

PUBLIC HEARING BINDER


2049 Heritage Park Lane

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2)	Staff Report - June 5, 2018 This report provides an overview of the project and the land use issues related to the review of this Rezoning Bylaw and Housing Agreement Bylaw.
3)	Bylaw 8300 , which rezones the subject site from RS4 to CD 123 to enable the development of a 39-unit townhouse project
4)	Bylaw 8301 which authorizes a Housing Agreement to prevent future rental restrictions on the subject property
5)	Notice
Additional Information	
6)	Minutes – Regular Meeting of Council held June 18, 2018 Will be added once adopted by Council and signed by the Mayor and Clerk
7)	Land Use <ul style="list-style-type: none"> • OCP Land use map • Maplewood Village Centre and Innovation District Implementation Plan & Design Guidelines • OCP Form and Character Guidelines for Ground-Oriented Housing
8)	Traffic and Parking Study
9)	Maplewood Creek Relocation Plan
10)	Construction Management Plan
11)	Design <ul style="list-style-type: none"> • Architectural Plans for the project • Landscape Plans for the project • Civil Drawings
12)	Design - Advisory Design Panel minutes for April 12, 2018.
13)	Arborist Report – Prepared by Diamond Head Consulting dated April 26, 2018
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Public Input	
15)	Past Public Input <ul style="list-style-type: none"> • Information Report on Public Information Meeting (to provide information about the meeting prior to the meeting) • Public Information Meeting - Facilitator's Report (reporting on the public information meeting)
16)	Public Input – Correspondence / submissions from the public since First Reading given June 18, 2018

AGENDA INFORMATION	
<input checked="checked" type="checkbox"/> Regular Meeting	Date: <u>June 18, 2018</u>
<input type="checkbox"/> Other:	Date: _____


Dept.
Manager


GM/
Director


CAO

The District of North Vancouver REPORT TO COUNCIL

June 5, 2018
File: 08.3060.20/042.17

AUTHOR: Kevin Zhang, Development Planner

SUBJECT: Bylaws 8300 and 8301: Rezoning with Development Permit for 2049
Heritage Park Lane – 39 Unit Multi Family Townhomes

RECOMMENDATION

THAT the District of North Vancouver Rezoning Bylaw 1372 (Bylaw 8300) to rezone the subject sites from RS4 to CD123 be given FIRST reading and referred to a Public Hearing;

THAT Housing Agreement Bylaw 8301, 2017 (2049, 2051, 2053, 2055, 2059 Heritage Park Lane) which authorizes a Housing Agreement to prevent future rental restrictions on the subject property, be given FIRST reading;

AND THAT Bylaw 8300 be referred to a Public Hearing.

REASON FOR REPORT

The applicant proposes to redevelop five single family lots as a 39-unit townhouse development comprising of three and four-storey buildings.

Implementation of the proposed project requires Council's consideration of:

- Bylaw 8300 to rezone the subject properties; and
- Bylaw 8301 to authorize a housing agreement to ensure all future owners are eligible to rent their units.

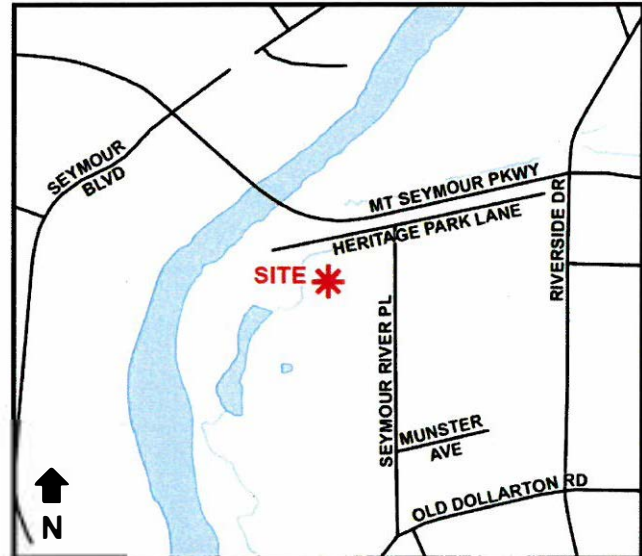
The Rezoning Bylaw, and Housing Agreement Bylaw are recommended for introduction and the Rezoning Bylaw is recommended for referral to a Public Hearing.

SUMMARY

The development site consists of five single family lots (2049-2059 Heritage Park Lane) and an adjacent unopened lane. The properties are located at the northwest corner of the Maplewood Village Centre. Surrounding properties include the Maplewood Place townhouse development to the east and Maplewood Farm to the south and west.

The proposal is a 39-unit townhouse development comprising of three and four-storey buildings with a floor space ratio (FSR) of approximately 1.2.

The proposal is in keeping with the Official Community Plan and the Maplewood Plan.



EXISTING POLICY

Official Community Plan and Maplewood Plan

The Official Community Plan (OCP) designates the site as RES Level 4: Transition Multifamily (1.2 FSR) which envisions townhouses and apartments at a density of up to approximately 1.2 FSR. The proposal is in keeping with the Official Community Plan designation.

The units are well suited for families with 20 three bedroom units, 10 two bedroom units, and 9 four bedroom units. This addresses the OCP Village Centres policies of encouraging a diversity ground oriented attached housing and sensitive redevelopment in locations adjacent to existing multifamily. This also addresses the OCP policy of encouraging appropriate density within areas with a mix of uses and frequent transit service. The proposal is also consistent with the Maplewood Village Centre and Innovation District Implementation Plan & Design Guidelines (Maplewood Plan).

Development Permit Areas

The site is currently in the following Development Permit Areas:

- Form and Character;
- Energy and Water Conservation and GHG Emission Reduction;
- Creek Hazard; and
- Streamside Protection.

A Development Permit for the above DPAs would be forwarded to Council for consideration if the rezoning proceeds.

Zoning

The subject properties are currently zoned RS4 (Single Family Residential 6000 Zone). Rezoning is required to accommodate the project and Bylaw 8300 proposes to create a new Comprehensive Development Zone 123 (CD123) tailored specifically to this project. The proposed CD123 zone prescribes permitted uses and other zoning provisions such as maximum floor space, height, setbacks, and parking requirements.

ANALYSIS

Site Plan and Project Description

The project consists of 39 townhomes in four buildings, ranging from three to four storeys.

The units are a mix of two, three, and four bedroom layouts. The units range in size from 86 m² (925 ft²) to 146 m² (1,573 ft²).

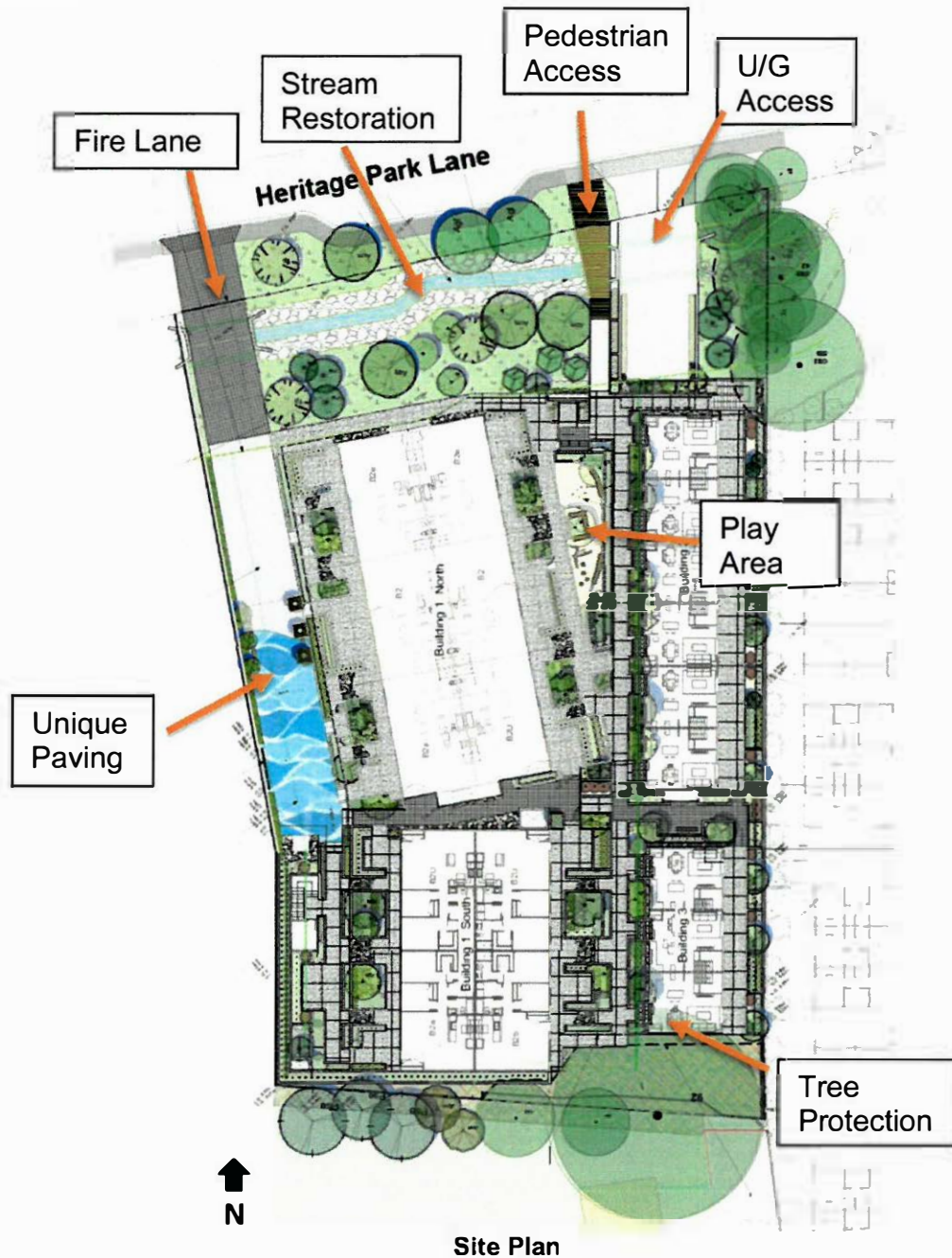
Unit Type	Count
Two-Bed	10
Three-Bed	20
Four-Bed	9

The overall layout of the project (see next page) is influenced by the stream setback to the north, neighbour separation to the east, tree protection zones to the south, and Maplewood Farm buffer to the west.

The buildable area on this site is reduced by the streamside setbacks to Maplewood Creek. As a result, the proposed density is partially accommodated 4-storey stacked townhouses.

The fire lane is situated on the western edge of the site to serve three purposes. First, it provides emergency access to all units within this development. Second, the fire lane also serves as an increased buffer to Maplewood Farm. Finally, the unique treatment of the paving integrates the fire lane as part of the overall landscape plan, adding to the elements of play and utility to the space.

The children's play area in the centre of the site is also more spacious than those of comparable townhouse developments due to the angled layout of the buildings. The separation between buildings on the north end is approximately 51 feet.



The proposal includes three significant environmental contributions.

- The first is the rehabilitation of the Maplewood Creek along the north frontage of the subject properties.
- The second is the relocation and rehabilitation of Maplewood Creek within Maplewood Farm.
- Finally, the project has been designed to a Flood Construction Level of 10m as recommended by the Maplewood Village Flood Risk Management Strategy.

All three components have been designed, and continually refined, in collaboration with the District's Environment, Engineering, Planning, and Parks departments.



View of proposed development from Heritage Park Lane looking southwest



Aerial view of proposed development looking southeast

Advisory Design Panel

The application was considered by the Advisory Design Panel (ADP) on April 12, 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 refining the architectural elements at the ends of the building, increasing separation between buildings, and increasing the permeability of the central staircase.

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.

Energy and Water Conservation and GHG Emission Reduction

This development will achieve Step 3 of the BC Energy 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.

Creek Hazard

As the site is within the creek hazard DPA, a flood hazard report was completed and the proposed redevelopment meets the District's requirements for risk tolerance and is safe for the use intended. The project has been design to a Flood Construction Level of 10m as recommended by the Maplewood Village Flood Risk Management Strategy

Streamside Protection

The site is within the streamside protection DPA and involves significant environment work. An Arborist Report, a Creek Relocation Plan, and a Creek Restoration Management Plan were submitted and reviewed by District staff.

The proposed restoration of the stream include removing concrete from the creek banks, removing impermeable surfaces from within the riparian setback, enhancing the quality and quantity of riparian vegetation, and replacing culverted watercourse crossings. The creek restoration design goals are to improve the spawning and rearing habitat for salmonids, mainly chum and coho, through addition of food sources, appropriate sized spawning bed gravels, and instream and refuge areas. The project will require approvals from the Ministry of Forests, Lands, Natural Resource Operations & Rural Development and Fisheries and Oceans Canada. The approval process with both agencies has already commenced.

The applicant undertook a similar restoration and enhancement project (see below) to the portion of Maplewood Creek on the site to the east with highly successful results, including the return of riparian wildlife.



Photo of adjacent property with completed restoration and enhancement project



Photos of subject properties with existing invasive plant species, and concrete debris

A detailed review of environment 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.

Accessibility

The proposal fulfils the requirements of the Accessible Design Policy for Multifamily Housing as 8% of the apartment units (3) meet the 'Enhanced Accessible Design' criteria. The project includes three one-level units that all have completely barrier-free paths from their assigned accessible parking spots via an elevator.

Vehicle Parking

All parking is proposed in a one-level underground garage. Access to the garage areas is proposed through a driveway ramp from Heritage Park Lane. The proposal includes 78 stalls (including visitor parking), which is consistent with the Zoning bylaw parking requirements.

Bicycle Parking and Storage

Each unit will have access to secured bike parking and personal storage. The proposal includes space for 39 secured bicycle storage spaces (additional bike parking can be accommodated in the storage lockers) and 8 outdoor bicycle parking spots. Each unit will have access to personal storage for a total of 39 storage lockers.

Off-site improvements

The application includes improved street frontages such as street tree plantings, undergrounding of services along their frontage and to corner of Heritage Park Lane and Seymour River Place, new sidewalks, curb, gutter, and paving. The applicant will also be responsible for upgrading the water main along their frontage to the corner of Heritage Park Lane and Seymour River Place.

Another major off-site improvement is the relocation of the stretch of Maplewood Creek in Maplewood Farm and new associated infrastructure. The design of this new alignment has been designed in collaboration with the District's Environment, Engineering, Planning, and Parks departments. Further design details will be finalized with Staff in order to minimize environmental impacts in the Maplewood Farm. The project will require approvals from the Ministry of Forests, Lands, Natural Resource Operations & Rural Development and Fisheries and Oceans Canada. The approval process with both agencies has already commenced.



**Diagram showing current and new
Maplewood Creek alignment**

Further details will be provided for Council's consideration at the Development Permit stage should the rezoning bylaw proceed.

Some of the benefits to District from this creek relocation are as follows:

- New creek location is in line with the Maplewood Village Flood Risk Management Strategy.
- A section of currently degraded channel will be rebuilt, making it more amenable to salmon habitat.
- New alignment creates new permanent riparian setbacks on both sides of the Maplewood Creek channel, removing a section of setback that would be impacted by private lands.
- New alignment reduces overall cost of the implementation of the Maplewood Village Flood Risk Management Strategy by integrating flood protection into the private building.
- Current design allows for a new salmon rearing pond south of Mt. Seymour Parkway.
- New creek creates the potential for a new ecology based educational program, focussing on salmon, for Maplewood Farm to develop.
- New alignment potentially removes the requirement for the vertical steel gate currently installed at the edge of the Farm.
- New alignment accommodates further restoration work involving the duck pond at Maplewood Farm.

The benefits to the proposed development are as follows:

- Improved utilization of the development site; and
- Improved flood and erosion protection for the proposed buildings and development site.

The total offsite infrastructure costs and creek relocation and rehabilitation are estimated to be approximately \$650,000, subject to detailed design. The project will also pay Development Cost Charges at the applicable rate at the date of Building Permit issuance should the rezoning be successful.

Community Amenity Contribution

As the subject properties require rezoning, a community amenity contribution (CAC) has been calculated in accordance with District CAC policy at the date of application. The CD123 zone specifies a CAC in the amount of \$697,041 in order to achieve the maximum floor space. The CAC may be applied to District projects including park, trail, environmental, public art, public realm improvements, District facility improvements and/or affordable housing. The CAC is in addition to the offsite works required by bylaw.

Landscaping

A conceptual landscape plan has been submitted with the rezoning application. The site is unique in that the Maplewood Creek runs the entire length of the frontage along Heritage Park Lane. As a result, the fire lane, pedestrian access and parkade entrance are all bridges. The restored Maplewood creek will be planted according to the District guidelines. The play area is located in the widest part of the inner courtyard to maximize space and sun exposure.

The setbacks of the building and parkade have been designed to preserve large offsite trees to the south of the site.



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

Rental and Affordable Housing Strategy:

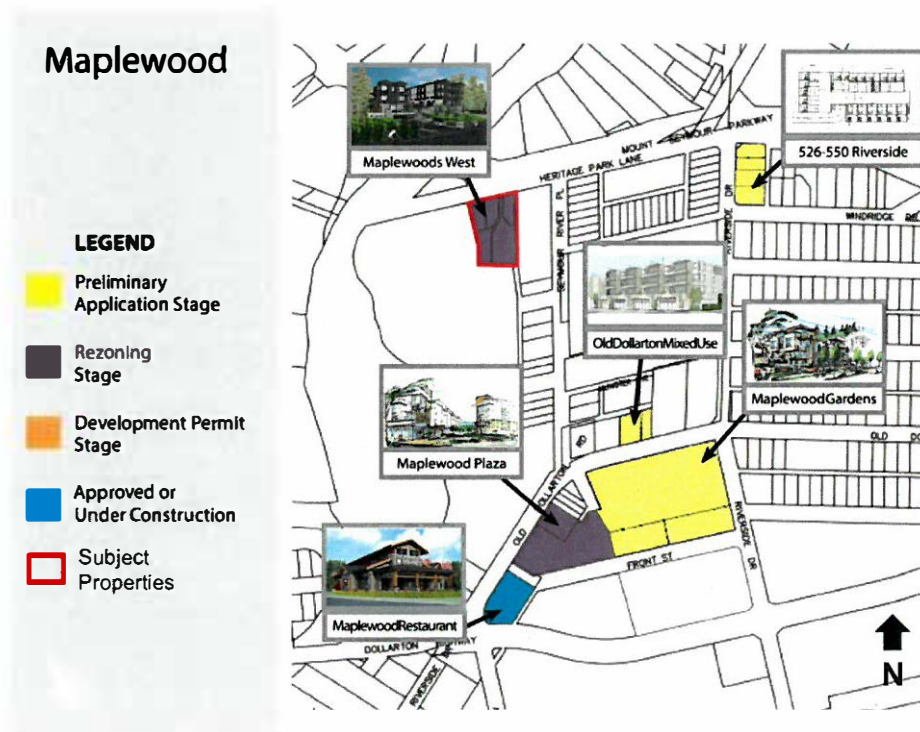
In response to the District's Rental and Affordable Housing Strategy, the applicant has noted that the development will expand the supply and diversity of housing within the Maplewood Village Centre. As stated within the strategy: "Increased supply of housing in centres will add diverse multi-family housing choices for District residents, and encourage competitive pricing for homes." The homes proposed in the subject development will be suitable for families and provide a relatively more affordable alternative relative to detached single-family homes.

