5 km upstream from Burrard Inlet. The valley opens up at this point, exposing a floodplain along the left bank (downstream portion of Inter-River Park). The channel gradient continues to decrease from roughly 2.5% to closer to 1% as the channel courses under the Trans-Canada Highway with further flattening to Burrard Inlet. DNV periodically provides channel maintenance removing gravel from the lower reach. An informal search of historic removals suggested a gravel removal volumes of 16,000 m³ in 1984, 8,000 m³ in 1985, 9,500 m³ in 1995, 7,500 m³ in 2004-2006, and 3,000 m³ in 2013.

4.1.3 Previous Studies

NHC and other consulting engineers have conducted several studies of the major water courses within the DNV, primarily for bridge design and flood hazard identification. These studies incorporated hydraulic analysis using one-dimensional (1D) and two-dimensional (2D) steady flow numerical models.
Notable water elevations presented by these studies are tabulated in Table 1 (Seymour River) and Table 2 (Lynn Creek). These flood water surface elevations provide the basis for hydraulic analysis of the study site, in conjunction with topography.

Although the studies presented all use a 200-year instantaneous flow\(^2\) the calculation of such a flow varies slightly between studies. This is a result of various statistical distributions being used to plot and fit historic flow data, extent of available flow data at time of study, and approach used to account for future climate change.

The simulations are predominantly dependent on the simulated flow. However, the lower portion of the models become increasingly dependent on the downstream boundary condition. For these models the downstream water surface elevation (DS WSEL) at Burrard Inlet represents the downstream boundary condition. The DS WSEL value varies depending on the design tide, storm surge, wind setup, and allowances for future sea level rise (SLR); variations in DS WSEL can impact simulated water levels within the lower reaches of the river.

**Table 1. Year 2100 flood elevation from previous hydraulic studies of Seymour River**

<table>
<thead>
<tr>
<th>Study</th>
<th>Model</th>
<th>Inflow (m(^3)/s)</th>
<th>DS WSEL (m)</th>
<th>Location</th>
<th>Flood El. (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHC (2010)</td>
<td>HEC-RAS 1D</td>
<td>808</td>
<td>3.4</td>
<td>Mount Seymour Parkway Vehicle Bridge</td>
<td>9.2</td>
</tr>
<tr>
<td>NHC (2010)</td>
<td>HEC-RAS 1D</td>
<td>808</td>
<td>3.4</td>
<td>Dollarton Hwy Vehicle Bridge</td>
<td>4.4</td>
</tr>
<tr>
<td>KWL (2014)</td>
<td>MIKE 11</td>
<td>791</td>
<td>2.8</td>
<td>Mount Seymour Parkway Vehicle Bridge</td>
<td>9.5</td>
</tr>
<tr>
<td>KWL (2014)</td>
<td>MIKE 11</td>
<td>791</td>
<td>2.8</td>
<td>Dollarton Hwy Vehicle Bridge</td>
<td>6.6</td>
</tr>
</tbody>
</table>

**Table 2. Year 2100 flood elevation from previous hydraulic studies of Lynn Creek**

<table>
<thead>
<tr>
<th>Study</th>
<th>Model</th>
<th>Inflow (m(^3)/s)</th>
<th>DS WSEL (m)</th>
<th>Location</th>
<th>Flood El. (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KWL (2014)</td>
<td>MIKE 11</td>
<td>229</td>
<td>2.8</td>
<td>Keith Road Bridge</td>
<td>10.5</td>
</tr>
<tr>
<td>KWL (2014)</td>
<td>MIKE 11</td>
<td>229</td>
<td>2.8</td>
<td>Proposed Crown St to 4(^{th}) Ave Bridge</td>
<td>5.5</td>
</tr>
<tr>
<td>KWL (2014)</td>
<td>MIKE 11</td>
<td>229</td>
<td>2.8</td>
<td>Cotton Road / Main St Vehicle Bridge</td>
<td>4.2</td>
</tr>
</tbody>
</table>

In addition to the studies above, in 2006, Kerr Wood Leidel (KWL) prepared a flood assessment of Lynnmour and Inter-River Park area, located about 1.2 km north of the study site. The study reported that the possibility of channel blockage within the lower reach could lead to overbank flooding of the left\(^3\) floodplain, especially during less frequent events, such as a 500-year event. The report further suggests that Orwell Street is a natural floodway and is likely to convey overbank floodwaters from

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\(^2\) Instantaneous flow refers to peak flow in contrast to the maximum daily average flow. A 200-year flow is the flow expected to occur once every 200 years, alternatively the flow with a 0.5% probability of being exceeded in any single year.

\(^3\) References to left and right banks assume a downstream-facing orientation.
Inter-River Park down to Highway 1. The routing of floodwaters from Orwell Street once south of Highway 1 and approaching the study site is not included in the 2006 KWL report. Based on the topography, the rise in ground of the interchange of Keith Road and Fern Street above Highway 1 is expected to direct flow either - or a combination of - south down Highway 1, east towards Seymour River or west towards Lynn Creek; limiting the impact to the subject property from flooding upstream of Highway 1.