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 map below. The site is the only active application on Heritage Park Lane and on this northern portion of Seymour River Place.



In order to reduce development's impact on pedestrian and vehicular movements, the applicant is required to provide a Construction Traffic Management Plan (CTMP) as a condition of a Development Permit and secured with a Restrictive Covenant.

The Plan must outline how the applicant will coordinate with other projects in the area to minimize construction impacts on pedestrian and vehicle movement along Heritage Park Lane and Seymour River Place. The plan is required to be approved by the District prior to issuance of a building permit.

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

The applicant held a facilitated Public Information Meeting on October 11, 2017.

Notices were distributed to 114 residents within approximately a 100 metre radius of the site. A sign was placed on the property to notify passersby of the meeting, and advertisements were placed in two editions of the North Shore News. A webpage was established for this project on the District's website.

The meeting was attended by approximately 23 residents. Some community members expressed support while other expressed concerns including traffic, parking, environmental impacts, affordability, and amenities. The facilitator's report is attached.

The creek relocation strategy has also been presented to the North Shore Streamkeepers.

Implementation

Implementation of this project will require a rezoning and a Housing Agreement, as well as issuance of a development permit and registration of legal agreements.

Bylaw 8300 (Attachment 2) rezones the subject site from RS4 to a new Comprehensive Development Zone 123 (CD123) which:

- establishes the permitted residential uses;
- establishes the maximum permitted floor area on the site;
- establishes setback and building height regulations;
- establishes parking regulations specific to this project; and
- secures the CAC contribution.

Bylaw 8301, (Attachment 3) authorizes the District to enter into a Housing Agreement to ensure that there will be no future restrictions on renting the units.

A legal framework will be required to support the project and it is anticipated that a development covenant will be used to secure items such as the CTMP and the details of off-site servicing. Additional legal documents required for the project will include:

- consolidation plan;
- statutory right of way to secure fire lane;
- construction traffic management plan;
- development covenant to reference the general form and layout of project as well as requirements for off-site servicing and on-site public features;
- stormwater management covenant;
- streamside protection covenant;
- flood hazard covenant;
- covenant to specify that any “unsold” parking spaces be transferred to strata corporation; and
- registration of housing agreement regarding prohibition of rental restrictions for strata units.

CONCLUSION

This development proposal provides 39 family oriented townhouses in the Maplewood Village area. It assists in implementation of the District's Official Community Plan objectives and the Maplewood Plan. The rezoning proposal is now ready for Council's consideration.

OPTIONS

The following options are available for Council's consideration:

1. Introduce Bylaws 8300 and 8301 and refer Bylaw 8300 to a Public Hearing (staff recommendation); or
2. Defeat the bylaws at First Reading.

Respectfully submitted,



Kevin Zhang
Development Planner

Attachments:

1. Architectural and Landscape Plans
2. Bylaw 8300 – Rezoning
3. Bylaw 8301 – Housing Agreement
4. Facilitator Report

REVIEWED WITH:		
<input type="checkbox"/> Sustainable Community Dev.	<input type="checkbox"/> Clerk's Office	External Agencies:
<input type="checkbox"/> Development Services	<input type="checkbox"/> Communications	<input type="checkbox"/> Library Board
<input type="checkbox"/> Utilities	<input type="checkbox"/> Finance	<input type="checkbox"/> NS Health
<input type="checkbox"/> Engineering Operations	<input type="checkbox"/> Fire Services	<input type="checkbox"/> RCMP
<input type="checkbox"/> Parks	<input type="checkbox"/> ITS	<input type="checkbox"/> NVRC
<input type="checkbox"/> Environment	<input type="checkbox"/> Solicitor	<input type="checkbox"/> Museum & Arch.
<input type="checkbox"/> Facilities	<input type="checkbox"/> GIS	<input type="checkbox"/> Other:
<input type="checkbox"/> Human Resources	<input type="checkbox"/> Real Estate	



1 VIEW FROM FIRE ACCESS LANE
NTS



2 VIEW FROM NORTHEAST @ MOUNT SEYMOUR PARKWAY
NTS

EKISTICS
Architecture

1875 Main Street
Vernon, BC
Canada, V8T 3C1

T: 804 878-8330
F: 804 878-8330
www.ekistics.com

Anthem

NO.	DESCRIPTION	QTY	UNIT PRICE	TOTAL
1	CONCRETE PAVING (10'x10')	100	1.50	150.00
2	GRASS (10'x10')	100	0.50	50.00
3	LANDSCAPING (10'x10')	100	0.25	25.00
4	WOODEN FENCE (10'x10')	100	0.75	75.00
5	WOODEN DECK (10'x10')	100	0.50	50.00
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**MAPLEWOOD WEST
TOWNHOMES**

2049 2051 2063 2065 2067 HAYTAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

**PERSPECTIVE
VIEWS**

A6.01

DEVELOPMENT DATA

LOT AREA	Approx. Gross Area	Approx. Net Area
Gross Site Area	4,299.5 m ²	46,100.46 m ²
Crack ROW (7.6%)	- 236.5 m ²	- 2,545.06 m ²
TOTAL NET SITE AREA	4,063.1 m ²	43,555.40 m ²

BUILDING #1 North - FLOOR AREA

	Unit G.F.A.	Net Floor Area	Qty. of Units	Net Floor Area*
B2 UNIT (2-BED)	928 m ²	= 928 m ²	x 2 units =	1,856 m ²
B2U UNIT (2-BED Accessib)	932 m ²	= 932 m ²	x 1 units =	932 m ²
B2E UNIT (2-BED)	925 m ²	= 925 m ²	x 8 units =	7,400 m ²
B2a UNIT (2-BED)	932 m ²	= 932 m ²	x 1 units =	932 m ²
C2 UNIT (4-BED)	1,507 m ²	= 1,507 m ²	x 8 units =	12,056 m ²
C2a UNIT (4-BED)	1,519 m ²	= 1,519 m ²	x 2 units =	3,038 m ²
C2b UNIT (4-BED)	1,621 m ²	= 1,621 m ²	x 2 units =	3,242 m ²
QTY. OF UNITS = 18				23,801.9 m ² Sub-total Building #1 North

BUILDING #1 South - FLOOR AREA

	Unit G.F.A.	Net Floor Area	Qty. of Units	Net Floor Area*
B2a UNIT (2-BED)	932 m ²	= 932 m ²	x 1 units =	932 m ²
B2b UNIT (2-BED)	932 m ²	= 932 m ²	x 1 units =	932 m ²
B2U UNIT (2-BED Accessib)	932 m ²	= 932 m ²	x 2 units =	1,864 m ²
C2 UNIT (4-BED)	1,507 m ²	= 1,506.6 m ²	x 4 units =	6,026.4 m ²
C2a UNIT (4-BED)	1,519 m ²	= 1,519 m ²	x 2 units =	3,038 m ²
C2b UNIT (4-BED)	1,621 m ²	= 1,620.55 m ²	x 2 units =	3,241.1 m ²
QTY. OF UNITS = 12				18,853.3 m ² Sub-total Building #1 South

BUILDING #2 - FLOOR AREA

	Unit G.F.A.	Net Floor Area	Qty. of Units	Net Floor Area*
C1 UNIT (4-BED)	1,496 m ²	= 1,495.8 m ²	x 4 units =	5,983.2 m ²
C2a UNIT (4-BED)	1,572 m ²	= 1,572.3 m ²	x 1 units =	1,572.3 m ²
C2b UNIT (4-BED)	1,509 m ²	= 1,508.8 m ²	x 1 units =	1,508.8 m ²
QTY. OF UNITS = 6				9,064.3 m ² Sub-total Building #2

BUILDING #3 - FLOOR AREA

	Unit G.F.A.	Net Floor Area	Qty. of Units	Net Floor Area*
C1 UNIT (4-BED)	1,496 m ²	= 1,495.8 m ²	x 1 units =	1,495.8 m ²
C2a UNIT (4-BED)	1,572 m ²	= 1,572.3 m ²	x 1 units =	1,572.3 m ²
C2b UNIT (4-BED)	1,509 m ²	= 1,508.8 m ²	x 1 units =	1,508.8 m ²
QTY. OF UNITS = 3				4,576.9 m ² Sub-total Building #3
TOTAL UNITS = 39				55,756.2 m ² TOTAL NET FLOOR AREA

	NET (m ²)	GROSS (m ²)
PSR	1,220	1,115
UPA	98.8	36.7

*Floor area excludes elev. rooms and elev. closet

	NET (m ²)	GROSS (m ²)
BUILDING	34.2%	32.4%
SITE	49.1%	62.4%

	Residential	Commercial
Residential	68	73
Visitor	10	5
Total	78	78
Automobile stall	2	4
Small Bicy	16	18
Class 2 Bicy (0.2 / unit)	7.8	6
Additional bike storage	39	99

CIMC ADDRESS

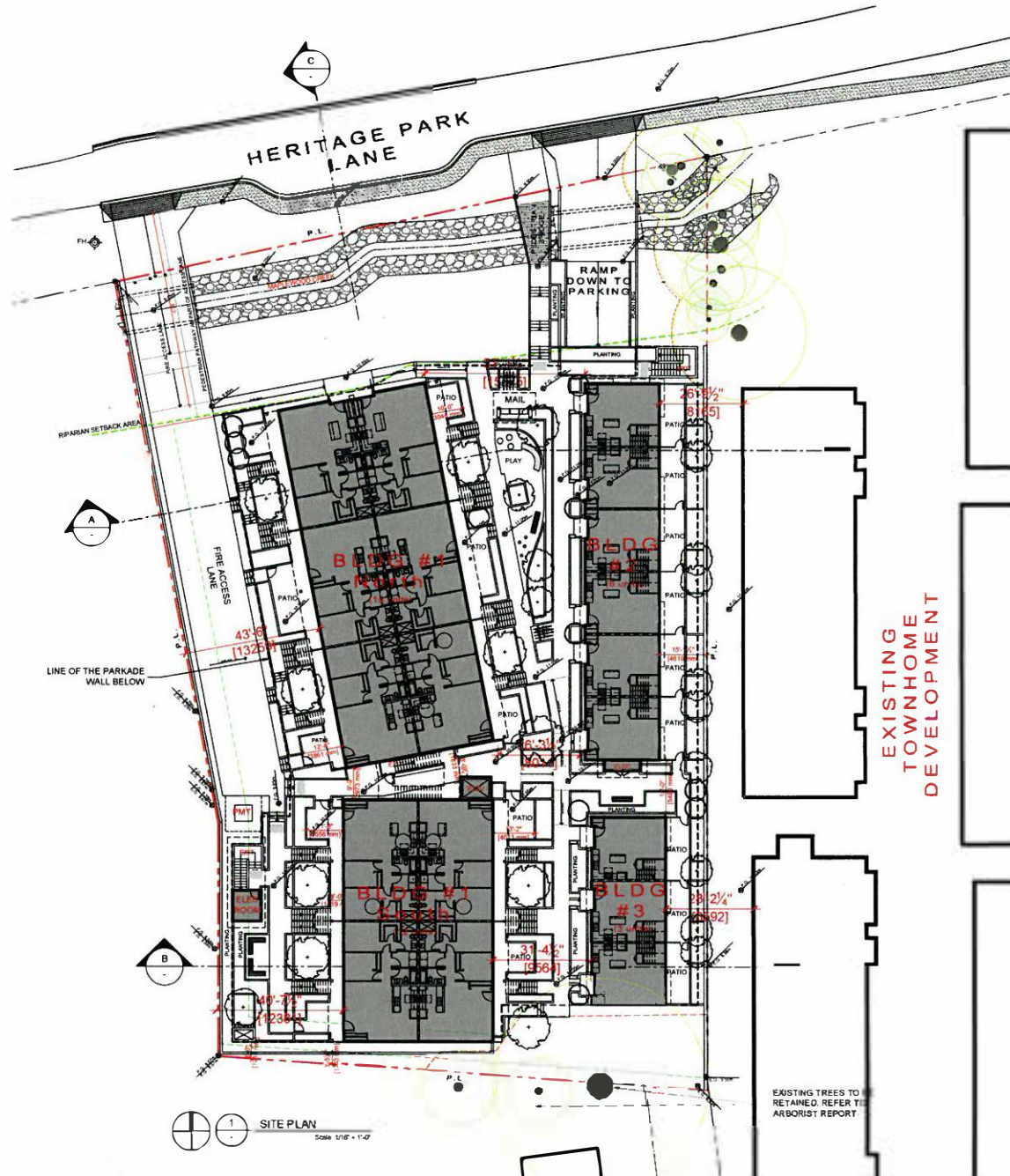
2049, 2051, 2053, 2055, 2055 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

LEGAL ADDRESS

LOTS A AND B, LOTS 2, 3 AND 5, BLOCKS 2 AND 3, DL
791, PLAN 16486

Root protection fencing

Existing tree to be retained. Refer to
Arborist Report and Landscape Drawings



EKISTICS
Architecture

1825 Main Street
Vancouver, BC
Canada, V6T 3C1

T. 604 679-8280
F. 604 679-8280
www.ekestics.com

Anthem

NO.	DESCRIPTION	DATE
1	PRELIMINARY SITE PLAN	2016-01-15
2	REVISION	2016-01-15
3	REVISION	2016-01-15
4	REVISION	2016-01-15
5	REVISION	2016-01-15
6	REVISION	2016-01-15
7	REVISION	2016-01-15
8	REVISION	2016-01-15
9	REVISION	2016-01-15
10	REVISION	2016-01-15

**MAPLEWOOD WEST
TOWNHOMES**

2049, 2051, 2053, 2055, 2055 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

**PRELIMINARY
SITE PLAN &
PROJECT DATA**

A1.01

Existing trees in creek area omitted for image clarity. Refer to Arborist Report and Landscape Drawings

Anthem

DATE	REVISION
2019-08-23	1. RE-DESIGNED DETAIL A AND B
2019-08-23	2. ISSUED FOR PERMITS
2019-08-23	3. ISSUED FOR DETAIL A AND B
2019-08-23	4. ISSUED FOR DETAIL A AND B
2019-08-23	5. ISSUED FOR DETAIL A AND B
2019-08-23	6. ISSUED FOR DETAIL A AND B
2019-08-23	7. ISSUED FOR DETAIL A AND B
2019-08-23	8. ISSUED FOR DETAIL A AND B
2019-08-23	9. ISSUED FOR DETAIL A AND B
2019-08-23	10. ISSUED FOR DETAIL A AND B

PROJECT NUMBER	0000
DRAWN BY	EA
CHECKED BY	MB
DATE CHECKED	
BY/DATE/TITLE	

PROJECT
MAPLEWOOD WEST TOWNHOMES

2019-08-23 2019-08-23 2019-08-23 2019-08-23 2019-08-23
1825 MAIN STREET, NASHVILLE, TN 37203
1825 MAIN STREET, NASHVILLE, TN 37203

TITLE

STREETSCAPES

DRAWING NO.