4.1.4 River Hydraulic Analysis

DNV has adopted the 200-year flood levels presented by the 2014 KWL report for the 200-year flood expected under the flow and tidal conditions projected for the year 2100 since new development planning typically estimates 100-year maximum building life. Within areas deemed at risk to flood hazard the DNV consider mapped flood inundation and potential overflow. Figure 3 provides an overview map of areas inundated through direct connection to the Seymour River and Lynn Creek with a depth of inundation 0.05 m or greater. The figure shows that inundation could occur in the area east and southeast of the subject property, but not directly over it.

Figure 3. Seymour River and Lynn Creek simulated flood depth, 200-year flood based on year-2100 conditions (KWL, 2014)
The predicted future 200-year Seymour River flood level at Dollarton Hwy Vehicle Bridge is about El. 6.6 m. Inundation mapping of the flood extent from the simulated 200-year Seymour River flow event (for the year 2100) (Figure 3) shows that inundation does not reach the subject property. The inundated area closest to the subject property is at Phibbs Exchange. The modelled water surface elevation at Phibbs Exchange during a 200-year (year 2100) flood is 4.5 m, which is below the study site’s elevation of 7.2 m to 9.1 m.

The predicted future 200-year Lynn Creek flood level at Crown Street is El. 5.5 m (100 m upstream of and 500 m adjacent to the subject property) and El. 4.2 m at the Main Street bridge (500 m adjacent to the subject property). The corresponding top of the bank elevations at these two locations are about 7.0 m and 4.6 m respectively. Flood inundation mapping shows that Lynn Creek flow is expected to remain within the channel’s banks during a 200-year flood event (year 2100) near the subject property (Figure 3).

4.2 Coastal Flood Hazard Assessment

Coastal flood hazard at the study property is derived from high water at the adjacent shore of Burrard Inlet, incorporating the combined effects of tide, storm surge, wind setup, wave run-up, and sea level rise (SLR).

In January 2011, the BC Ministry of Environment (MUE) published Climate Change Adaptation Guidelines for Sea Dikes and Coastal Flood Hazard Land Use (MOE, 2011a). The guidelines present an approach for developing a flood construction level (FCL) calculated as the summation of:

\[
FCL = \text{Higher High Water Level Large Tide (HHWLT)} + \text{the 200-year storm surge} + \text{sea level rise (SLR)} + \text{local subsidence} + \text{wave effects from a 200-yr storm} + 0.6 \text{ m freeboard}
\]

The 2014 floodplain mapping study conducted by KWL provides coastal flooding analysis in addition to the river flood scenarios presented in the previous section. The FCL within this area\(^4\) of the north shore of Burrard Inlet for the year 2012, 2100, and 2200 from the KWL flood study are summarized in Table 3.

\(^4\) Shoreline section referred to as “Tidal Flats” in the study, which is located 700 to 900 m east of the subject property.

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340 Mountain Highway to 1537 Rupert Street – Flood Hazard Assessment
Table 3. Coastal flood construction levels.

<table>
<thead>
<tr>
<th>FCL Components</th>
<th>2012</th>
<th>2100</th>
<th>2200</th>
</tr>
</thead>
<tbody>
<tr>
<td>200-year Water Level (m GD)</td>
<td>3.20</td>
<td>3.20</td>
<td>3.20</td>
</tr>
<tr>
<td>(including tide, surge, wind set-up and wave run-up)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sea Level Rise (m)</td>
<td>0.12</td>
<td>1.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Local subsidence (m)</td>
<td>0.0</td>
<td>-0.12</td>
<td>-0.24</td>
</tr>
<tr>
<td>Designated Flood Level (m)</td>
<td>3.32</td>
<td>4.08</td>
<td>4.96</td>
</tr>
<tr>
<td>Freeboard (m)</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Flood Construction Level (m GD)</td>
<td>3.92</td>
<td>4.68</td>
<td>5.56</td>
</tr>
</tbody>
</table>

DNV has adopted the year-2100 value for its FCL requirement. A map of KWL’s year-2100 coastal flood inundation projection is shown in Figure 4. The figure shows that the subject property is beyond the inundation boundaries. The current ground elevation at the subject property ranges between El. 7.2 m and 9.1 m. Therefore, the site is not expected to be inundated with coastal flood waters for events up to the 200-year event under current and future coastal high water conditions. There is no known reason to suggest further study on the coastal hazard is warranted.
Figure 4. Burrard Inlet simulated flood depth, 200-year flood based on year-2100 conditions (KWL, 2014)

4.3 Hazards and Mitigation

The subject property is beyond the year-2100 inundation boundaries (i.e. the expected flood extents for a design flood event occurring following roughly 100 years of climate change) for Lynn Creek, Seymour River, and Burrard Inlet. The site is set far enough back from the active river channels, with substantial infrastructure between the rivers and the site, and no expectation of developing a preferential flow path near the subject property; there is minimal risk of channel migration or avulsion towards the subject property. The primary flood risk is from additional channel blockage from debris or sediment deposition, resulting in overbank flow reaching the site. The recommended mitigation to this risk is applying a minimum flood construction level (FCL).