A0.06



1 STREETSCAPE FROM HERITAGE PARK LANE



2 OVERALL ELEVATION FROM MAPLEWOOD FARM

[illegible]

Anthem 

[illegible]**MAPLEWOOD WEST
TOWNHOMES**

2049 2051, 2053, 2059, 2059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT BC

**ELEVATIONS
BUILDING #1 NORTH**

A3.01



1 WEST ELEVATION BLDG 2
SCALE: 1/8" = 1'-0"



2 NORTH ELEVATION BLDG 2
SCALE: 1/8" = 1'-0"



3 EAST ELEVATION BLDG 2
SCALE: 1/8" = 1'-0"

BUILDING #2		
1. 11.30m T.O. MANTEL	2. 12.00m T.O. 2nd FLR	3. 12.75m T.O. 3rd FLR
4. 13.50m T.O. 4th FLR	5. 14.25m T.O. 5th FLR	6. 15.00m T.O. 6th FLR
7. 15.75m T.O. 7th FLR	8. 16.50m T.O. 8th FLR	9. 17.25m T.O. 9th FLR
10. 18.00m T.O. 10th FLR	11. 18.75m T.O. 11th FLR	12. 19.50m T.O. 12th FLR
13. 20.25m T.O. 13th FLR	14. 21.00m T.O. 14th FLR	15. 21.75m T.O. 15th FLR
16. 22.50m T.O. 16th FLR	17. 23.25m T.O. 17th FLR	18. 24.00m T.O. 18th FLR
19. 24.75m T.O. 19th FLR	20. 25.50m T.O. 20th FLR	21. 26.25m T.O. 21st FLR
22. 27.00m T.O. 22nd FLR	23. 27.75m T.O. 23rd FLR	24. 28.50m T.O. 24th FLR
25. 29.25m T.O. 25th FLR	26. 30.00m T.O. 26th FLR	27. 30.75m T.O. 27th FLR
28. 31.50m T.O. 28th FLR	29. 32.25m T.O. 29th FLR	30. 33.00m T.O. 30th FLR
31. 33.75m T.O. 31st FLR	32. 34.50m T.O. 32nd FLR	33. 35.25m T.O. 33rd FLR
34. 36.00m T.O. 34th FLR	35. 36.75m T.O. 35th FLR	36. 37.50m T.O. 36th FLR
37. 38.25m T.O. 37th FLR	38. 39.00m T.O. 38th FLR	39. 39.75m T.O. 39th FLR
40. 40.50m T.O. 40th FLR	41. 41.25m T.O. 41st FLR	42. 42.00m T.O. 42nd FLR
43. 42.75m T.O. 43rd FLR	44. 43.50m T.O. 44th FLR	45. 44.25m T.O. 45th FLR
46. 45.00m T.O. 46th FLR	47. 45.75m T.O. 47th FLR	48. 46.50m T.O. 48th FLR
49. 47.25m T.O. 49th FLR	50. 48.00m T.O. 50th FLR	51. 48.75m T.O. 51st FLR
52. 49.50m T.O. 52nd FLR	53. 50.25m T.O. 53rd FLR	54. 51.00m T.O. 54th FLR
55. 51.75m T.O. 55th FLR	56. 52.50m T.O. 56th FLR	57. 53.25m T.O. 57th FLR
58. 54.00m T.O. 58th FLR	59. 54.75m T.O. 59th FLR	60. 55.50m T.O. 60th FLR
61. 56.25m T.O. 61st FLR	62. 57.00m T.O. 62nd FLR	63. 57.75m T.O. 63rd FLR
64. 58.50m T.O. 64th FLR	65. 59.25m T.O. 65th FLR	66. 60.00m T.O. 66th FLR
67. 60.75m T.O. 67th FLR	68. 61.50m T.O. 68th FLR	69. 62.25m T.O. 69th FLR
70. 63.00m T.O. 70th FLR	71. 63.75m T.O. 71st FLR	72. 64.50m T.O. 72nd FLR
73. 65.25m T.O. 73rd FLR	74. 66.00m T.O. 74th FLR	75. 66.75m T.O. 75th FLR
76. 67.50m T.O. 76th FLR	77. 68.25m T.O. 77th FLR	78. 69.00m T.O. 78th FLR
79. 69.75m T.O. 79th FLR	80. 70.50m T.O. 80th FLR	81. 71.25m T.O. 81st FLR
82. 72.00m T.O. 82nd FLR	83. 72.75m T.O. 83rd FLR	84. 73.50m T.O. 84th FLR
85. 74.25m T.O. 85th FLR	86. 75.00m T.O. 86th FLR	87. 75.75m T.O. 87th FLR
88. 76.50m T.O. 88th FLR	89. 77.25m T.O. 89th FLR	90. 78.00m T.O. 89th FLR
91. 78.75m T.O. 91st FLR	92. 79.50m T.O. 92nd FLR	93. 80.25m T.O. 93rd FLR
94. 81.00m T.O. 94th FLR	95. 81.75m T.O. 95th FLR	96. 82.50m T.O. 96th FLR
97. 83.25m T.O. 97th FLR	98. 84.00m T.O. 98th FLR	99. 84.75m T.O. 99th FLR
100. 85.50m T.O. 100th FLR	101. 86.25m T.O. 101st FLR	102. 87.00m T.O. 102nd FLR
103. 87.75m T.O. 103rd FLR	104. 88.50m T.O. 104th FLR	105. 89.25m T.O. 105th FLR
106. 90.00m T.O. 106th FLR	107. 90.75m T.O. 107th FLR	108. 91.50m T.O. 108th FLR
109. 92.25m T.O. 109th FLR	110. 93.00m T.O. 110th FLR	111. 93.75m T.O. 111th FLR
112. 94.50m T.O. 112th FLR	113. 95.25m T.O. 113th FLR	114. 96.00m T.O. 114th FLR
115. 96.75m T.O. 115th FLR	116. 97.50m T.O. 116th FLR	117. 98.25m T.O. 117th FLR
118. 99.00m T.O. 118th FLR	119. 99.75m T.O. 119th FLR	120. 100.50m T.O. 120th FLR
121. 101.25m T.O. 121st FLR	122. 102.00m T.O. 122nd FLR	123. 102.75m T.O. 123rd FLR
124. 103.50m T.O. 124th FLR	125. 104.25m T.O. 125th FLR	126. 105.00m T.O. 126th FLR
127. 105.75m T.O. 127th FLR	128. 106.50m T.O. 128th FLR	129. 107.25m T.O. 129th FLR
130. 108.00m T.O. 130th FLR	131. 108.75m T.O. 131st FLR	132. 109.50m T.O. 132nd FLR
133. 110.25m T.O. 133rd FLR	134. 111.00m T.O. 134th FLR	135. 111.75m T.O. 135th FLR
136. 112.50m T.O. 136th FLR	137. 113.25m T.O. 137th FLR	138. 114.00m T.O. 138th FLR
139. 114.75m T.O. 139th FLR	140. 115.50m T.O. 140th FLR	141. 116.25m T.O. 141st FLR
142. 117.00m T.O. 142nd FLR	143. 117.75m T.O. 143rd FLR	144. 118.50m T.O. 144th FLR
145. 119.25m T.O. 145th FLR	146. 120.00m T.O. 146th FLR	147. 120.75m T.O. 147th FLR
148. 121.50m T.O. 148th FLR	149. 122.25m T.O. 149th FLR	150. 123.00m T.O. 150th FLR
151. 123.75m T.O. 151st FLR	152. 124.50m T.O. 152nd FLR	153. 125.25m T.O. 153rd FLR
154. 126.00m T.O. 154th FLR	155. 126.75m T.O. 155th FLR	156. 127.50m T.O. 156th FLR
157. 128.25m T.O. 157th FLR	158. 129.00m T.O. 158th FLR	159. 129.75m T.O. 159th FLR
160. 130.50m T.O. 160th FLR	161. 131.25m T.O. 161st FLR	162. 132.00m T.O. 162nd FLR
163. 132.75m T.O. 163rd FLR	164. 133.50m T.O. 164th FLR	165. 134.25m T.O. 165th FLR
166. 135.00m T.O. 166th FLR	167. 135.75m T.O. 167th FLR	168. 136.50m T.O. 168th FLR
169. 137.25m T.O. 169th FLR	170. 138.00m T.O. 170th FLR	171. 138.75m T.O. 171st FLR
172. 139.50m T.O. 172nd FLR	173. 140.25m T.O. 173rd FLR	174. 141.00m T.O. 174th FLR
175. 141.75m T.O. 175th FLR	176. 142.50m T.O. 176th FLR	177. 143.25m T.O. 177th FLR
178. 144.00m T.O. 178th FLR	179. 144.75m T.O. 179th FLR	180. 145.50m T.O. 180th FLR
181. 146.25m T.O. 181st FLR	182. 147.00m T.O. 182nd FLR	183. 147.75m T.O. 183rd FLR
184. 148.50m T.O. 184th FLR	185. 149.25m T.O. 185th FLR	186. 150.00m T.O. 186th FLR
187. 150.75m T.O. 187th FLR	188. 151.50m T.O. 188th FLR	189. 152.25m T.O. 189th FLR
190. 153.00m T.O. 190th FLR	191. 153.75m T.O. 191st FLR	192. 154.50m T.O. 192nd FLR
193. 155.25m T.O. 193rd FLR	194. 156.00m T.O. 194th FLR	195. 156.75m T.O. 195th FLR
196. 157.50m T.O. 196th FLR	197. 158.25m T.O. 197th FLR	198. 159.00m T.O. 198th FLR
199. 159.75m T.O. 199th FLR	200. 160.50m T.O. 200th FLR	201. 161.25m T.O. 201st FLR
202. 162.00m T.O. 202nd FLR	203. 162.75m T.O. 203rd FLR	204. 163.50m T.O. 204th FLR
205. 164.25m T.O. 205th FLR	206. 165.00m T.O. 206th FLR	207. 165.75m T.O. 207th FLR
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211. 168.75m T.O. 211st FLR	212. 169.50m T.O. 212nd FLR	213. 170.25m T.O. 213rd FLR
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217. 173.25m T.O. 217th FLR	218. 174.00m T.O. 218th FLR	219. 174.75m T.O. 219th FLR
220. 175.50m T.O. 220th FLR	221. 176.25m T.O. 221st FLR	222. 177.00m T.O. 222nd FLR
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232. 184.50m T.O. 232nd FLR	233. 185.25m T.O. 233rd FLR	234. 186.00m T.O. 234th FLR
235. 186.75m T.O. 235th FLR	236. 187.50m T.O. 236th FLR	237. 188.25m T.O. 237th FLR
238. 189.00m T.O. 238th FLR	239. 189.75m T.O. 239th FLR	240. 190.50m T.O. 240th FLR
241. 191.25m T.O. 241st FLR	242. 192.00m T.O. 242nd FLR	243. 192.75m T.O. 243rd FLR
244. 193.50m T.O. 244th FLR	245. 194.25m T.O. 245th FLR	246. 195.00m T.O. 246th FLR
247. 195.75m T.O. 247th FLR	248. 196.50m T.O. 248th FLR	249. 197.25m T.O. 249th FLR
250. 198.00m T.O. 250th FLR	251. 198.75m T.O. 251st FLR	252. 199.50m T.O. 252nd FLR
253. 200.25m T.O. 253rd FLR	254. 201.00m T.O. 254th FLR	255. 201.75m T.O. 255th FLR
256. 202.50m T.O. 256th FLR	257. 203.25m T.O. 257th FLR	258. 204.00m T.O. 258th FLR
259. 204.75m T.O. 259th FLR	260. 205.50m T.O. 260th FLR	261. 206.25m T.O. 261st FLR
262. 207.00m T.O. 262nd FLR	263. 207.75m T.O. 263rd FLR	264. 208.50m T.O. 264th FLR
265. 209.25m T.O. 265th FLR	266. 210.00m T.O. 266th FLR	267. 210.75m T.O. 267th FLR
268. 211.50m T.O. 268th FLR	269. 212.25m T.O. 269th FLR	270. 213.00m T.O. 270th FLR
271. 213.75m T.O. 271st FLR	272. 214.50m T.O. 272nd FLR	273. 215.25m T.O. 273rd FLR
274. 216.00m T.O. 274th FLR	275. 216.75m T.O. 275th FLR	276. 217.50m T.O. 276th FLR
277. 218.25m T.O. 277th FLR	278. 219.00m T.O. 278th FLR	279. 219.75m T.O. 279th FLR
280. 220.50m T.O. 280th FLR	281. 221.25m T.O. 281st FLR	282. 222.00m T.O. 282nd FLR
283. 222.75m T.O. 283rd FLR	284. 223.50m T.O. 284th FLR	285. 224.25m T.O. 285th FLR
286. 225.00m T.O. 286th FLR	287. 225.75m T.O. 287th FLR	288. 226.50m T.O. 288th FLR
289. 227.25m T.O. 289th FLR	290. 228.00m T.O. 290th FLR	291. 228.75m T.O. 291st FLR
292. 229.50m T.O. 292nd FLR	293. 230.25m T.O. 293rd FLR	294. 231.00m T.O. 294th FLR
295. 231.75m T.O. 295th FLR	296. 232.50m T.O. 296th FLR	297. 233.25m T.O. 297th FLR
298. 234.00m T.O. 298th FLR	299. 234.75m T.O. 299th FLR	300. 235.50m T.O. 300th FLR
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307. 240.75m T.O. 307th FLR	308. 241.50m T.O. 308th FLR	309. 242.25m T.O. 309th FLR
310. 243.00m T.O. 310th FLR	311. 243.75m T.O. 311st FLR	312. 244.50m T.O. 312nd FLR
313. 245.25m T.O. 313rd FLR	314. 246.00m T.O. 314th FLR	315. 246.75m T.O. 315th FLR
316. 247.50m T.O. 316th FLR	317. 248.25m T.O. 317th FLR	318. 249.00m T.O. 318th FLR
319. 249.75m T.O. 319th FLR	320. 250.50m T.O. 320th FLR	321. 251.25m T.O. 321st FLR
322. 252.00m T.O. 322nd FLR	323. 252.75m T.O. 323rd FLR	324. 253.50m T.O. 324th FLR
325. 254.25m T.O. 325th FLR	326. 255.00m T.O. 326th FLR	327. 255.75m T.O. 327th FLR
328. 256.50m T.O. 328th FLR	329. 257.25m T.O. 329th FLR	330. 258.00m T.O. 330th FLR
331. 258.75m T.O. 331st FLR	332. 259.50m T.O. 332nd FLR	333. 260.25m T.O. 333rd FLR
334. 261.00m T.O. 334th FLR	335. 261.75m T.O. 335th FLR	336. 262.50m T.O. 336th FLR
337. 263.25m T.O. 337th FLR	338. 264.00m T.O. 338th FLR	339. 264.75m T.O. 339th FLR
340. 265.50m T.O. 340th FLR	341. 266.25m T.O. 341st FLR	342. 267.00m T.O. 342nd FLR
343. 267.75m T.O. 343rd FLR	344. 268.50m T.O. 344th FLR	345. 269.25m T.O. 345th FLR
346. 270.00m T.O. 346th FLR	347. 270.75m T.O. 347th FLR	348. 271.50m T.O. 348th FLR
349. 272.25m T.O. 349th FLR	350. 273.00m T.O. 350th FLR	351. 273.75m T.O. 351st FLR
352. 274.50m T.O. 352nd FLR	353. 275.25m T.O. 353rd FLR	354. 276.00m T.O. 354th FLR
355. 276.75m T.O. 355th FLR	356. 277.50m T.O. 356th FLR	357. 278.25m T.O. 357th FLR
358. 279.00m T.O. 358th FLR	359. 279.75m T.O. 359th FLR	360. 280.50m T.O. 360th FLR
361. 281.25m T.O. 361st FLR	362. 282.00m T.O. 362nd FLR	363. 282.75m T.O. 363rd FLR
364. 283.50m T.O. 364th FLR	365. 284.25m T.O. 365th FLR	366. 285.00m T.O. 366th FLR
367. 285.75m T.O. 367th FLR	368. 286.50m T.O. 368th FLR	369. 287.25m T.O. 369th FLR
370. 288.00m T.O. 370th FLR	371. 288.75m T.O. 371st FLR	372. 289.50m T.O. 372nd FLR
373. 290.25m T.O. 373rd FLR	374. 291.00m T.O. 374th FLR	375. 291.75m T.O. 375th FLR
376. 292.50m T.O. 376th FLR	377. 293.25m T.O. 377th FLR	378. 294.00m T.O. 378th FLR
379. 294.75m T.O. 379th FLR	380. 295.50m T.O. 380th FLR	381. 296.25m T.O. 381st FLR
382. 297.00m T.O. 382nd FLR	383. 297.75m T.O. 383rd FLR	384. 298.50m T.O. 384th FLR
385. 299.25m T.O. 385th FLR	386. 300.00m T.O. 386th FLR	387. 300.75m T.O. 387th FLR
388. 301.50m T.O. 388th FLR	389. 302.25m T.O. 389th FLR	390. 303.00m T.O. 390th FLR
391. 303.75m T.O. 391st FLR	392. 304.50m T.O. 392nd FLR	393. 305.25m T.O. 393rd FLR
394. 306.00m T.O. 394th FLR	395. 306.75m T.O. 395th FLR	396. 307.50m T.O. 396th FLR
397. 308.25m T.O. 397th FLR	398. 309.00m T.O. 398th FLR	399. 309.75m T.O. 399th FLR
400. 310.50m T.O. 400th FLR	401. 311.25m T.O. 401st FLR	402. 312.00m T.O. 402nd FLR
403. 312.75m T.O. 403rd FLR	404. 313.50m T.O. 404th FLR	405. 314.25m T.O. 405th FLR
406. 315.00m T.O. 406th FLR	407. 315.75m T.O. 407th FLR	

The Corporation of the District of North Vancouver

Bylaw 8300

A bylaw to amend District of North Vancouver 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 1372 (Bylaw 8300)".

Amendments

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

- (a) Part 2A, Definitions is amended by adding CD 123 to the list of zones that Part 2A applies to.

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

“Comprehensive Development Zone 123” CD 123”

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

“4B123 Comprehensive Development Zone 123 CD 123

The CD 123 zone is applied to the areas shown in Schedule A to Bylaw 8300 and includes:

- a) 007-471-505 LOT 2 BLOCKS 2 AND 3 DISTRICT LOT 791 PLAN 16486
- b) 007-471-521 LOT 3 BLOCKS 2 AND 3 DISTRICT LOT 791 PLAN 16486
- c) 007-304-081 LOT A BLOCKS 2 AND 3 DISTRICT LOT 791 PLAN 17275
- d) 007-304-102 LOT B BLOCKS 2 AND 3 DISTRICT LOT 791 PLAN 17275
- e) 007-471-556 LOT 5 BLOCKS 2 AND 3 DISTRICT LOT 791 PLAN 16486

4B 123 – 1 Intent:

The purpose of the CD 123 Zone is to establish specific land use and development regulations for a townhouse development.

4B 123 – 2 Permitted Uses:

The following *principal* uses shall be permitted in the CD 123 Zone:

- a) Uses Permitted Without Conditions:
Not applicable.
- b) Conditional Uses:
The following *principal* uses are permitted when the conditions outlined in Section 4B 123-3 Conditions of Use, are met:
 - (i) *residential use*.

4B 123-3 Conditions of Use

- a) **All conditional uses:** All uses of land, buildings and structures are only permitted when the following condition of use is met:
 - i) Each dwelling unit has access to private or semi-private outdoor space;
 - ii) Each dwelling unit has exclusive access to a private storage space; and
 - iii) Balcony enclosures are not permitted.

4B 123-4 Accessory Use

- a) *Accessory uses* customarily ancillary to the principal uses are permitted.
- b) *Home occupations* are permitted in *residential* dwelling units.

4B 123 – 5 Density

- (a) The maximum permitted density is limited to a floor space ratio (FSR) of 0.45 and a maximum number of 5 dwelling units; and
- (b) For the purposes of calculating floor space ratio, the following areas are exempted:
 - (i) underground parkade;
 - (ii) unenclosed balcony areas; and
 - (iii) mechanical and electrical rooms.