The DNV provides suggested FCLs within flood hazard areas. Within areas mapped as inundated during the 200-year flood (year-2100), the flood levels presented by DNV are the simulated flood levels plus 0.6 m freeboard. Areas not mapped as inundated but still considered at risk of flooding are assigned by the DNV an FCL equal to the ground elevation plus a 0.6 m freeboard. Based on this criterion, DNV
recommends FCL values for the subject property 0.6 m above existing ground. Ground elevations range from El. 7.2 m to 9.1 m.

While inundation due to river and coastal flooding is not anticipated for the subject property up to the 200-year event, it is recommended that an FCL be adopted for the site to provide freeboard above the surrounding ground to allow passage of surface flow during river or coastal flood events that exceed the 200-year event. NHC recommends an FCL of El. 8.9 m for the subject property. The FCL of El. 8.9 m is 0.6 m above the ground for the west side of the site midway between Rupert St and the Lane, the area of the site expected to be most prone to flooding (from Lynn Creek) and at the elevation of the crown of Rupert Street.

5 SUMMARY AND RECOMMENDATIONS

A hydrotechnical hazard assessment was conducted based on 200-year flood (0.5% annual exceedance probability) for up to the year 2100 including climate change projections. NHC recommends a flood construction level of El. 8.9 m be adopted for the subject property. This flood hazard assessment was conducted following APEGBC 2012 Class 3 flood hazard assessment guidelines. A summary of the APEGBC criteria for such an assessment is presented in Table 3.

Table 3. Summary of APEGBC Typical Class 3 Flood Hazard Assessment Methods and Deliverables

<table>
<thead>
<tr>
<th>APEGBC Flood Hazard Assessment Component</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Typical hazard assessment methods and climate/environmental change considerations</strong></td>
<td></td>
</tr>
<tr>
<td>Site visit and qualitative assessment of flood hazard</td>
<td>Completed by NHC 2017</td>
</tr>
<tr>
<td>Identify any very low hazard surfaces in the consultation area (i.e., river terraces)</td>
<td>Completed by NHC 2017</td>
</tr>
<tr>
<td>Estimate erosion rates along river banks</td>
<td>Subject property set back from the active river channel - any erosion is expected to be mitigated well before reaching the subject property</td>
</tr>
<tr>
<td>2-D modelling of user-specified dike breach scenarios, modelling of fluvial geomorphic processes using 2-D morphodynamic models and their respective effects on flood hazard</td>
<td>Site not protected by dike, but overland flood scenario was considered as the design event. Erosion risk deemed low and no morphodynamic modelling analysis was conducted.</td>
</tr>
<tr>
<td>Identify upstream or downstream mass movement processes that could change flood levels (e.g., landslides leading to partial channel blockages, diverting water into opposite banks)</td>
<td>Potential blockage of bridge or sediment deposition in the channel considered possibly mechanism of the flood scenario.</td>
</tr>
<tr>
<td>Conduct simple time series analysis of runoff data, review climate change predictions for study region, include in assessment if considered appropriate</td>
<td>Completed by others and used in this assessment (KWL 2014)</td>
</tr>
<tr>
<td>Quantify erosion rates by comparative air photograph analysis</td>
<td>N/A – erosion risk deemed low</td>
</tr>
<tr>
<td>APEGBC Flood Hazard Assessment Component</td>
<td>Notes</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td><strong>Typical deliverables</strong></td>
<td></td>
</tr>
<tr>
<td>Letter report or memorandum with at least water levels and consideration of scour and bank erosion</td>
<td>Completed</td>
</tr>
<tr>
<td>Cross sections with water levels, flow velocity and qualitative description of recorded historic events, estimation of scour and erosion rates where appropriate with maps showing erosion over time</td>
<td>Not Required</td>
</tr>
<tr>
<td>Maps with area inundated at different return period, flow velocity, flow depth, delineation of areas prone to erosion and river bed elevation changes, estimates of erosion rates</td>
<td>Completed</td>
</tr>
</tbody>
</table>

6 SAFE CERTIFICATION

NHC has not assessed the property for hazards related to site drainage (local runoff), fire, debris flow, debris flood, landslide, or any other hazards besides those resulting directly from flood and/or erosion emanating from Seymour River and Lynn Creek, or Burrard Inlet. With respect to flood and erosion hazard, for flood events less than or equal to the 200-year peak instantaneous flow in the Seymour River, Lynn Creek, and 200-year high water of Burrard Inlet, NHC certifies that the subject property is considered safe for the use intended if:

1. An FCL of El. 8.9 m is to be adopted for the subject property.
2. The underside of any wooden floor system, or the top of any concrete floor system used for habitation, business, the storage of goods damageable by floodwater, or the installation of fixed equipment is above the FCL.
3. Changes to the property are as described herein, and as shown in Appendix A and the proposed building will be used as described herein. If building use changes from residential this document will be null and void.
4. Building openings on the north and east side of the building must be no lower than El. 8.9m.
5. Any ingress or egress routes on the perimeter of the building must exit above El. 8.9 for both vehicles and pedestrians and must be adequate for evacuation during a flood or lack of electrical power.
6. The floor of the electrical and mechanical equipment room and main switch gear is to be located above the FCL. (El. 8.9 m).
7. Any electrical supply below the FCL (i.e. parking lighting, kitchen, laundry, etc.) must be protected by GFCI (ground fault circuit interruption) located above the FCL.
8. End users and/or future property owners must be notified of the risk of storage and/or parking below the FCL; possibly through signage, tenancy agreement, and/or property covenant.
9. Storage of critical equipment and supplies (i.e. medication), hazardous materials, or those with the potential to negatively impact fish or fish habitat is not to be allowed below the FCL.
10. Any windows or openings below the designated design levels are to be accessible and easily sealed against floodwaters by persons without special training and adequately designed to withstand flood waters to the designated design elevations.

11. Subject to determination by a professional geotechnical engineer, the structure below the FCL may need to be designed to limit seepage and withstand hydrostatic loading up to the FCL.

12. All flood protection works are designed by a qualified registered professional. Short and long term maintenance requirements for the flood protection works are outlined by a qualified registered professional and followed by the owner/operator of the property.

13. Site drainage and seepage mitigation internal to the property are designed by a qualified registered professional.

14. Final building plans and as-built conditions have been assessed and approved for compliance with the conditions specified herein by a qualified registered professional.

15. Any future flood works constructed by DNV or others between the subject property and Burrard Inlet – such as a sea dike – should incorporate adequate drainage to allow any Seymour River or Lynn Creek overflow to drain to Burrard Inlet (i.e. culverts with flood gates).
7 CLOSURE

We hope this work and report meets your current needs. If you have any questions or would like to further discuss these findings, please contact Matt Gellis or Greg Grzybowski at our North Vancouver office at (604) 980-6011 or by email (mgellis@nhcweb.com | ggrzybowski@nhcweb.com).

Sincerely,

Northwest Hydraulic Consultants Ltd.

Prepared by: Greg Grzybowski, EIT
Project Engineer

Reviewed by: Matt Gellis, P.Eng.
Associate

17 May 2018

DISCLAIMER

This document has been prepared by Northwest Hydraulic Consultants Ltd. in accordance with generally accepted engineering practices and is intended for the exclusive use and benefit of 1052759 BC Ltd, and their authorized representatives for specific application to the 2017 flood hazard assessment for the property at 340 Mountain Highway to 1537 Rupert Street. The contents of this document are not to be relied upon or used, in whole or in part, by or for the benefit of others without specific written authorization from Northwest Hydraulic Consultants Ltd. No other warranty, expressed or implied, is made. Northwest Hydraulic Consultants Inc. and its officers, directors, employees, and agents assume no responsibility for the reliance upon this document or any of its contents by any parties other than 1052759 BC Ltd.
REFERENCES


District of North Vancouver (2017b). Creek Hazard Development Permit Area Map 2.2.


APPENDIX A
SITE SURVEY AND PRELIMINARY DESIGN

(for reference)
BC LAND SURVEYOR'S PROPOSED
SUBDIVISION AND TOPOGRAPHICAL
SURVEY PLAN OF LOTS 1-6
BLOCK 43 DISTRICT LOT 204
GROUP 1 NWD PLAN 1340

PILOT LOT 1: 014-741-474
PILOT LOT 2: 014-741-482
PILOT LOT 3: 008-354-065
PILOT LOT 4: 014-741-491
PILOT LOT 5: 014-741-504
PILOT LOT 6: 014-741-521

c: Address:
LOT 1: #540 - Mountain Hwy
LOT 2: #1515 - Rupert Street
LOT 3: #1521 - Rupert Street
LOT 4: #1522 - Rupert Street
LOT 5: #1537 - Rupert Street
LOT 6: #1537 - Rupert Street
District of North Vancouver, B.C.

Erection Deviation

Eleven poles are set out
from D.M.E. observations
Date: 02/02/2005

Note:

Preliminary layout subject to approval
Area and dimensions are subject to method of layout survey and calculations, and may vary.

Legend:

1. Denser traffic sign
2. DE Denser water valve
3. W Denser gas valve
4. Denser sanitary manhole
5. E Denser sanitary manhole
6. W Denser inspection chamber
7. Denser retaining wall
8. Denser drainage tree
9. Denser coniferous tree

Lot dimensions according to field survey and
Land Title and Survey Authority records.
This plan does not show non-plan changes,
only a hierarchy.