4B 123 – 6 Amenities

- a) Despite Subsection 4B123 – 5, permitted density in the CD 123 Zone is increased to a maximum of 4,980 m² (53,600 sq. ft.) *gross floor area* and 39 units if:
 - i. \$697,041 is contributed to the municipality to be used for any of the following amenities benefiting Maplewood Village Centre (with

allocation and timing of expenditure to be determined by the municipality in its sole discretion);

- ii. The provision or enhancement of public facilities;
 - iii. Improvements to public parks, plazas, trails and greenways;
 - iv. Public art and other beautification projects; and
 - v. Affordable or special needs housing.
- vi. A Housing Agreement is entered into requiring a rental disclosure statement to be filed and prohibiting any strata bylaw or regulation establishing rental restrictions.

4B 123 – 7 Setbacks

- (a) Buildings must be set back from property lines to the closest building face in accordance with the following regulations:

Location	Minimum Required Setback
North Lot Line	10 m (32.8 ft)
East Lot Line	3.5 m (11.5ft)
South Lot Line	1.5 m (4.9 ft)
West Lot Line	10 m (32.8 ft)

4B123-8 Height:

Maximum permitted height for any building in the CD123 Zone, inclusive of a 15% bonus for any sloping roofs, is as follows:

- (a) Maximum permitted height is 17.1 m (56.1 ft) from finished grade.

4B 123 – 9 Coverage

- a) Building Coverage: The maximum building coverage is 45%.
- b) Site Coverage: The maximum site coverage is 55%.

4B 123 – 10 Landscaping and Storm Water Management

- a) All land areas not occupied by buildings, and patios shall be landscaped in accordance with a landscape plan approved by the District of North Vancouver.
- b) All electrical kiosks and garbage and recycling container pads not located underground or within a building shall be screened with landscaping or fencing in accordance with an approved landscape plan.

4B 123- 11 Parking, Loading and Servicing Regulations

- a) Parking and loading are required as follows:
 - i. Residential townhouse dwelling unit – minimum 1.5 spaces/unit and maximum 2.0 spaces/unit; and
 - ii. Residential Visitor Parking – 0.1 spaces/unit
- b) Bicycle storage for residents shall be provided on the basis of one space per unit.
- c) Except as specifically provided in 4B123 -10 (a) and (b) Parking and Loading shall be provided in accordance with Part 10 of this Bylaw.“

2.1 The Zoning Map is amended in the case of the lands illustrated on the attached map (Schedule A) by rezoning the land from the Single-Family Residential Level 6000 Zone (RS4) to Comprehensive Development Zone 123 (CD123).

READ a first time

PUBLIC HEARING held

READ a second time

READ a third time

Certified a true copy of “Bylaw 8300” as at Third Reading

Municipal Clerk

APPROVED by the Ministry of Transportation and Infrastructure on

ADOPTED

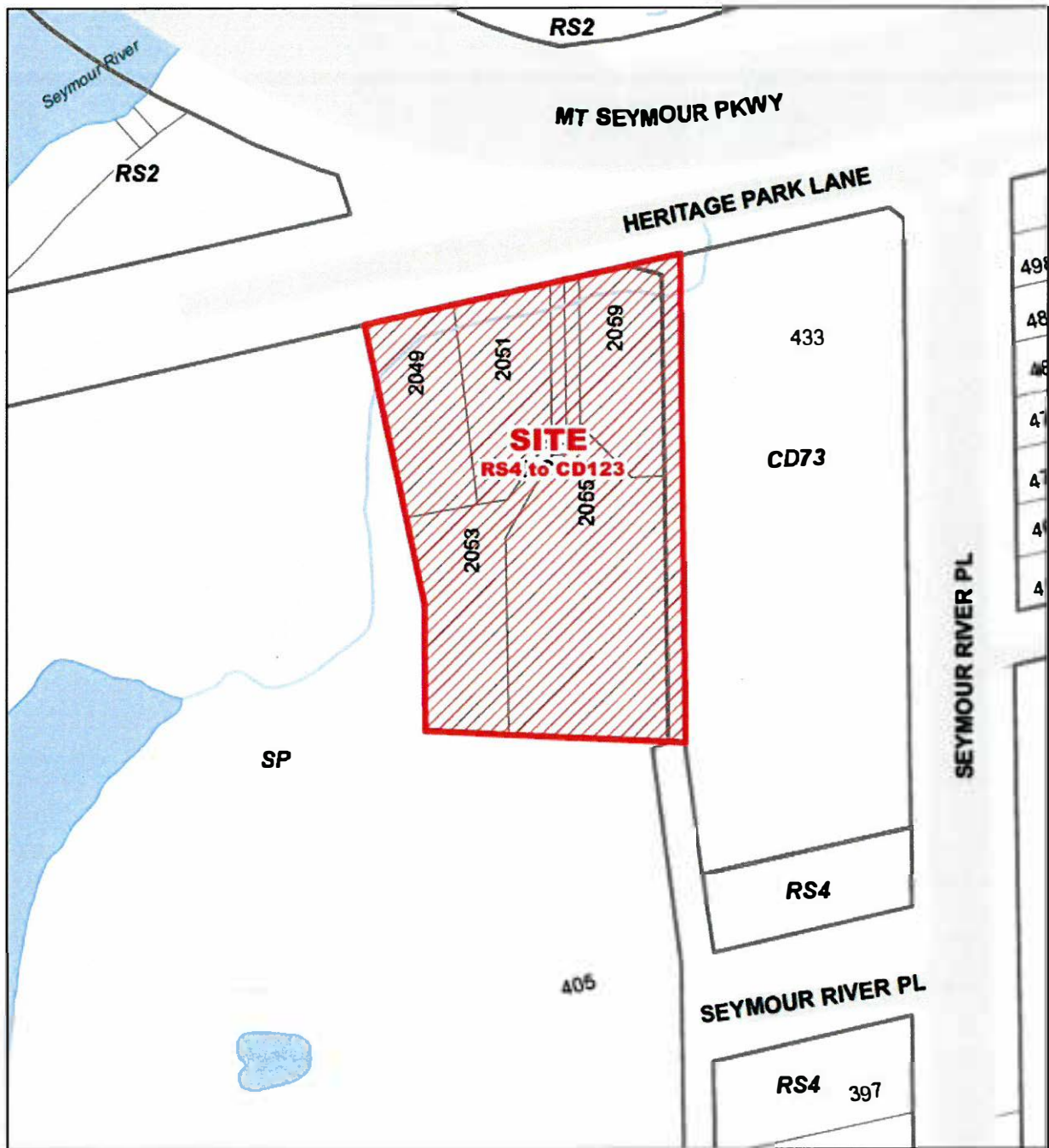
Mayor

Municipal Clerk

Certified a true copy

Municipal Clerk

Schedule A to Bylaw 8300



**SINGLE-FAMILY RESIDENTIAL 6000 ZONE (550 SQ.M.) (RS4) TO
COMPREHENSIVE DEVELOPMENT ZONE 123 (CD123)**



The Corporation of the District of North Vancouver**Bylaw 8301**

A bylaw to enter into a Housing Agreement
(2049, 2051, 2053, 2055, 2059 Heritage Park Lane)

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 8301, 2017 (2049, 2051, 2053, 2055, 2059 Heritage Park Lane)".

2. Authorization to Enter into Agreement

The Council hereby authorizes a housing agreement between The Corporation of the District of North Vancouver and Anthem Maplewoods West Developments Ltd. (Inc. No. BC0942249) substantially in the form attached to this Bylaw as Schedule "A" with respect to the following lands:

- a) 007-471-505 Lot 2 Blocks 2 and 3 District Lot 791 Plan 16486
- b) 007-471-521 Lot 3 Blocks 2 and 3 District Lot 791 Plan 16486
- c) 007-471-556 Lot 5 Blocks 2 and 3 District Lot 791 Plan 16486
- d) 007-304-081 Lot A Blocks 2 and 3 District Lot 791 Plan 17275
- e) 007-304-102 Lot B Blocks 2 and 3 District Lot 791 Plan 17275

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 8301

SECTION 219 COVENANT – HOUSING AGREEMENT

THIS AGREEMENT is dated for reference the ____ day of _____, 20____

BETWEEN:

ANTHEM MAPLEWOODS WEST DEVELOPMENTS LTD. (Inc. No. BC0942249) a company incorporated under the laws of the Province of British Columbia having an office at 300 – 550 Burrard Street, Vancouver, BC V6C 2B5

(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) "*Development Permit*" means Development Permit No. 42.17 issued by the District;
- (b) "*Lands*" means land described in Item 2 of the *Land Title Act* Form C to which this agreement is attached;
- (c) "*Owner*" means the Developer and any other person or persons registered in the Lower Mainland Land Title Office as owner of the Lands from time to time, or of any parcel into which the Lands are consolidated or subdivided, whether in that person's own right or in a representative capacity or otherwise;
- (d) "*Proposed Development*" means the proposed development containing not more than 43 units to be constructed on the Lands in accordance with the Development Permit;
- (e) "*Short Term Rentals*" means any rental of a Unit for any period less than 30 days;
- (f) "*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*;
- (g) "*Unit*" means a residential dwelling strata unit in the Proposed Development; and
- (h) "*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 8301 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*.

3.08 Release of Covenant [optional clause]

The District agrees that if the District of North Vancouver Rezoning Bylaw 1372 (Bylaw 8300), is not adopted by the District's Council before [date], the Owner is entitled to require the District to execute and deliver to the Owner a discharge, in registrable form, of this Agreement from title to the Land. The Owner is responsible for the preparation of the discharge under this section and for the cost of registration at the Land Title Office.

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:

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

- (d) 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.
- (e) 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 8301.

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 charge which is registered in the Land Title Office:

(a) _____ (the "**Charge**");

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

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 Charge as though the Section 219 Covenant herein had been executed, delivered and registered against title to the Lands before registration of the Charge.

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.

ROCKANDEL&ASSOCIATES

*Building Success Through Process Facilitation,
Community & Organizational Engagement
Partnership Planning*

**PUBLIC INFORMATION
MEETING SUMMARY REPORT**

To: Kevin Zhang, Development Planner, District of North Vancouver

T: 604.990.2321 E: zhangk@dnv.org

Emily Howard, Anthem Properties

T: 604.235.3182 E: ehoward@AnthemProperties.com

From: Catherine Rockandel, IAF Certified Professional Facilitator, Rockandel & Associates

T: 1.604.898.4614 E: cat@growpartnerships.com

Re: Public Information Meeting Summary for 2049 – 2059 Heritage Park Lane

Date: October 11, 2017

Event Date: October 11, 2017

Time: 6:00 PM – 7:30 PM

Location: Kenneth Gordon Maplewood School Gym, 420 Seymour River Place

Attendees: Twenty-three (23) citizens attended

Comment Forms: Provided to Kevin Zhang District of North Vancouver Planning

NotificationFlyer Invitation

114 invitation letters were delivered by Canada Post to homes to a minimum of 100 metres of the site. The notification flyer also included the one page District of North Vancouver Process for Applications Requiring Rezoning.

In addition a copy of the notice was emailed to Stuart Porter, Maplewood Community Association to distribute to members.

Site Signs

There was one (1) site sign erected on Heritage Park Lane on September 25 , notifying the community of the meeting.

Newspaper Advertisement

Advertisements were placed in the North Shore News, on October 4 and 6, 2017

Attendees: A total of twenty-three (23) citizens were in attendance. In addition, the following project team members and District of North Vancouver staff were in attendance.

District of North Vancouver

Kevin Zhang, Development Planner

Anthem Properties - 2049 – 2059 Heritage Park Lane Rezoning
Public Information Meeting Summary, October 11, 2017

Project Team

Property Owner: Anthem Properties

Steve Forrest, VP Development

Simon Taylor, Director Development

Melissa Howey, Development Manager

Brennan Finley, Development Coordinator

Emily Howard, Community Relations Manager

Architect:

Gregory Wilson, EKISTICS Architecture

Mark Blackwood, EKISTICS Architecture

Roxana Abdollahi, Intern Architect, EKISTICS Architecture

Landscape Architects:

Daryl Tyacke, ETA

Jennifer Liu, ETA

Barry Warren, Keystone Environmental

Transportation Planning:

Nicole He, Transportation Analyst, Bunt & Associates

Facilitator

Catherine Rockandel, Rockandel & Associates

Anthem Properties is proposing to construct a 43-unit development in a stacked townhome form at 2049-2059 Heritage Park Lane. The proposal is for 14 two-bedroom and 29 three-bedroom family-oriented units. The site will be accessed from a driveway off Heritage Park Lane. Parking will be located in a single-level underground parkade that provides 64 residential parking spaces and 6 visitor parking spaces.

The proposal will include the realignment and restoration of Maplewood Creek, which runs through the development site and the adjacent Maplewood Farm. The proposed aquatic habitat will be designed to support and improve the spawning and rearing of local salmon. In addition, the proposal includes an enhancement of the pedestrian path in Maplewood Farm as well as a community amenity contribution provided by Anthem to the District of North Vancouver.

PUBLIC COMMENT: Q & A (Index: Q: Questions C: Comment A: Answers)

Q1 With a 1.2 FSR on this project and stacked townhouse form factor, I am wondering if the bottom piece of this design counts into that from a density perspective?

A1 The single level apartments, yes they would be counted as part of the FSR.

Q2 What is the typical size of the bottom unit and the top units?

A2 The bottom units are 940 square feet and the top units range anywhere between 1500 and 1550

Anthem Properties - 2049 – 2059 Heritage Park Lane Rezoning
Public Information Meeting Summary, October 11, 2017

- Q3** How much is the site mapping in totality? How big is the site in totality?
- A3** Approximately 44,000 square feet if you subtract the creek bank exclusions. There is about 160 square meeting metres that we have to exclude for FSR purposes.
- Q4** There is no necessary slope or anything that is allowing you to get extra density over and above 1.2?
- A4** No
- Q5** I want to commend that set back but I wonder if there is going to be a shadow study as part of the submission? I think it would be interesting to understand the massing of that adjacent building
- A5** Absolutely, it is part of the detailed development permit application we submitted in August.
- Q6** I have a question about the fire lane access. Could you talk a little bit about the levels there in terms of the levels compared to existing Maplewood Place? I suppose I am wondering is it going to be on the same level as the courtyard and are there any opportunities for level access from Maplewood Place to that fire lane? At the moment, there obviously isn't any level access in that property and that could be a good offering for the neighbourhood
- A6** I was involved with the other project as well, so you are talking from the mews area, the sidewalk in the center. Yes, I think that will be because that is popped on top of the parkade. The actual fire lane has to be done at the level of the access road. It should be lower than your mews areas, then substantially landscaped. Obviously you already have landscaping at your west property line. There will be additional landscaping on this projects east property line as well to buffer. We have looked extensively at the types of trees we put in there to create that extra height between those two projects.
- Q7** You are saying that the fire lane is lower than the current mews?
- A7** Yes, we don't have a section of it. The mews in your project is approximately from street grade, if I recall correctly is about 8 feet above the road.
- Q8** So there isn't any parkade under the new access road laneway?
- A8** No, not under the fire lane
- Q9** I commend you on providing bicycle parking and some spots are for visitors as well on the premises. My question concerns movements of bicycle and pedestrians through the area. Right now Seymour River Boulevard, there is parking on both sides and it is typically a place near a school and parents all drive their kids to school these days. They are pretty anxious to get their kids so sometimes it is a dangerous place to be. That happens to be one of my routes to get over to the commercial area and I imagine anybody living there is going to want to get out of there. If you look at the connections out of there they are not very good. I see your fire lane access and this is a requirement. Is there any way for you to integrate a bike path through there for people on bikes to avoid the main road there at

Seymour Boulevard? It is not going to be a very pleasant place to cycle through there. In all the stuff that the District has put out about being a cycling and walkable area, we are just bringing in more cars. If you look at the plans right now, granted they are going to change in the future, the access to that area, if you are going to Second Narrows bridge from there or if you are going to the Parkway, it is a roundabout way to get there. It is all on Seymour River Place. I think that needs to be addressed and maybe something can be done with the fire lane to integrate it to some friendlier path.

- A9 We do have bicycle parking at surface to bike racks. One at the top of the fire access ramp and one at the very south end of the building. There would be visitor parking as well as secure bicycle storage underground. The fire access lane however stops at Maplewood Farm and actually I will let Kevin speak to this. We did have discussions early on with the District but Maplewood Farms have their own future intentions. Basically there was no accessibility permitted to the farm in the south. Whether it is pedestrian access, whether it is a fire lane, that is why everything is front loading off of Heritage Boulevard. I agree with your point about bicycle safety being very important.

We consulted with Kenneth Gordon School and developed a detailed traffic management plan for this project, based on our experience from the previous development. In that case we had flag people out all day during construction on the street but in particular, in front of the school. We had no truck traffic during peak periods of drop off or pick up. We managed that because it is chaos at pick up time.

- Q10 There are properties up on Lytton that Anthem is developing. It seems like there is a lot of development that is just kind of popping up and I am wondering if there is a plan in regards to my question there about the fire lane. There is other housing to the south of that, does Anthem have an interest in that property?

- A10 No. The farm is directly to the south of us and I think you are saying that the housing that runs parallel to Seymour River Place. We have no current interest in any of those properties that front onto the farm

(K. Zhang) A couple points regarding the fire lane access and to confirm what Steve was saying about Maplewood Farm. Maplewood Farm is not interested in opening up a secondary access and are currently using that piece of land for services relating to the farm. They stressed on multiple occasions that Maplewood Farm is a controlled environment for the safety of the kids and the animals. They only want one access. I do take your point that transportation, especially active transportation, is an important factor. The Maplewood Plan is ongoing and I am sure you are aware of that as well. I think later this month the Maplewood Plan will be made public for comments and feedback. I encourage you to comment on not just the active transportation part of that plan but also any other aspects.

- Q11 On Heritage Park lane is there going to be any street parking added to that area or is it just going to be the underground parking? On the actual lane itself, is there going to be street parking there? Are current residents going to notice an increase in parking traffic?

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- A11 We have an underground parking entrance, a pedestrian access bridge and the fire lane. In the area that is available we have worked with the District to create a bulge so there is public parking along the street in front of the project.
- Q12 There was another slide that showed the distance from the fire park lane to Maplewood Place. Is the 52 feet going from the new structure to the property line or to the existing?
- A12 It goes to the existing.
- Q13 With respect to the bike parking, I live in the neighbourhood and personally have about 5 bicycles in my unit. Being a North Shore resident and this close to so much road biking and mountain biking, I would strongly encourage more biking spots in your development. Most of the people who you seem to be marketing to, will want them. I have a question with regards to the CAC funds that we understood are going to be part of this project. Does Anthem have any say in where the CAC funds are going to be spent or does the District have any plans on how they wish to spend them?
- A13 (K. Zhang) The CACs follow our District of North Van CAC policy. For this project it is a cash contribution and that goes into a CAC fund and by the local Government Act has to be spent on amenities in the area. That could be either for public art or other services or contribution to other in kind amenities in the area. There are basically two kinds, one is in cash or larger projects for example a library or something like that. In this case it is cash and it goes into part of our CAC fund and then that gets distributed to various projects in the town centre village.
- Q14 In respect to the construction schedule, forgive me if this is way too early to be asking these questions. I didn't live in the neighbourhood when the original Maplewood Place was built, so I am not sure how this has worked. Does Anthem have a plan for noise and traffic management during what is expected to be a relatively long construction period for this project?
- A14 Anticipated construction period, we would put on the long end of the scale, 18 months. We are applying in the near future for demolition permits. Typically within the District you are waiting for public hearing and third reading to occur before you are actually permitted to demo the home. Currently we have 3 existing homes there and then this site would be fenced once again and sit idle until a building permit was issued. As far as traffic management plan, I touched on that before that is something we do a detailed plan. Basically that takes into account trade parking and supplier drop offs, so during the construction of the previous Maplewood Place construction we used part of the year parking within the farm itself and then part of the year we parked on the school site. The same as Loden Green did as well. That is convenient and takes traffic off the street and then what we do is police trades to minimize and fine them if they are parking on the street. In addition to that we try to manage the suppliers, as far as drop offs and particularly around the kids going to school during the mornings and pick up time. As part of the actual building permit process we have to prepare a traffic management plan that gets reviewed and approved by the District.

Q15 You mentioned earlier with the Heritage Park Lane, 2 hour parking is going to be for 2 cars. Is there any plan to change to limited parking along Seymour River Place?

A15 (K. Zhang) I am not aware of any plan currently that restricts parking on Seymour River Place. It may change because along with the Maplewood Plan itself, there is a kind of related transportation plan that goes along with it. They may make recommendations for changes to parking restrictions but not that I know of currently.

Q16 Can we eliminate parking on Seymour River Place? I ask this reflecting on Anthem's proposal on Lytton, which across from Ron Andrew's pool where it was mentioned that there would be no more parking on Lytton Street. My question is, can you create enough underground parking so that you can take the pressure off the streets? When Anthem had the Open House two years ago in this location, there was a big uproar over parking and basically Anthem said we are providing the parking. I think that quelled it. There is no getting away from providing more parking these days. It seems that everybody wants it but nobody wants the cars. It is a catch 22. I think if we are going to make Maplewood a walkable, cycling community then we can't have our streets filled with cars that are just parked there. I think if you have to have them, put them under ground would be my suggestion and my wish.

A16 For this 43-unit townhome development we are providing 70 parking spaces underground. If you divide it by the number of units, we are providing 1.5 parking stalls per unit and that is what we believe is more than enough for the parking demand at this neighbourhood. Also particularly because we did a data survey from ICBC and we found out that the average parking rate in this neighbourhood is about 1.2 but we are providing more than that. We believe that providing spaces underground would address your concern about taking the pressure from the on street parking.

In addition to that, I agree with you and we actually maximize our parking so if there was more parking we could provide underground we would. The site is maxed out. A lot of the jurisdictions, like the City of North Vancouver, actually limit the amount of parking you can put. Then we do the same in regards to bike storage, larger bike rooms, we know that we have to provide secured parking for the bikes, not the common bike rooms with the larger storage area. You are perfectly right in saying that. In this site in particular, we are limited to the 2 spots. The one thing I wanted to point out here that is unique to our project, that isn't on Maplewood Place, we do have visitor parking. But I think what you are getting at is that sometimes people don't use visitor parking and will park on the street. On our project we have put in an elevator, a lift, so it will be more accessible to park in the parkade and get up into the mews and go to the units. It won't be as convenient to try to park on the street.

Q17 If you are limited on adding more parking, why not trade some car parking for more bike parking? We are not that far from bus service and we have to get away from the car business and dependency on cars. I like what you have and not going into the old fashioned storage locker where the door slams on you and you have hundreds of bicycles

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in there. I think that when I down size, I might be interested if you make it interesting for me so I can just hop on my bike and cycle out there.

A17 We don't just have a common bike room, we do individual lockers. Some of these lockers are actually the width of a parking stall and 4 feet wide. It is more than just that. We are always trying to go over and above in that every unit gets a bike locker/ storage locker. For the 43 units, there is bike parking for 86.

Q18 I want to talk more about the street parking. My understanding with the underground parking is that you are providing one space per unit with the option of buying additional spaces.

A18 No we have 1.5 stalls per unit

Q19 In Maplewood, when we bought our townhouse, it came with one spot with the option to buy other spots. Is that the same plan?

A19 It is a similar plan and yes they have an option to purchase a second stall.

C20 A lot of people had got their one parking space when they bought their unit and they didn't buy additional space because they had to pay for it therefore the parking on the street is jammed regularly. You are adding another complex to it and providing two street spots, which is not going to be enough for all the additional cars that are going to try parking in the area. Is there any way that the District can reconsider some of the parking on Heritage Park Lane to accommodate all of the extra people moving into the area?

C21 I just had the luxury of having the last 4 weeks off so I have actually just noticed all of the traffic along here. There are so many people from the school that park right outside here on the street. There are also parents picking up so it is not just the Maplewood residents with their second car that are parking on the street. There is the school and teachers and everything. Once all these spaces are full they park over there so when you have the construction trucks and stuff like that, where are these people going to park? It is a bit of a nightmare at the moment to even get a space outside my own front door. There are so many cars already without an additional new build.

Q22 There is really no additional parking being provided given the influx of residents that you are putting into the area. Does the District have any plan for that or it is just those 2 spaces in that little cut out there?

A22 (K. Zhang) For this project they can only provide what is on their road frontage. I think you are touching on a larger subject of transportation planning as a whole. Unfortunately I am not in the Transportation Planning Department but I know part of the response is to increase other transportation options like cycling and providing better infrastructure for that. I do recognize that there is still parking concerns. There is always a trade off, should you require every unit to have 2 parking stalls? That creates a huge parkade underground and we have to kind of draw a good balance between requiring too much parking or not providing enough. At the end of the day 1.5 is what our policy has arrived at based on what transportation consultants who have done studies in the area have provided us.

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Some people go above and some people go less than that and that is a decision for Council. Sometimes it is also a behaviour issue as well. For example, our single family homes, we require 2 parking stalls on site and sometimes people don't use the second spot. Traffic and parking is definitely something we are working on as a District but unfortunately I don't have a specific answer relating to this development

Q23 Can we have resident's only parking in the last part of this street? There are people that park there from the school when they are working for the day and the parents and so on it is almost impossible to get into our parkade sometimes. My request is for resident's only parking on Seymour River Place

A23 (k. Zhang) There is not too much I can say on that. It is definitely a concern we are hearing from people but as you said other parents use it extra for other services in the area.

Q24 I wanted to follow up on what my wife said earlier that given that there is no current level access to the courtyard of Maplewood Place, would there be an opportunity to amend that fire access road so that that could be provided as it might be something nice for the residents of Maplewood Place. Maybe it could be sloped or something?

A24 Are you talking about actually integrating the fire lane with your project?

C25 Yes, to provide a level access, there is no elevator or kind of level access at Maplewood.

A25 You already have an approved strata plan on it. The fire lane will only be for the other project as it has to retain a fire lane. That is the ultimate purpose of it that it is for fire protection of the new residents that will live there. So no, it couldn't be incorporated but obviously there is visual aspect that we have to take into account, the buffering, which we have paid a lot of attention to. In the end aside from how we dress it up, it is a fire lane and its purpose is life safety.

Q26 I have questions about the vision of the project and specifically the marketing of it to families. You have mentioned in your design that you are planning on making a play area within it. Is that a public access play area, or just residents of the Maplewood West complex?

A26 If you are talking about the play area in the central courtyard area that will be for the strata and the owners of the building specifically.

Q27 With respect to your presentation board that says community builder, I am curious to know about your marketing plan for this project. What types of people you are looking to sell this project to?

A27 We are working through that now but the buyers we are expecting could be anything from young couples for the single level units on the bottom all the way up to downsizers in those units because we do have accessible units in there as well. As well as families with kids, we have 3 and 4 bedroom units in those town homes.

Q28 Does Anthem or has Anthem considered opportunities to market this project exclusively to buyers within the North Vancouver or lower mainland community? You have probably

seen some publicity that happened in Horseshoe Bay. Certainly I would be in favour of a marketing plan like that.

A28 No, there is no reason to even suspect that we would have to do that. This is North Vancouver and it is overwhelmingly popular for buyers. This type of product is in limited supply and that is why we are building it and that is why the District is pushing these types of forms which is really trying to bring density in a form other than a single family house that the average person can no longer afford. These will be built just like our previous project, just like in Loden Green, they will be bought by locals. They are not investor units, you are not buying investor units that are costing \$700,000 and up.

Q29 Have you developed a pricing strategy around these units yet?

A29 It is a common question that I always appreciate from people. Generally with the market the way it moves now, you are not doing your pricing until probably 6-8 months before completion. An example is Maplewood Place, when we were selling that we were in the low \$500 a foot and at 1000 square feet, you are at about \$500,000. Prices now in greater North Vancouver for townhouse product are over \$700 a foot so \$700,000. That is what the base price is but a year and a half out there is a lot of world economic conditions.

Q30 With regards to pricing and your marketing strategy, it sounds like you are intending these units to be for families for people who live in the community. Is Anthem considering the form and finish of the units to be in line with what a young family or downsizing couple would be looking for other than a luxury finish?

A30 Yes, totally, there is an expectation on quality now. Building codes have raised jurisdictional requirements on spec quality. There is a tendency for some builders to over build and some to under build. We kind of play middle of the road of that. Family units being some of the units, if you were able to take a look at the floor plans, they will have 2 family rooms, kids on the second level and parents on the top floor master bedroom. Very typical of what you would see in North Vancouver, quality specs tend to get pushed up over time. Everybody wants stainless steel appliances now, now it is just the grade of stainless steel appliance. They are not going to be paneled appliances because that takes you into another level. As far as the quality of construction you can see from the renderings and design, it is wood paneling, stone, you still have to be within the frame work of expectation of quality. That is typically what we do but we are not a builder that tries to build for the luxury market I think is what you are asking.

Q31 Would you market these without parking other than say visitor parking? Do you think you would have a problem if you marketed without parking?

A31 You wouldn't be able to ask people or a family with 2 kids to come in and say no parking. We are not there yet. There are projects in downtown Vancouver that are getting to that point, there have been a few at zero parking in some of the bigger metropolitan areas but not here in the District of North Van

- Q32** You indicated that in Maplewood Place that the owners could purchase a second parking space. What would that cost the owner or what did it cost then?
- A32** That is really a new phenomenon. Five years ago you couldn't sell a second stall, you gave it away with the unit so I am not quite sure on how many were sold. Typically it is the larger units and it is all worked into price whether you pay for it or not. A lot of times the three bedrooms will be worked in the price. I would throw a number of 8-10 thousand I actually don't think on this project that will be the case because you have got larger units and they will be at a higher price point. There will be an expectation that if somebody buys a three-bedroom unit that they will want 2 parking stalls. Then you will have the ground floor units, which are more accessible and may be only a one-car family.
- C33** In Seattle, some developments close to transit, they provided 2 parking spots, but when they offered them to the residents nobody took it. They said it was too expensive. I am wondering with all this parking if we are masking costs. We are talking about affordability all the time and to put in a massive concrete structure like that is not cheap.
- A33** It is not cheap. There have been projects done typically for a first time buyer or investor where it is close to a transit node, a Skytrain type station that they have been successful doing that. Unfortunately we are not there yet. We would like to not have the expense of it but it is certainly not the reality
- C34** I wanted to comment on the resident only parking. Having lived for 8 years up by Cap U where we have resident only parking on the streets, it creates a huge nightmare, not for the people living there but for people that are coming to visit. Essentially, you have people coming to visit from Mission, Chilliwack and Abbotsford and there is nowhere to park. So to have it resident only is probably not a workable thing in my mind.
- Q35** I am concerned about the environment and Maplewood Creek. I did speak to one of your representatives and he did say that there was work to be done on Maplewood Creek. Is Maplewood Creek going to stay in the path or is there the intention to move it to another location? My other question is that I haven't heard anything about rain gardens or storm water management in this project and I would like to know how you folks are dealing with this?
- A35** In regards to the alignment of Maplewood Creek, it actually is going to change from its current alignment slightly through the Maplewood Farm property. It will tie into the pond in a different location about 25-30 meters to the west from where it currently is. It is also going to have a meandering alignment and this actually gives an opportunity to bring greater complexity into the stream, bigger diversity of flows. Maplewood Creek is a nice little fish bearing creek, but it is missing some habitat complexity that can support fish rearing and fish spawning. One of the things I mentioned was having a riffle pool sequence, which you will get in a natural creek system. You will get areas that the flow will drive an accumulation of rocks and then a smoother glide area past that. Those riffles provide an area where there is a refuge from the flow velocity behind the rock just downstream from the rock. The fish can sort of sit in that refuge and wait for the next change to move upstream. They expend a little less energy when they are sitting in that

part of the creek. It also oxygenates the water, which is very critical for fish rearing and spawning in the stream. Causing a meander to the creek is also going to change that diversity of flow and a greater complexity of the flow structure so it is not just a leaner channel where the water is flowing at almost the same speed throughout the entire thing. It will change around the bows and bends of this creek meander. The coarse woody debris that we are going to be embedding there is also going to provide refuge for fish from predators and will also provide wood organic debris which supports the bottom food chain species that the fish can eat. The creek is going to be realigned but we see that as an opportunity to first increase the actual aquatic area. The proposed changes to Maplewood Creek are going to increase the in stream area by about a 110 square meters and is also going to increase the habitat value by having these habitat complex structures that are currently absent in the creek

Q36 Are there any plans that I may see where you are going to relocate it to?

A36 It is actually the board we were looking at previously. It has a mock up of where the proposed re alignment of the creek is. You can look at that and there will be available drawings as well that can be provided to you.

Q37 My second question is about storm water management and rain gardens.

A37 We are reducing the permeability of the site. However anywhere rain will fall on the site, on the buildings and courtyards it will drain down into the parkade area. We have a storm water detention tank under this location here [under the fire access lane near the mailboxes, next to the parkade wall] for about 64 cubic metres.

Q38 Is it going to drain into Maplewood Creek or is it going to drain into Seymour River?

A38 From what I understand it is draining into the creek through a filtration system called a jellyfish

Q39 Another question I would like to ask is what sort of precautions are going to be taken during construction to cross Maplewood Creek? You are going to have heavy equipment going in to the site. I would like to know what sort of protection there is going to be for this creek?

A39 I want to add onto the storm water. There is a capacity issue with the storm water so it was actually a request of the District that we look at draining into the creek, which is an acceptable standard as long as you properly filtrate the onsite storm water. For your second question, which again is a very good one, you usually get into that detail under the building permit but there will be a lot of precautionary steps that will have to be taken because you are crossing a creek. Filter cloth, a temporary structure going over top, we will protect the banks from debris falling in. One thing with working within the District is they are very diligent at ensuring that anything around creeks, anything environmental must have a plan in place and there is ongoing inspection of those areas. I think it will be something that we will get into greater detail with but it will be intensive.

C40 I ask because when you put in the project across the street, I had on two occasions to observe a lot of silted water from your construction going into the creek during a salmon

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spawning period. I am a steam keeper and it really upset me that somebody made a mistake. That is not acceptable.

A40 Coming off the bank prior to landscaping and things like that. Those are certainly situations that we want to be informed about because it is not acceptable, certainly during salmon spawning. I know that the pipe under the road was blocked. We actually partially cleared that pipe to increase the salmon spawning. We replaced the head wall so it is quite an improvement to that area. Then again, you don't want to offset that by not protecting the creek during construction, especially when there is a high potential silt and debris running into it, even with the filter cloth. That is something that we didn't do properly first time around and we will ensure we do it properly the second time around.

Q41 There will be due diligence to this problem in this project?

A41 We always have a sign in front. Secondary thing we do, prior to starting construction, we go around the neighbourhood with a flyer detailing who the onsite site superintendent is who the foreman is and who the contact is and there is also a backup contact person at our head office as well. If you are not getting your questions answered via people on site, you call our head office and you talk to somebody like me. We continue to build five projects here it is not appropriate for us if we are not doing the appropriate due diligence during construction.

Q42 I know you have some hoops to jump through but do you have a rough idea of when you plan on starting the demolition phase, is it a year out?

A42 Demolition we plan to do around third reading which we are hoping to get mid next year. The site would then be fenced until we get the building permit approved in which case we would start excavation and full construction ideally in fall of next year is what we are looking at. It is dependent on approvals and design and all that.

C43 I was surprised that you are putting in underground parking because in your other development that wasn't permitted because of the flood zone, the 100 year sea level rise flood issue. Stongs, the other development close by and you have indicated you are raising it as well to protect against flooding from the Seymour River

A43 We are constructing above the flood construction level. We have to be above it, you can't build below it.

Q43 How much buffer do you have? These days the 100 year stuff, I am an engineer, I know the 100 year stuff isn't standing up to scrutiny these days with the severity of storms. When the District approves a project like that for underground storage and the whole thing is inundated, I as a taxpayer often end up with a liability. My question of curiosity is, in the other location it wasn't allowed to go underground but here it is?

A43 It depends on the grade of your site and where it is in proximity to the river. We have a lot of information from our previous site. We have had piezometers on the site for the last year plus the District updated their FCL levels, I believe within the last year as well so you have got increased standards. We had to increase the height of the parkade. We have to have a separation above the 100 year point of the river and then what we have

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inside the parkade. In the event that it would ever flood that we have blow out ports. It is a wood frame building so we can't tank it.