This plan was prepared for inspection purposes and is for the exclusive use of our client. This document,
shows the relative location of the surveyed structures and fixtures in respect to the boundary of this
land. It is a general representation of the description for the purpose of conveying the property.

The surveyor assumes no responsibility or liability for any errors that may be caused by a third party in
the use or misuse of this document, either verbally or written, based on the information.

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This geospatial survey completed and certified
correct this 30th day of January, 2017

R.E.S.
SHERING CO.
APPENDIX B
FLOOD HAZARD AND RISK ASSURANCE STATEMENT
APPENDIX J: "FLOOD HAZARD AND RISK ASSURANCE STATEMENT"

Note: This Statement is to be read and completed in conjunction with the "APEGBC Professional Practice Guidelines - Legislated Flood Assessments in a Changing Climate, March 2012 ("APEGBC Guidelines") and is to be provided for flood assessments for the purposes of the Land Title Act, Community Charter or the Local Government Act. Italicized words are defined in the APEGBC Guidelines.

To: The Approving Authority
Planning, Permits & Properties, District of North Vancouver
355 West Queens Road, North Vancouver, BC, V7N 4N5
Jurisdiction and address

With reference to (check one):
☐ Land Title Act (Section 86) – Subdivision Approval
☒ Local Government Act (Sections 919.1 and 920) – Development Permit
☐ Community Charter (Section 56) – Building Permit
☐ Local Government Act (Section 910) – Flood Plain Bylaw Variance
☐ Local Government Act (Section 910) – Flood Plain Bylaw Exemption

For the Property:
340 Mountain Highway to 1537 Rupert Street, North Vancouver
Legal description and civic address of the Property

The undersigned hereby gives assurance that he/she is a Qualified Professional and is a Professional Engineer or Professional Geoscientist.

I have signed, sealed and dated, and thereby oortified, the attached flood assurance report on the Property in accordance with the APEGBC Guidelines. That report must be read in conjunction with this Statement. In preparing that report I have:

Check to the left of applicable items
☒ 1. Collected and reviewed appropriate background information
☒ 2. Reviewed the proposed residential development on the Property
☒ 3. Conducted field work on and, if required, beyond the Property
☒ 4. Reported on the results of the field work on and, if required, beyond the Property
☒ 5. Considered any changed conditions on and, if required, beyond the Property

6. For a flood hazard analysis or flood risk analysis I have:
   ☒ 6.1 reviewed and characterized, if appropriate, floods that may affect the Property
   ☒ 6.2 estimated the flood hazard or flood risk on the property
   ☒ 6.3 included (if appropriate) the effects of climate change and land use change
   ☒ 6.4 identified existing and anticipated future elements at risk on and, if required, beyond the Property
   ☒ 6.5 estimated the potential consequences to those elements at risk

7. Where the Approving Authority has adopted a specific level of flood hazard or flood risk tolerance or return period that is different from the standard 200-year return period design criteria (1), I have
   ☒ 7.1 compared the level of flood hazard or flood risk tolerance adopted by the Approving Authority with the findings of my investigation
   ☒ 7.2 made a finding on the level of flood hazard or flood risk tolerance on the Property based on the comparison
   ☒ 7.3 made recommendations to reduce the flood hazard or flood risk on the Property

(1) Flood Hazard Area Land Use Management Guidelines published by the BC Ministry of Forests, Lands, and Natural Resource Operations and the 2009 publication Subdivision Preliminary Layout Review – Natural Hazard Risk published by the Ministry of Transportation and Public Infrastructure. It should be noted that the 200-year return period is a standard used typically for rivers and purely fluvial processes. For small creeks subject to debris floods and debris flows return periods are commonly applied that exceed 200 years. For life-threatening events including debris flows, the Ministry of Transportation and Public Infrastructure stipulates in their 2009 publication Subdivision Preliminary Layout Review – Natural Hazard Risk that a 10,000-year return period needs to be considered.

APEGBC ● June 2012

Professional Practice Guidelines - Legislated Flood Assessments in a Changing Climate in BC
8. Where the Approving Authority has **not** adopted a level of flood risk or flood hazard tolerance I have:
   N/A 8.1 described the method of flood hazard analysis or flood risk analysis used
   N/A 8.2 referred to an appropriate and identified provincial or national guideline for level of flood hazard or flood risk
   N/A 8.3 compared this guideline with the findings of my investigation
   N/A 8.4 made a finding on the level of flood hazard of flood risk tolerance on the Property based on the comparison
   N/A 8.5 made recommendations to reduce flood risks

9. Reported on the requirements for future inspections of the Property and recommended who should conduct those inspections.

Based on my comparison between

- [ ] the findings from the investigation and the adopted level of flood hazard or flood risk tolerance (item 7.2 above)
- [ ] the appropriate and identified provincial or national guideline for level of flood hazard or flood risk tolerance (item 8.1 above)

I hereby give my assurance that, based on the conditions contained in the attached flood assessment report,

- [ ] for subdivision approval, as required by the Land Title Act (Section 86), “that the land may be used safely for the use intended”.