C44 In the District maps the section of Riverside between Seymour Parkway and Dollarton is showing under water for the 100-year scenario.

A44 We designed to 7.6 meters.

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Notification Flyer: Page One

Notice of a Public Information Meeting in Your Neighbourhood

Anthem Properties is hosting a Public Information Meeting to present a development proposal for 43 units in a stacked townhome form at 2049-2059 Heritage Park Lane.

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

Meeting Time and Location:

Wednesday, October 11, 2017
 6:00-7:30pm
 Kenneth Gordon Maplewood School Gym
 420 Seymour River Place



Meeting Agenda:

Doors Open: 6:00pm
 Open House: 6:00-6:30pm
 Presentation and Q+A 6:30-7:30pm

For Further Information Please Contact:

Emily Howard	Anthem Properties
604-235-3182	
Kevin Zhang	District of North Vancouver,
604-990-2321	Planning Department

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Notification Flyer: Page Two

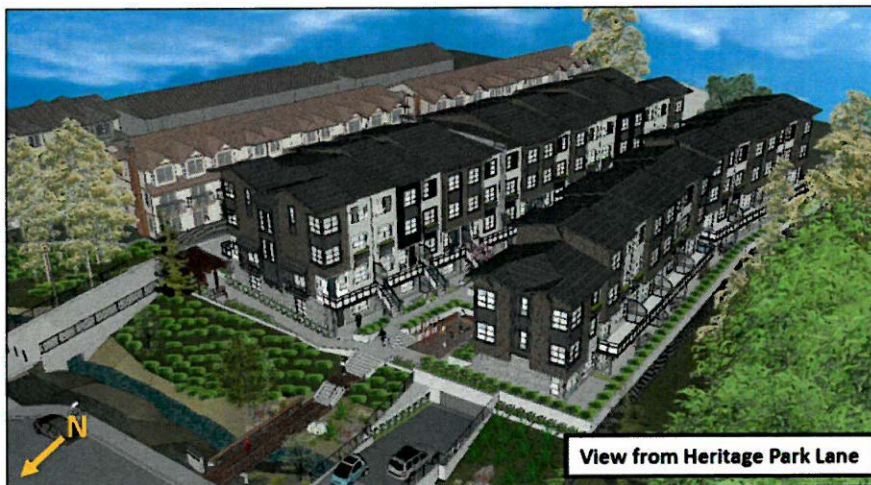
The Proposal:

Anthem Properties is proposing to construct a 43-unit development in a stacked townhome form at 2049-2059 Heritage Park Lane.

The proposal is for 14 two-bedroom and 29 three-bedroom family-oriented units.

The site will be accessed from a driveway off Heritage Park Lane. Parking will be located in a single-level underground parkade that provides 64 residential parking spaces and 6 visitor parking spaces.

The proposal will include the realignment and restoration of Maplewood Creek, which runs through the development site and the adjacent Maplewood Farm. The proposed aquatic habitat will be designed to support and improve the spawning and rearing of local salmon. In addition, the proposal includes an enhancement of the pedestrian path in Maplewood Farm as well as a community amenity contribution provided by Anthem to the District of North Vancouver.



Project Rendering: 2049-2059 Heritage Park Lane

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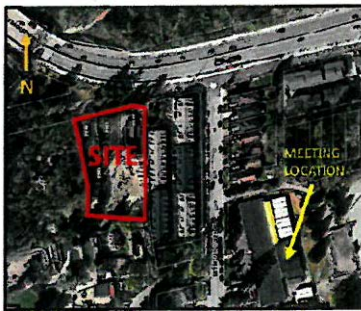
Newspaper Advertisement

PUBLIC INFORMATION MEETING

A redevelopment is being proposed for 2049–2059 Heritage Park Lane, North Vancouver, to construct a stacked-townhome development. You are invited to a meeting to discuss the project.

Date: Wednesday, October 11, 2017
Time: 6:00pm – 8:00pm
Location: Kenneth Gordon Maplewood School Gym,
420 Seymour River Place

Anthem Properties proposes to rezone the site to permit 43 townhomes in a stacked building form. Each unit ranges in size from 936 to 1,542 square feet all located atop a single-level underground parkade.



Information packages are being distributed to residents within a 100 meter radius of the site. If you would like to receive a copy or if you would like more information, please contact Kevin Zhang of the Community Planning Department at 604-990-2321, or Emily Howard of Anthem Properties at 604-235-3182, or bring your questions and comments to the meeting.

***This is not a Public Hearing. DNV Council will receive a report from staff on issues raised at the meeting and will formally consider the proposal at a later date.**

The Corporation of the District of North Vancouver

Bylaw 8300

A bylaw to amend District of North Vancouver 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 1372 (Bylaw 8300)”.

Amendments

2. District of North Vancouver Zoning Bylaw 3210, 1965 is amended as follows:
 - (a) Part 2A, Definitions is amended by adding CD 123 to the list of zones that Part 2A applies to.
 - (b) Section 301 (2) by inserting the following zoning designation:

“Comprehensive Development Zone 123	CD 123”
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 - (c) Part 4B Comprehensive Development Zone Regulations by inserting the following, inclusive of Schedule B:

“4B123 Comprehensive Development Zone 123 CD 123

The CD 123 zone is applied to the areas shown in Schedule A to Bylaw 8300 and includes:

- a) 007-471-505 LOT 2 BLOCKS 2 AND 3 DISTRICT LOT 791 PLAN 16486
b) 007-471-521 LOT 3 BLOCKS 2 AND 3 DISTRICT LOT 791 PLAN 16486
c) 007-304-081 LOT A BLOCKS 2 AND 3 DISTRICT LOT 791 PLAN 17275
d) 007-304-102 LOT B BLOCKS 2 AND 3 DISTRICT LOT 791 PLAN 17275
e) 007-471-556 LOT 5 BLOCKS 2 AND 3 DISTRICT LOT 791 PLAN 16486

4B 123 – 1 Intent:

The purpose of the CD 123 Zone is to establish specific land use and development regulations for a townhouse development.

4B 123 – 2 Permitted Uses:

The following *principal* uses shall be permitted in the CD 123 Zone:

- a) Uses Permitted Without Conditions:
Not applicable.
- b) Conditional Uses:
The following *principal* uses are permitted when the conditions outlined in Section 4B 123-3 Conditions of Use, are met:
 - (i) *residential use*.

4B 123-3 Conditions of Use

- a) **All conditional uses:** All uses of land, buildings and structures are only permitted when the following condition of use is met:
 - i) Each dwelling unit has access to private or semi-private outdoor space;
 - ii) Each dwelling unit has exclusive access to a private storage space; and
 - iii) Balcony enclosures are not permitted.

4B 123-4 Accessory Use

- a) *Accessory uses* customarily ancillary to the principal uses are permitted.
- b) *Home occupations* are permitted in *residential* dwelling units.

4B 123 – 5 Density

- (a) The maximum permitted density is limited to a floor space ratio (FSR) of 0.45 and a maximum number of 5 dwelling units; and
- (b) For the purposes of calculating floor space ratio, the following areas are exempted:
 - (i) underground parkade;
 - (ii) unenclosed balcony areas; and
 - (iii) mechanical and electrical rooms.

4B 123 – 6 Amenities

- a) Despite Subsection 4B123 – 5, permitted density in the CD 123 Zone is increased to a maximum of 4,980 m² (53,600 sq. ft.) *gross floor area* and 39 units if:
 - i. \$697,041 is contributed to the municipality to be used for any of the following amenities benefiting Maplewood Village Centre (with

allocation and timing of expenditure to be determined by the municipality in its sole discretion):

- ii. The provision or enhancement of public facilities;
 - iii. Improvements to public parks, plazas, trails and greenways;
 - iv. Public art and other beautification projects; and
 - v. Affordable or special needs housing.
- vi. A Housing Agreement is entered into requiring a rental disclosure statement to be filed and prohibiting any strata bylaw or regulation establishing rental restrictions.

4B 123 – 7 Setbacks

- (a) Buildings must be set back from property lines to the closest building face in accordance with the following regulations:

Location	Minimum Required Setback
North Lot Line	10 m (32.8 ft)
East Lot Line	3.5 m (11.5ft)
South Lot Line	1.5 m (4.9 ft)
West Lot Line	10 m (32.8 ft)

4B123-8 Height:

Maximum permitted height for any building in the CD123 Zone, inclusive of a 15% bonus for any sloping roofs, is as follows:

- (a) Maximum permitted height is 17.1 m (56.1 ft) from finished grade.

4B 123 – 9 Coverage

- a) Building Coverage: The maximum building coverage is 45%.
- b) Site Coverage: The maximum site coverage is 55%.

4B 123 – 10 Landscaping and Storm Water Management

- a) All land areas not occupied by buildings, and patios shall be landscaped in accordance with a landscape plan approved by the District of North Vancouver.
- b) All electrical kiosks and garbage and recycling container pads not located underground or within a building shall be screened with landscaping or fencing in accordance with an approved landscape plan.

4B 123- 11 Parking, Loading and Servicing Regulations

- a) Parking and loading are required as follows:
 - i. Residential townhouse dwelling unit – minimum 1.5 spaces/unit and maximum 2.0 spaces/unit; and
 - ii. Residential Visitor Parking – 0.1 spaces/unit
- b) Bicycle storage for residents shall be provided on the basis of one space per unit.
- c) Except as specifically provided in 4B123 -10 (a) and (b) Parking and Loading shall be provided in accordance with Part 10 of this Bylaw.“

2.1 The Zoning Map is amended in the case of the lands illustrated on the attached map (Schedule A) by rezoning the land from the Single-Family Residential Level 6000 Zone (RS4) to Comprehensive Development Zone 123 (CD123).

READ a first time June 18th, 2018

PUBLIC HEARING held

READ a second time

READ a third time

Certified a true copy of “Bylaw 8300” as at Third Reading

Municipal Clerk

APPROVED by the Ministry of Transportation and Infrastructure on

ADOPTED

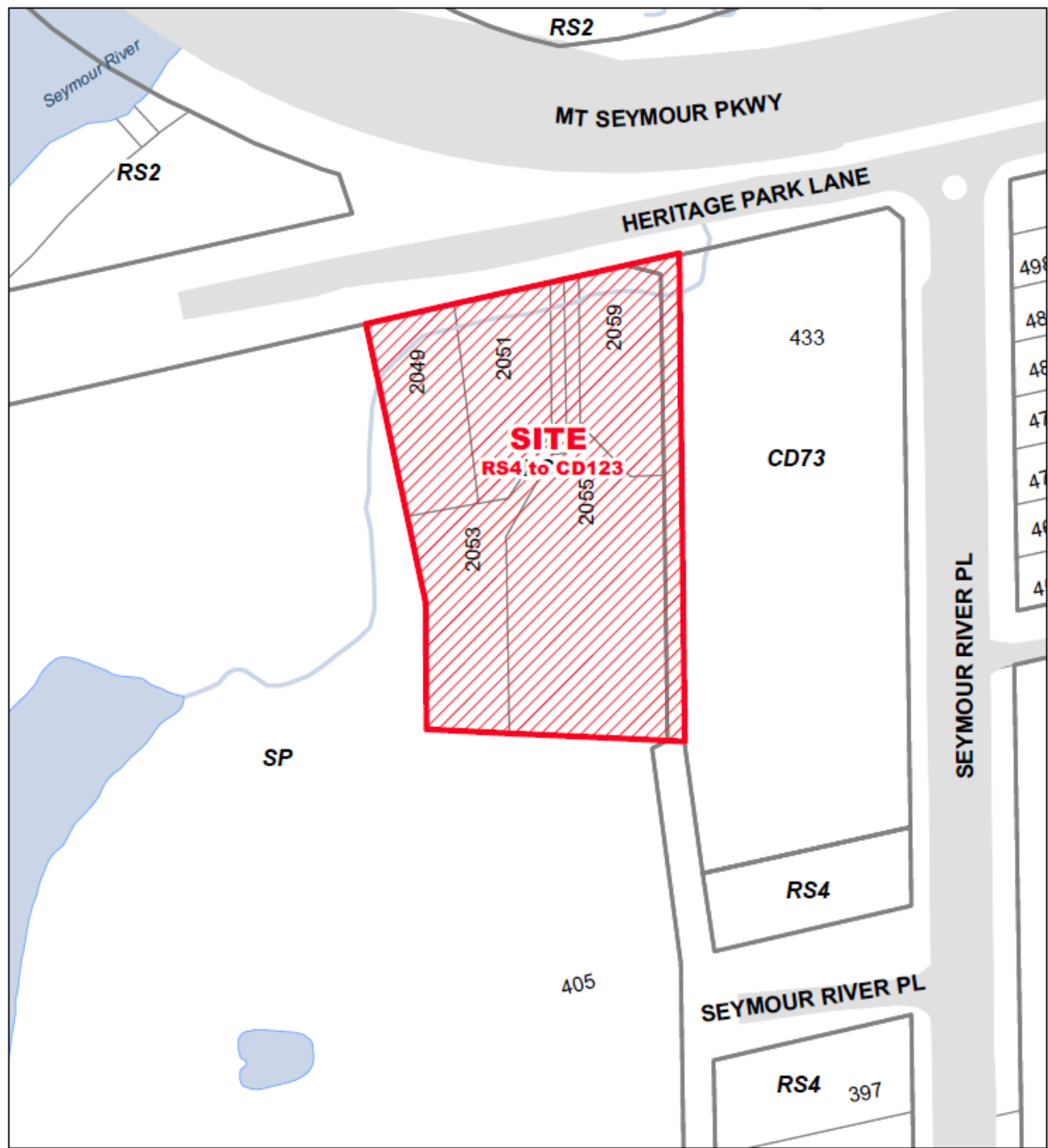
Mayor

Municipal Clerk

Certified a true copy

Municipal Clerk

Schedule A to Bylaw 8300



SINGLE-FAMILY RESIDENTIAL 6000 ZONE (550 SQ.M.) (RS4) TO COMPREHENSIVE DEVELOPMENT ZONE 123 (CD123)



The Corporation of the District of North Vancouver

Bylaw 8301

A bylaw to enter into a Housing Agreement
(2049, 2051, 2053, 2055, 2059 Heritage Park Lane)

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

Citation

1. This bylaw may be cited as "Housing Agreement Bylaw 8301, 2017 (2049, 2051, 2053, 2055, 2059 Heritage Park Lane)".

Authorization to Enter into Agreement

2. The Council hereby authorizes a housing agreement between The Corporation of the District of North Vancouver and Anthem Maplewoods West Developments Ltd. (Inc. No. BC0942249) substantially in the form attached to this Bylaw as Schedule "A" with respect to the following lands:
 - a) 007-471-505 Lot 2 Blocks 2 and 3 District Lot 791 Plan 16486
 - b) 007-471-521 Lot 3 Blocks 2 and 3 District Lot 791 Plan 16486
 - c) 007-471-556 Lot 5 Blocks 2 and 3 District Lot 791 Plan 16486
 - d) 007-304-081 Lot A Blocks 2 and 3 District Lot 791 Plan 17275
 - e) 007-304-102 Lot B Blocks 2 and 3 District Lot 791 Plan 17275

Execution of Documents

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

READ a first time June 18th, 2018

READ a second time

READ a third time

ADOPTED

Mayor

Municipal Clerk

Certified a true copy

Municipal Clerk

Schedule A to Bylaw 8301

SECTION 219 COVENANT – HOUSING AGREEMENT

THIS AGREEMENT is dated for reference the ____ day of _____, 20____

BETWEEN:

ANTHEM MAPLEWOODS WEST DEVELOPMENTS LTD. (Inc. No. BC0942249) a company incorporated under the laws of the Province of British Columbia having an office at 300 – 550 Burrard Street, Vancouver, BC V6C 2B5

(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) *"Development Permit"* means Development Permit No. 42.17 issued by the District;
- (b) *"Lands"* means land described in Item 2 of the *Land Title Act* Form C to which this agreement is attached;
- (c) *"Owner"* means the Developer and any other person or persons registered in the Lower Mainland Land Title Office as owner of the Lands from time to time, or of any parcel into which the Lands are consolidated or subdivided, whether in that person's own right or in a representative capacity or otherwise;
- (d) *"Proposed Development"* means the proposed development containing not more than 43 units to be constructed on the Lands in accordance with the Development Permit;
- (e) *"Short Term Rentals"* means any rental of a Unit for any period less than 30 days;
- (f) *"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*;
- (g) *"Unit"* means a residential dwelling strata unit in the Proposed Development; and
- (h) *"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 8301 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*.

3.08 Release of Covenant *[optional clause]*

The District agrees that if the District of North Vancouver Rezoning Bylaw 1372 (Bylaw 8300), is not adopted by the District's Council before *[date]*, the Owner is entitled to require the District to execute and deliver to the Owner a discharge, in registrable form, of this Agreement from title to the Land. The Owner is responsible for the preparation of the discharge under this section and for the cost of registration at the Land Title Office.

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:

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

- (d) 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.
- (e) 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 8301.

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 charge which is registered in the Land Title Office:

(a) _____ (the "**Charge**");

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

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 Charge as though the Section 219 Covenant herein had been executed, delivered and registered against title to the Lands before registration of the Charge.

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.

PUBLIC HEARING

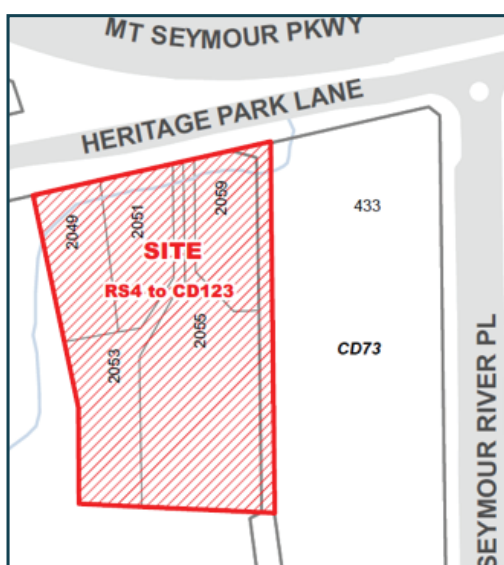
2049 Heritage Park Lane

THIRTY-NINE UNIT TOWNHOUSE PROJECT

What: A Public Hearing for Bylaw 8300, a proposed amendment to the Zoning Bylaw, to permit the development of a thirty-nine unit townhouse project.