  - [ ] with one or more recommended registered covenants.
  - [ ] without any registered covenant.

- [ ] for a development permit, as required by the Local Government Act (Sections 919.1 and 920), my report will “assist the local government in determining what conditions or requirements under [Section 920] subsection (7.1) it will impose in the permit”.

- [ ] for a building permit, as required by the Community Charter (Section 56), “the land may be used safely for the use intended”.

  - [ ] with one or more recommended registered covenants.
  - [ ] without any registered covenant.

- [ ] for flood plain bylaw variance, as required by the Flood Hazard Area Land Use Management Guidelines associated with the Local Government Act (Section 910), “the development may occur safely”.

- [ ] for flood plain bylaw exemption, as required by the Local Government Act (Section 010), “the land may be used safely for the use intended”.

Date: May 12, 2017

Name (print) ______________________________

Signature ________________________________

Address 30 Gostic Place, North Vancouver, BC, V7M 3G3

Telephone 604-980-6011

Affix Professional seal here

If the **Qualified Professional** is a member of a firm, complete the following.

I am a member of the firm ____________________________. (Print name of firm)
Purpose

The Flood Hazard Report assesses the impact of flood hazards on a proposed development and outlines such conditions as may be required to ensure that the proposed development is safe for the use intended.

Background

Development may be directly affected by surface water flooding or, indirectly, by elevated ground water levels. Development and properties not directly adjacent to a river or creek may be at risk as flooding represents a hazard to a wide area.

In order to avoid unnecessary delays, complications or expense applicants are advised to ask a Plan Checker early in the design stages if a Flood Report will be necessary. A Pre-Application Request for Service may be required to confirm the requirement for a Flood Report. A Flood Report will be required if,

- the development is located within the provincially designated Seymour River Floodplain,
- the development is located adjacent to the designated Seymour River Floodplain and proposes basements or finished space below Flood Construction Levels,
- the development proposes basements or finished space below the High Water Mark,
- pursuant to s. 56 of the Community Charter the Building Inspector considers that construction would be on land that is subject to flooding or elevated ground water levels.

A building permit application will be accepted on the condition that:

1) the Flood Report has been submitted by a specialist professional engineer and such engineer certifies, subject to conditions contained within the report, that the land may be used safely for the use intended,

2) the Flood Report MUST provide a response to all headings identified in the Flood Report - Terms of Reference identified below. Incomplete reports will not be found acceptable and will result in delays,
3) the Building Inspector has reviewed and accepted the report,

4) the owner of the land covenants with the District to:
   a) use the land only in the manner determined and certified by the engineer as enabling the safe use of the land for the use intended,
   b) the covenant contains conditions respecting reimbursement by the covenancor for any expenses that may be incurred by the covenantee as a result of a breach of the covenant,
   c) the covenant be registered under section 219 of the Land Title Act.

Prior to constructing work within 30 metres of the top of bank of a watercourse an applicant will require District of North Vancouver Environmental approval with respect to the removal and importation of soil, tree cutting and proximity to sensitive aquatic areas.

Requirements

**Content:** Flood Report - Terms of Reference

- **Credentials:** *Flood Reports* are to be performed by a specialist professional engineer or professional geoscientist with experience or training in geotechnical study and geohazard assessments.

- **Statutes:** Section 56 of the Community Charter is applicable where the study is undertaken for the purpose of addressing flooding issues for a Building Permit.

- **Background Information:** *Flood Reports* shall include a review of available background information.

- **Property Description:** *Flood Reports* shall include both legal and street addresses of the subject property, and also a plan showing the location of the property relative to the pertinent creek, river or coastal area. Any existing restrictive covenants relative to land use or natural hazards shall be identified and attached to the report.

- **Flood Hazards:** *Flood Reports* shall provide a clear assessment of hazards associated with floods including surface and subsurface water. Uplift, hydrostatic pressure and the affects on perimeter drainage, storm water management and sanitary drainage must be addressed. The design magnitude of
each of these processes will be assessed to a level of accuracy appropriate for the project.

- **Other Hazards:** For waterfront properties, the risk of flooding and erosion from the sea shall be addressed. Where other hazards, such as rockfall, are apparent, they shall be noted.

- **Design Criteria for Floods:** For floods, the design flow shall be the 200-year return period peak instantaneous flow. New culverts should be capable of passing this flow without surcharging. New bridges should be capable of passing this flow with a minimum of 1 metre of freeboard.

- **Safe Certification:** A clear certification, subject to conditions contained in the report, that the land may be used safely for the use intended. The conditions shall be with respect to the siting, structural design and maintenance of buildings, structures and works, the maintenance of planting or vegetation, the placement of landfill and other such conditions respecting the safe use of the land, buildings, structures or works.

Any assumptions regarding future watershed conditions as they relate to the hazard assessments are to be clearly stated.

- **Building Setbacks:** Proposed building setbacks shall be clearly defined. In most cases, it would be appropriate to consult with the Environmental Protection Department in determining setbacks.

- **Flood Construction Levels:** Proposed FCL’s for proposed building sites shall be clearly defined, preferably in Geodetic Survey of Canada datum. In general, FCL’s will be based on the 200-year return period flood criteria, plus a minimum of 0.6m freeboard allowance, plus a reasonable allowance for sedimentation. Behind dykes or other flood protection works, determination of appropriate FCL’s will be site-specific.

- **Proposed Mitigative Works:** Proposed mitigative works are to be permanent, and shall be designed to a conceptual level for the purpose of report submission. If the proposed works will result in transfer of risk to a third party, this will be clearly noted. The location and land ownership for proposed works is also to be noted. Following acceptance of the report, the requirements for design and construction of the works will be defined.
- **Environmental Approvals:** Where environmental approvals are required for construction of mitigative works, it may be necessary to obtain such approvals prior to acceptance of the report.

- **Maintenance Requirements:** *Flood Reports* shall fully outline short and long term maintenance requirements.

- **Report Submission:** *Flood Reports* shall be sealed by the engineer of record. Where required, engineering reports will be included within a restrictive covenant registered against the land title.

- **Peer Review:** The District regularly obtains a peer review of creek reports by independent engineering consultants. Any concerns resulting from a peer review will be directed to the engineer of record for consideration. Creek reports will not be accepted until concerns arising from a peer review are satisfactorily resolved.

**Section 219 Covenant**

- **Per sample**

**Timing:** The *Flood Report* must be found acceptable by the Building Inspector prior to a permit application being accepted. The *Section 219 Covenant* must be registered on title prior to permit issuance.

**Owner:** Retain appropriate professional(s) to prepare *Flood Reports*. Registered Section 219 Covenant on land title.

**Related Requirements/Documents/Forms**

Master Requirement SPE107 *Creek Hazard Report*

**Contacts**

Planning, Permits & Properties  
District of North Vancouver  
355 West Queens Road  
North Vancouver, BC V7N 4N5

Tel  604-990-2480  
Fax  604-984-9683  
email building@dnv.org
Purpose

The *Creek Hazard Report* assesses the impact of creek hazards on a proposed development and outlines such conditions as may be required to ensure that the proposed development is safe for the use intended.

Background

Development may be adversely affected by creek hazards by a number of mechanisms including flooding, debris floods, debris flows, erosion and accretion. Development and properties not directly adjacent to a creek may be at risk as flooding, debris floods and debris flows represent a hazard to a wide area.

In 1999 the District of North Vancouver published "Overview Report on Debris Flow Hazards". The report identified potential debris flow hazard ratings for creeks within the District. The report is a public document and is available for review at the Parks and Engineering Division and the Planning Building & Environment Division counters at the Municipal Hall. The report is also available through North Vancouver public libraries.

In order to avoid unnecessary delays, complications or expense applicants are advised to ask a Plan Checker early in the design stages if a Creek Hazard Report will be necessary. A Pre-Application Request for Service may be required to confirm the requirement for a Creek Hazard Report. A Creek Hazard Report will be required if:

- the development is located within a creek fan as designated in the "Overview Report on Debris Flow Hazards". Property is shown within DPA Creek Hazard boundary on DNV GEOweb
- the development is located below the top of bank of a creek designated in the "Overview Report on Debris Flow Hazards" as medium or higher risk.
- pursuant to s. 56 of the Community Charter the Building Inspector considers that construction would be on land that is subject to flooding, mud flows, debris flows, debris torrents, erosion, land or slip rock falls.

A building permit application will be accepted on the condition that:

1) the *Creek Hazard Report* has been submitted by a specialist professional engineer and such engineer certifies, subject to conditions contained within the report, that the land may be used safely for the use intended,
2) The *Creek Hazard Report* MUST provide a response to all headings identified in the *Creek Hazard Report - Terms of Reference* identified below. Incomplete reports will not be found acceptable and will result in delays,

3) the Building Inspector has reviewed and accepted the report,

4) the owner of the land covenants with the District to:
   a) use the land only in the manner determined and certified by the engineer as enabling the safe use of the land for the use intended,
   b) the covenant contains conditions respecting reimbursement by the covenanter for any expenses that may be incurred by the covenantee as a result of a breach of the covenant,
   c) the covenant be registered under section 219 of the Land Title Act.

Prior to construction work within 30 metres of the top of bank an applicant will require District of North Vancouver Environmental approval with respect to the removal and importation of soil, tree cutting and proximity to sensitive aquatic areas.

**Requirements**

**Content:** Creek Hazard Report - Terms of Reference

- **Credentials:** *Creek Hazard Reports* are to be performed by a specialist professional engineer or professional geoscientist with experience or training in river engineering, hydrology, and in some cases, debris flow processes.