When: 7 pm, Tuesday, July 3, 2018

Where: Council Chambers, District of North Vancouver Municipal Hall, 355 West Queens Road, North Vancouver, BC



What changes?

Bylaw 8300 proposes to amend the District's Zoning Bylaw by creating a new Comprehensive Development Zone 123 (CD123) and rezone the subject site from Single-Family Residential 6000 Zone (RS4) to CD123. The CD123 Zone addresses use and accessory uses, density, amenities, setbacks, building height, building and site coverage, landscaping and storm water management, and parking, loading and servicing regulations.



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

When can I speak?

We welcome your input Tuesday, July 3, 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@dnv.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 June 19 to July 3. Office hours are Monday to Friday 8 am to 4:30 pm, except statutory holidays.



MAPLEWOOD VILLAGE CENTRE AND INNOVATION DISTRICT IMPLEMENTATION PLAN & DESIGN GUIDELINES

Approved by Council on November 6, 2017

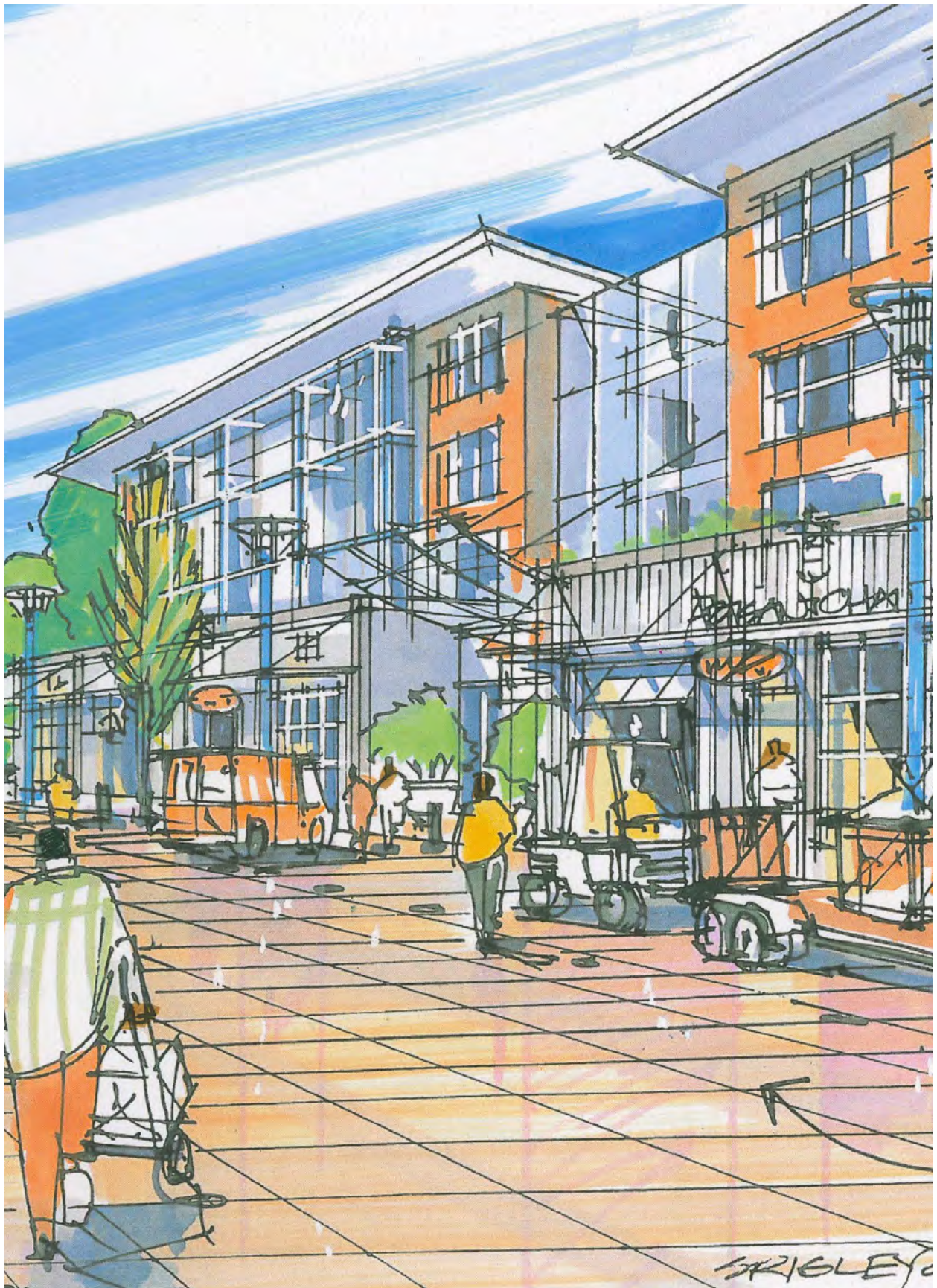


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Prepared by:



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PART 1: INTRODUCTION AND BACKGROUND

1 INTRODUCTION

1.1 SUMMARY AND PLAN CONTEXT

Identified as a Village Centre in the District of North Vancouver's 2011 Official Community Plan (OCP), Maplewood is one of the four key centres identified for growth in the Network of Centres Concept (see Figure 1). Roughly 1,500 new residential units are planned for, along with capacity for an additional 9,290 square metres (100,000 square feet) of new commercial space by 2030.

There are existing employment lands within, and immediately adjacent to, Maplewood including both heavy and light industries. One of the cornerstones of this plan is to protect and enhance existing employment lands and dramatically expand job-creating land uses in the Maplewood area. This plan aims to capture approximately 4,500 net new jobs and over a million square feet of employment floor area in the District by 2030 through new land use policies and regulations to support wealth-generating investment, create new employment opportunities and increase tax revenue, benefiting the entire community. The resulting mix of land uses will include options for living, working, playing, creating, and learning.

Recognizing the importance of locating good jobs in close proximity to housing options, 900 residential units are contemplated in the Innovation District to provide employee-oriented housing as a supportive use for the dramatic expansion of jobs contemplated in this implementation plan.

From a mobility standpoint, there is currently no standard street grid in Maplewood and cycling and pedestrian routes within the neighbourhood are sporadic and not connected to key destinations. Improvements for traffic and goods movement, circulation, and connectivity for all modes of travel (including, walking, cycling, transit, and driving) are contained in the plan to accommodate the anticipated growth in Maplewood.

Maplewood has significant green spaces within, and surrounding it. This includes the Maplewood Conservation Area, Windridge Park, Hogan's Pools Park, Maplewood Creek Park and Seymour River Heritage Park. These parks are largely natural areas and currently there is a limited amount of active recreational park space located directly within the community.

This plan aims to expand active recreational park space within the community and protect and enhance green spaces and environmentally sensitive features including steep escarpment slopes, watercourses, remnant forested areas, and riparian and mature forests, which support wildlife and resident and migratory bird species for future generations to experience and appreciate.

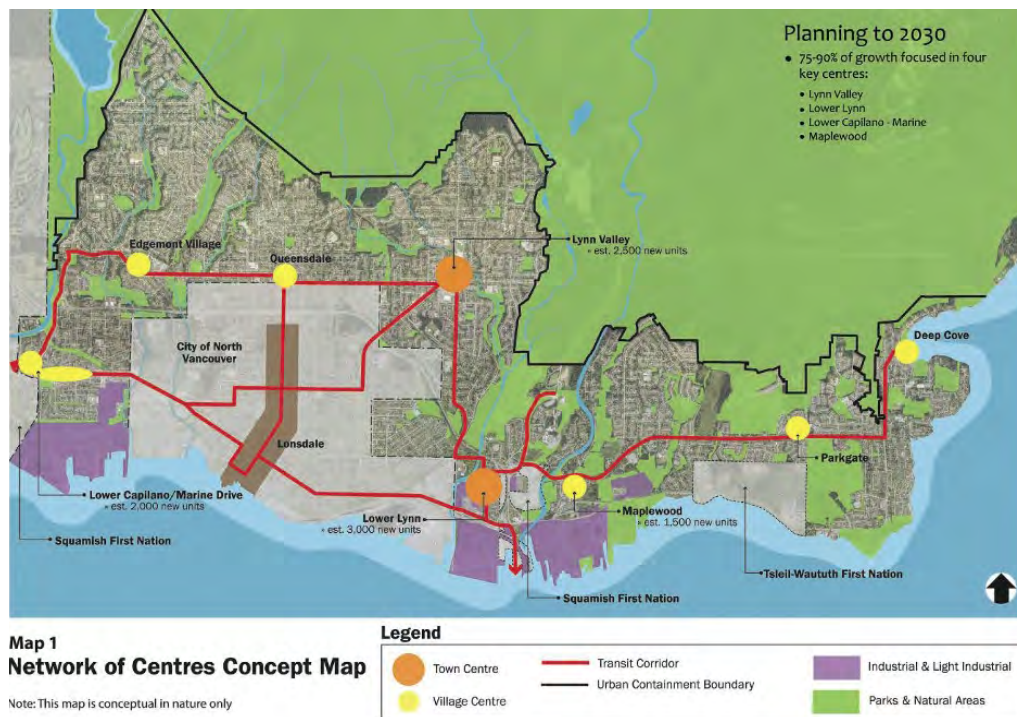


Figure 1: District of North Vancouver OCP - Network of Centres Concept Map

1.2 PURPOSE, APPLICATION, AND INTENT

The purpose of this document is to guide development and regulate the design of buildings and public realm improvements in Maplewood in support of the vision, goals, objectives, and principles outlined in the District's OCP.

The policies and guidelines contained in this document provide recommendations for future development, which should be used to design, review, and approve new developments (built form) and new public realm improvements (streetscape, public open spaces, parks, etc.).

This plan is intended to be used by the community, the District, land-owners, and developers to understand the likely forms and location of new development and public realm improvements that may occur to 2030. The policies and guidelines should be used to guide development in a comprehensive way that helps meet the vision for Maplewood. The District will use this plan when designing civic and public realm improvements.

This plan is neither prescriptive nor exhaustive, but rather illustrates anticipated key directions for Maplewood. It does not represent final decisions. Generally, decisions on specific development applications and civic improvements will be made by District Council, with public input, on a case-by-case basis. As part of the implementation of

the OCP, this document should be used in conjunction with the 2011 OCP Bylaw 7900, as amended, including the Development Permit Areas as described in Schedule B of the OCP.

1.3 OTHER RELEVANT DOCUMENTS

Other existing policies, studies, and regulations that should be reviewed in conjunction with this document:

- Development Servicing Bylaw 8145, as amended (DSB)
- Maplewood Village Centre Transportation Study Update, Urban Systems, 2017
- North Shore Area Transit Plan, TransLink, 2012
- Maplewood Lands Environmental and Hydrogeological Assessment Report, McElhanney Consulting Services Ltd., and Piteau Associates, 2016
- Maplewood Employment Lands Strategy, Rollo + Associates and Urban Systems, 2016
- Maplewood Village Seymour River Flood Protection, KWL, 2017
- Maplewood Village Flood Risk Management Strategy, Northwest Hydraulic Consultants, 2016
- Maplewood Chemical Hazard DPA Preliminary Study, McCutcheon and Associates Consulting, 2012
- Maplewood Village Centre Community Needs Assessment, RC Strategies + PERC, 2017

1.4 ORGANIZATION AND SCOPE

This document is organized as follows:

Part 1: Introduction and General Planning and Design Considerations provides the purpose and background for the plan and describes the overall existing context and identity of the area.

Part 2: Plan and Policies presents the land use plan and policies for the future of Maplewood that apply to new development.

Part 3: Design Guidelines provides detailed urban design guidelines for the exterior of buildings and the public realm.

1.5 PLANNING AREA

The Maplewood planning area is approximately 80 hectares (198 acres) in size and is outlined in dashed red in Figure 2. It is bounded by the Seymour River to the west, Mount Seymour Parkway and the Windridge escarpment to the north, Blueridge and McCartney Creeks to the east, and the light industrial areas located on the south side of Dollarton Highway to the south. Each of the three areas identified below has its own character and serves a specific role in achieving the overall vision for Maplewood.

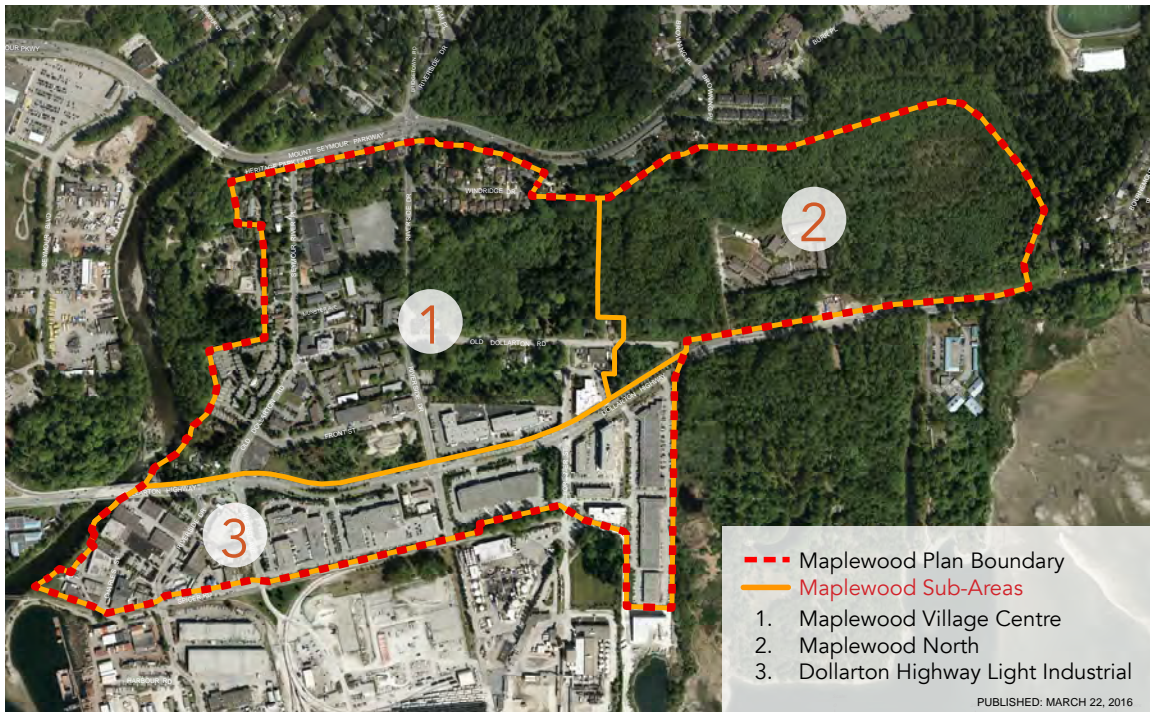


Figure 2: Planning Area

1.6 HISTORY OF THE AREA

Maplewood lies in the heart of the Salish Sea where First Nation peoples have lived for thousands of years. In particular, the Maplewood area has a long history of First Nation cultural, spiritual and physical connection with the land. Salmon populations in local creeks and rivers, shellfish from the intertidal wetlands, and other sustenance from the sea were the basis for many spiritual teachings that have been passed down generation to generation by First Nation elders in the area.

In 1917, San Francisco lumberman Robert Dollar, opened the Dollar Mill near the mouth of Indian Arm, which was the focus of the community at Dollarton until it closed in 1942. From the 1940's to the 1970's, an informal but cohesive community of squatters lived in a cluster of ramshackle cabins that lined the area's intertidal zone known as the Maplewood Mudflats. The community attracted an assortment of artists, displaced

loggers, and hippies, many of whom sought out nature and self-sufficiency. Among the most acclaimed residents were the English-born writer Malcolm Lowry, who completed his novel *Under the Volcano* while living here from 1940 to 1954; Dr. Paul Spong, who later led Greenpeace's "Save the Whales" campaign; and artist Tom Burrows.

In 1975 Maplewood Farm, originally run in the early 1900's as a dairy farm by Mr. Akiyo Kogo, was opened to the public as a 5-acre farm site. Today the farm is home to over 200 domestic animals and birds and strives to provide a unique experience, incorporating enjoyment, education, and a recollection of the area's rural heritage. Vancouver's first fixed connection to the North Shore was provided with the construction of the original Second Narrows Bridge in 1925. In 1960 a much larger six lane bridge was built – today's Ironworkers Memorial Second Narrows Crossing.

Today this area is emerging as a vibrant community that continues to inspire a respect for nature, creativity and innovation.

1.7 EXISTING CONDITIONS

Maplewood is currently defined by its eclectic mix of land uses and buildings of varying styles and ages set amidst significant natural green spaces. Maplewood has a unique urban structure that reflects its physical location, topography, and history. It is comprised of several distinct areas, each with its own unique characteristics. See Figure 3 for existing features.

1. **Maplewood Village Centre** is characterized by a mix of low rise apartments, purpose built rental townhouses, single family homes, and commercial and mixed-use developments all of varying ages. The area includes an elementary school, iHope family services, North Vancouver Arts Council, and Maplewood Farm. East of Riverside Drive are largely undeveloped lands, predominantly owned by the District.
2. **Maplewood North** is the site of a former gravel pit and is largely undeveloped. It is criss-crossed with informal trails and is where the former International College is located. In the westerly portion there is a former landfill site owned by the District.
3. **Dollarton Highway Light Industrial** is a mix of older light-industrial businesses to the west of Amherst Avenue, and more recent business parks east of Amherst Avenue.
4. There are significant green spaces including Maplewood Conservation Area, Windridge Park, Hogan's Pools Park, Maplewood Creek Park and Seymour River Heritage Park.
5. Currently limited active recreational park space is located directly in Maplewood.
6. Maplewood Farm attracts over 100,000 visitors annually and strives to provide a unique experience - with enjoyment, education, and a recollection of rural heritage.
7. Maplewood does not have significant views as Burrard Inlet is largely obscured by the industrialized waterfront and Maplewood Conservation Area. However, views do exist from the slopes of windridge escarpment and the Maplewood North area towards Burrard Inlet. There is potential for creating views across the Burrard Inlet from taller buildings depending on the height, siting, and orientation of buildings. Views north towards the mountains are also available in some areas.