- **Statutes:** Section 56 of the Community Charter is applicable where the study is undertaken for the purpose of addressing creek hazard issues for a Building Permit.

- **Background Information:** Creek studies shall include a review of available background information. The District’s *Overview Report on Debris Flow Hazards* (Kerr Wood Leidal Associates and EBA Engineering Consultants, April 1999) provides a preliminary assessment of debris flood and debris flow hazards on most creeks in the District and should be a starting point for background review. Hydrologic reports are also available for many of the creeks.

- **Property Description:** Creek reports shall include both legal and street addresses of the subject property, and also a plan showing the location of the property relative to the pertinent creek system. Any existing restrictive covenants relative to land use or natural hazards shall be identified and attached to the report.
Creek Hazards: Creek reports shall provide a clear assessment of hazards associated with floods, debris floods, debris flows, erosion, landslip, rockfalls and accretion. The design magnitude of each of these processes will be assessed to a level of accuracy appropriate for the project.

Design Criteria for Floods: For floods, the design flow shall be the 200-year return period peak instantaneous flow. New culverts should be capable of passing this flow with no surcharging. New bridges should be capable of passing this flow with a minimum of 1 metre of freeboard.

Design Criteria for Debris Floods: Debris flood magnitudes is to be estimated to at least the 200-year return period level.

Design Criteria for Debris Flows: Debris flow magnitude is to be estimated to at least the 500-year return period level.

Safe Certification: A clear certification, subject to conditions contained in the report, that the land may be used safely for the use intended. The conditions shall be with respect to the siting, structural design and maintenance of buildings, structures and works, the maintenance of planting or vegetation, the placement of landfill and other such conditions respecting the safe use of the land, buildings, structures or works.

Any assumptions regarding future watershed conditions as they relate to the hazard assessments are to be clearly stated.

Building Setbacks: Proposed building setbacks shall be clearly defined. In most cases, it would be appropriate to consult with the Environmental Protection Department in determining setbacks.

Flood Construction Levels: Proposed FCL's for proposed building sites shall be clearly defined, preferably in Geodetic Survey of Canada datum. In general, FCL's will be based on the 200-year return period flood criteria, plus a minimum of 0.6m freeboard allowance, plus a reasonable allowance for sedimentation (in view of the debris flood assessment). Behind dykes or other flood protection works, determination of appropriate FCL's will be site-specific.

Proposed Mitigative Works: Proposed mitigative works are to be permanent, and shall be designed to a conceptual level for the purpose of report submission. If the proposed works will result in transfer of risk to a third party, this will be clearly noted. The location and land ownership for proposed works is also to be noted. Following acceptance of the report, the requirements for design and construction of the works will be defined.

Environmental Approvals: Where environmental approvals are required for construction of mitigative works, it may be necessary to obtain such approvals prior to acceptance of the report.
**Maintenance Requirements:** Creek reports shall fully outline short and long term maintenance requirements of the creek channel and any works construction. For creek channels, this shall address ongoing bedload and debris deposition. For creek works, this shall include both regular maintenance and any special maintenance requirements following an extreme event.

**Report Submission:** *Creek Hazard Reports* shall be sealed by the engineer of record. Where required, engineering reports will be included within a restrictive covenant registered against the land title.

**Peer Review:** The District regularly obtains a peer review of creek reports by independent engineering consultants. Any concerns resulting from a peer review will be directed to the engineer of record for consideration. Creek reports will not be accepted until concerns arising from a peer review are satisfactorily resolved.

### Section 219 Covenant

Por ejemplo attachad

**Timing:** The *Creek Hazard Report* must be found acceptable by the Building Inspector prior to a permit application being accepted. The *Section 219 Covenant* must be registered on title prior to permit issuance.

**Owner:** Retain appropriate professional(s) to prepare *Creek Hazard Report.* Registered Section 219 Covenant on land title.

### Related Requirements/Documents/Forms

*MASTER Requirement 2000-18: Flood Hazard Report*

### Contacts

Planning, Permits & Properties  
District of North Vancouver  
355 West Queens Road  
North Vancouver, BC V7N 4N5

Tel 604-990-2480  
Fax 604-984-9683  
email [building@dnv.org](mailto:building@dnv.org)
APPENDIX C
SITE PHOTOS
Photo 1  View of homes at northwest corner of proposed development, 340 Mtn Hwy, facing south

Photo 2  View of homes from lane at southeast corner of proposed development, facing west

Photo 3  Rupert Street, facing west towards Mtn Hwy

Photo 4  Rupert Street facing east towards Cul-de-sac

water resource specialists
340 Mountain Highway to 1537 Rupert Street – Flood Hazard Assessment
Photo 5  Cul-de-sac, facing east from Rupert Street

Photo 6  Facing north along Orwell St pathway

Photo 7  Lane, facing east from Mountain Highway

Photo 8  Lane Facing West