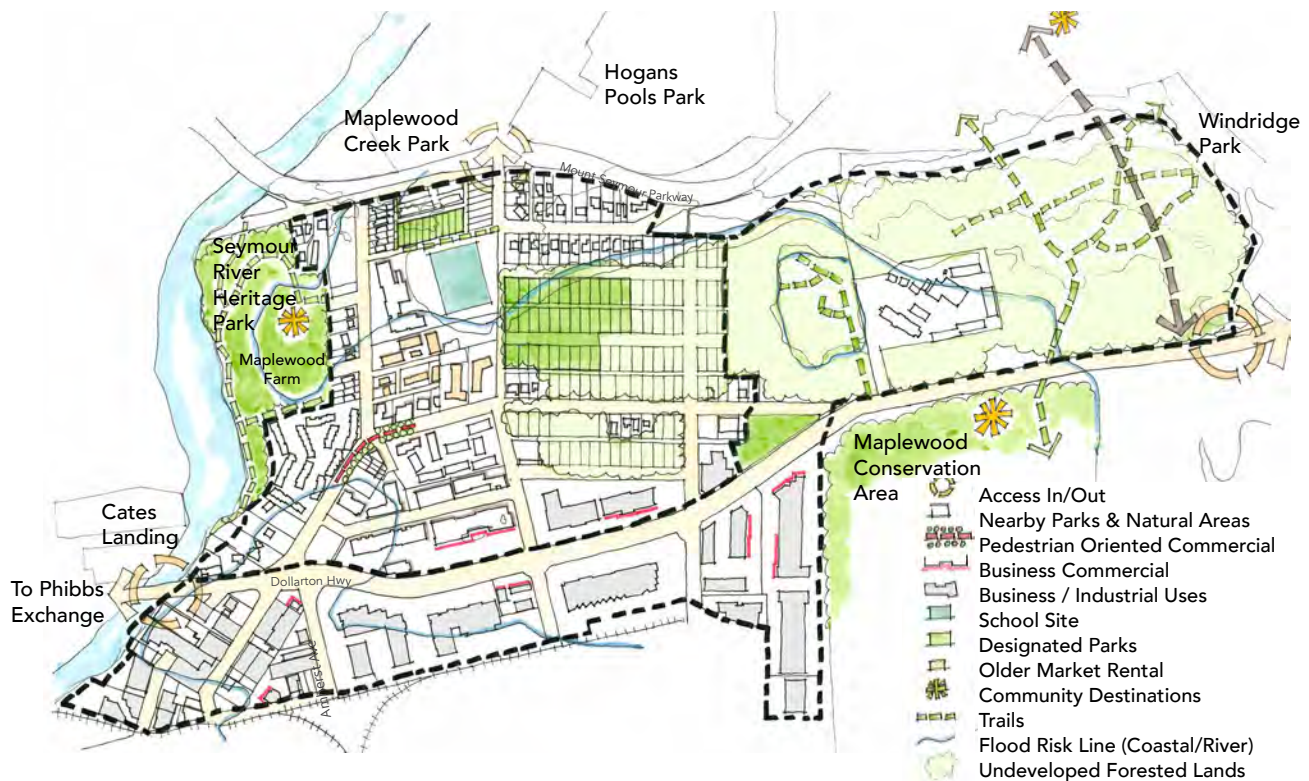


Figure 3: Site Analysis Diagram showing existing features of Maplewood Area

1.8 IMPLEMENTATION PLANNING AND ENGAGEMENT PROCESS

The implementation planning and public engagement process to create the Maplewood Village Centre and Innovation District Implementation Plan and Design Guidelines followed the adoption of the OCP. Planning included undertaking technical economic, social, environmental, and transportation studies, conducting collaborative, community and stakeholder consultation, establishing planning principles, and developing a detailed concept plan as the basis for the policies and design guidelines. The planning process and timeline is summarized in Figure 4.

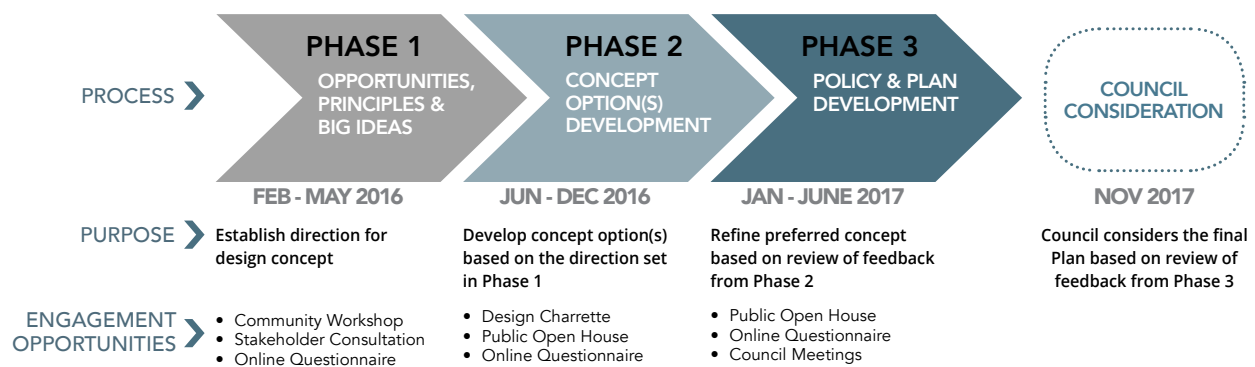


Figure 4: Maplewood Planning Process

Phase 1: Opportunities, Principles, and Big Ideas – invited the public and stakeholders to help identify guiding principles, opportunities, and constraints for the future of Maplewood. A two-week online survey followed to receive public feedback which was then used to provide direction on the Phase 2 concept design.

Phase 2: Concept Design Development – conceptual designs were developed based on direction from Phase 1. Concept options included land use, mobility, and open space network ideas, proposed transportation networks and linkages, diagrams, sketches, and photos to illustrate the ideas.

A two-day charrette, followed by an interactive public open house was held. A two-week online survey followed to receive public feedback on the Maplewood community design concept developed through the charrette event.

Phase 3: Policy and Plan Development – preparation of a draft plan was based on a review of feedback received on concept options and refinement of a preferred option, which was feasibility tested, i.e., detailed infrastructure, transportation modeling, community needs assessment etc. Key directions in the draft plan were presented at a public open house followed by a two-week online survey to receive public and stakeholder feedback. Refinements to the draft plan were prepared based on feedback received and presented to Council for consideration and then approval.

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PART 2: VISION, PRINCIPLES AND POLICIES

2 MAPLEWOOD LAND USE PLAN AND IMPLEMENTATION POLICIES

2.1 VISION FOR MAPLEWOOD

The Official Community Plan vision for Maplewood Village, developed in consultation with the local community, is that Maplewood will be:

“a complete and balanced community with local jobs equalling the local labour force. In particular, jobs for local people and especially jobs for local young people should be encouraged and this will also have the merit of increasing the municipal tax base. New employment areas will reflect a high environmental standard and will also have high aesthetic standards, reflecting the community’s outstanding natural environment. There will be a variety of housing for all ages and incomes and family circumstances centred on a newly invigorated, walkable Maplewood village centre. Old Dollarton Road will become a key focus of pedestrian activity, a street lined with new retail business with apartments and live/work units above. The Maplewood village centre will be convenient for transit and pedestrians and will be the nerve centre of an extensive system of trails, which wend through the community stretching from the Seymour River to Windridge and from Hogan’s Pool to Burrard Inlet.”
(Schedule A, District Official Community Plan, 2011).

2.2 GUIDING URBAN DESIGN PRINCIPLES TO SUPPORT THE VISION

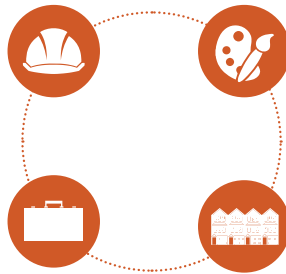
Compact Village Core:

the highest development densities and building heights, as specified in this plan, should be located within the village core area and include residential and mixed use residential/commercial uses.



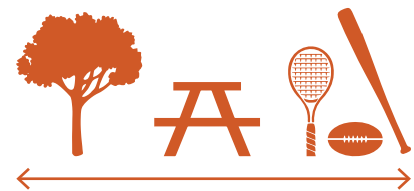
Distinct Neighbourhood Districts:

distinct, yet connected precincts within Maplewood, each with its own unique purpose and character, should be fostered.



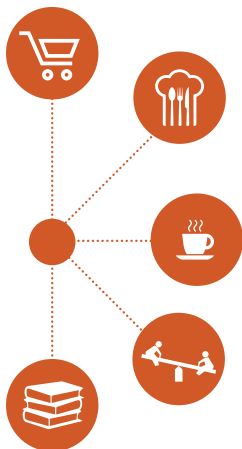
Connected and Diverse Public Realm and Green Space:

unique places should be created to integrate existing parks and trails with a series of interconnected community, and smaller active parks, natural park areas, and plazas within the community.



Strong Commercial Centre and Clustered Community Services:

small plaza spaces and a community hub should be integrated within the village core to serve as the primary commercial and service areas for Maplewood Village Centre.



Walkable Community:

buildings presenting an attractive face to the street, with architectural details, public art, wayfinding, and site-design elements that are inviting and friendly to people walking. The Village Centre should include a pedestrian-friendly High Street and shared street.



A "Green and Innovative" Character:

an authentic sense of place centred on integrating natural elements and places, green infrastructure, green building design, and the support of a sustainable lifestyle (including transit, walkable neighbourhoods, a complete community, and, live-work-recreation) should be fostered.



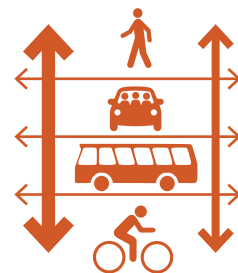
Diverse Development and Housing Types: development at various scales, types and forms should be provided that offers a range of options and tenures. Options for business, car-free development, and housing for a workforce living directly within the community.



Connect to the Water: public connections to the waterfront (river or inlet) should be provided where opportunities exist, while respecting and acknowledging river and coastal floodplains in the design of new development.



Clear Hierarchy of Streets, Improved Access and Multi-Modal Options: transportation connections and access for all modes (walking, cycling, transit, and driving), to/from/within the community should be improved, including a strong connection from the Village Centre to Maplewood North following a "complete streets" model.



Prioritize Environment: sensitive areas and wildlife corridors should be protected with opportunities for education, programming, and pilot projects such as daylighting of creeks.



Promote Innovative Employment Generation: new industry, innovative business opportunities, and small scale local start-ups as well as required municipal and protective services should be supported.



2.3 AREA STRUCTURE AND SCALE

Maplewood is approximately 80 hectares (198 acres) in area. Maplewood Village Centre is compact, with relatively small blocks making access to shopping and community services convenient. Maplewood North is about an 8-minute walk to the Village Centre, for an average person, and currently only connected via Dollarton Highway.

The concept plan for Maplewood illustrates a compact, complete, connected and energy-efficient community that includes a mix of land uses to provide residents with the opportunity to live, work, play, learn and create within their community.

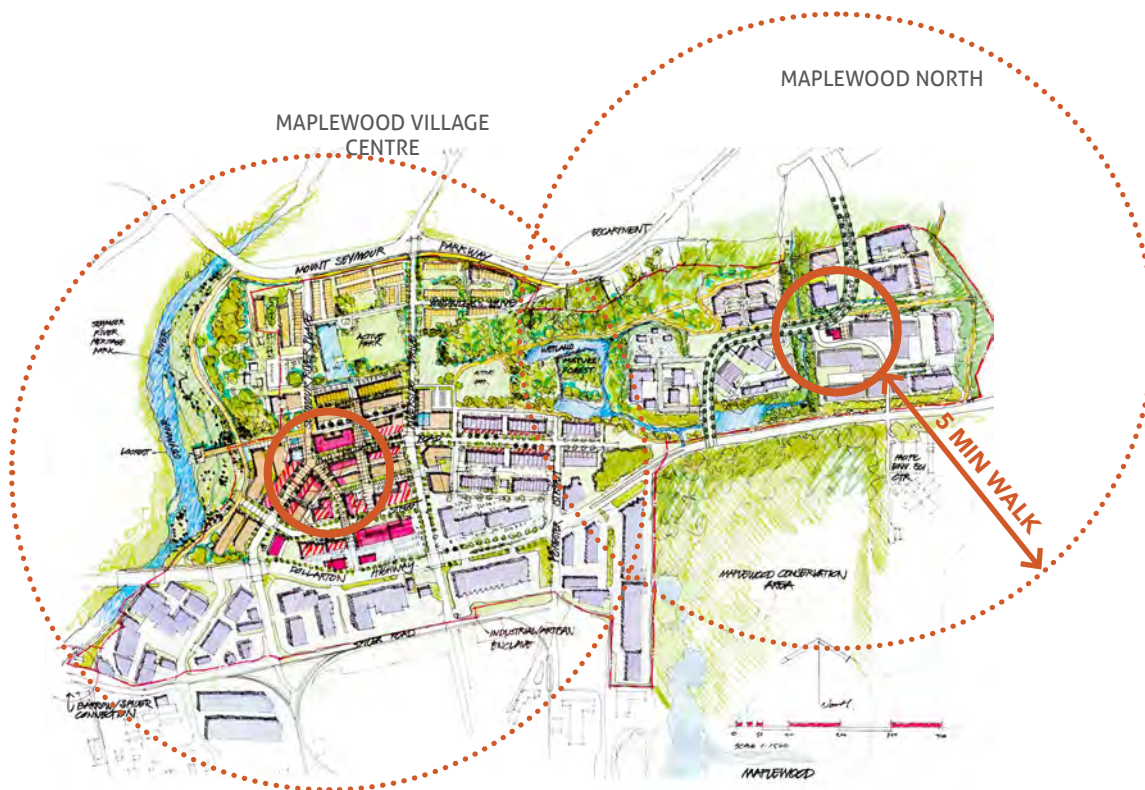


Figure 5: Area Structure & Scale

To achieve this vision for Maplewood the plan divides the area into three precincts: each with their own unique purpose, character and identity.

1. **Maplewood Village Centre** is the central commercial hub and includes a diversity of multi-family housing, mixed-use commercial/residential, live/work and small-scale artisan industrial housing, as well as institutional uses including a school and local community services.

2. **Maplewood North Innovation District** is a new district offering an innovative mix of employment, educational, recreational and limited residential and community uses in a campus-style structure. This area will be connected to the Village Centre by major arterial routes and an active transportation network. Parks, open space and natural areas are integrated throughout to create a connected network.
3. **Dollarton Highway South** is a strong industrial and employment area with opportunities to intensify as existing and local business expand and provides opportunities for the expansion of business park uses.

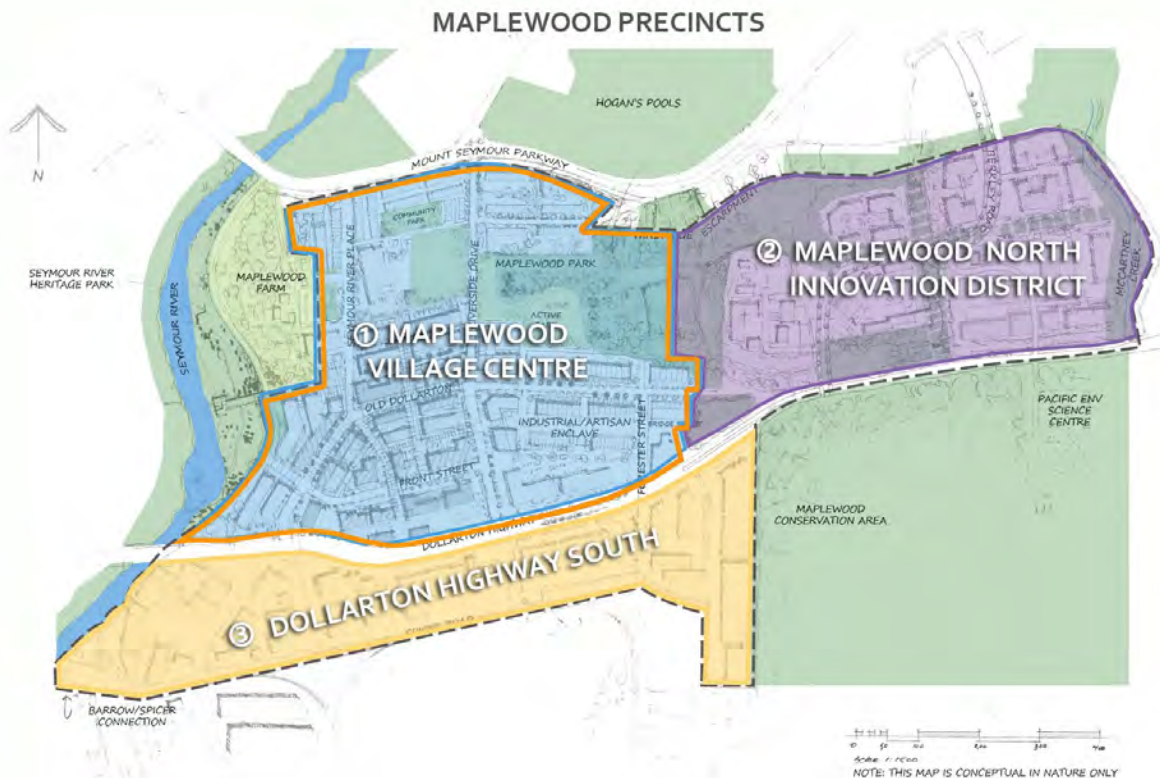


Figure 6: Maplewood Precincts



Design Concept Highlights

1. Village Heart - mixed-use commercial-residential, mid-rise apartment and live/work
2. Multi-family townhouses and/or low rise apartments
3. Light Industrial - Commercial - Business: Intensification of uses
4. Industrial Live/Work Precinct - artisan manufacturing
5. Innovation District Light Industrial / Commercial Business - with employee dedicated housing
6. Natural Park & Conservation Areas (within the planning area boundary)
7. Innovation District - Light Industrial Commercial-flexible employment area
8. Active Park Spaces

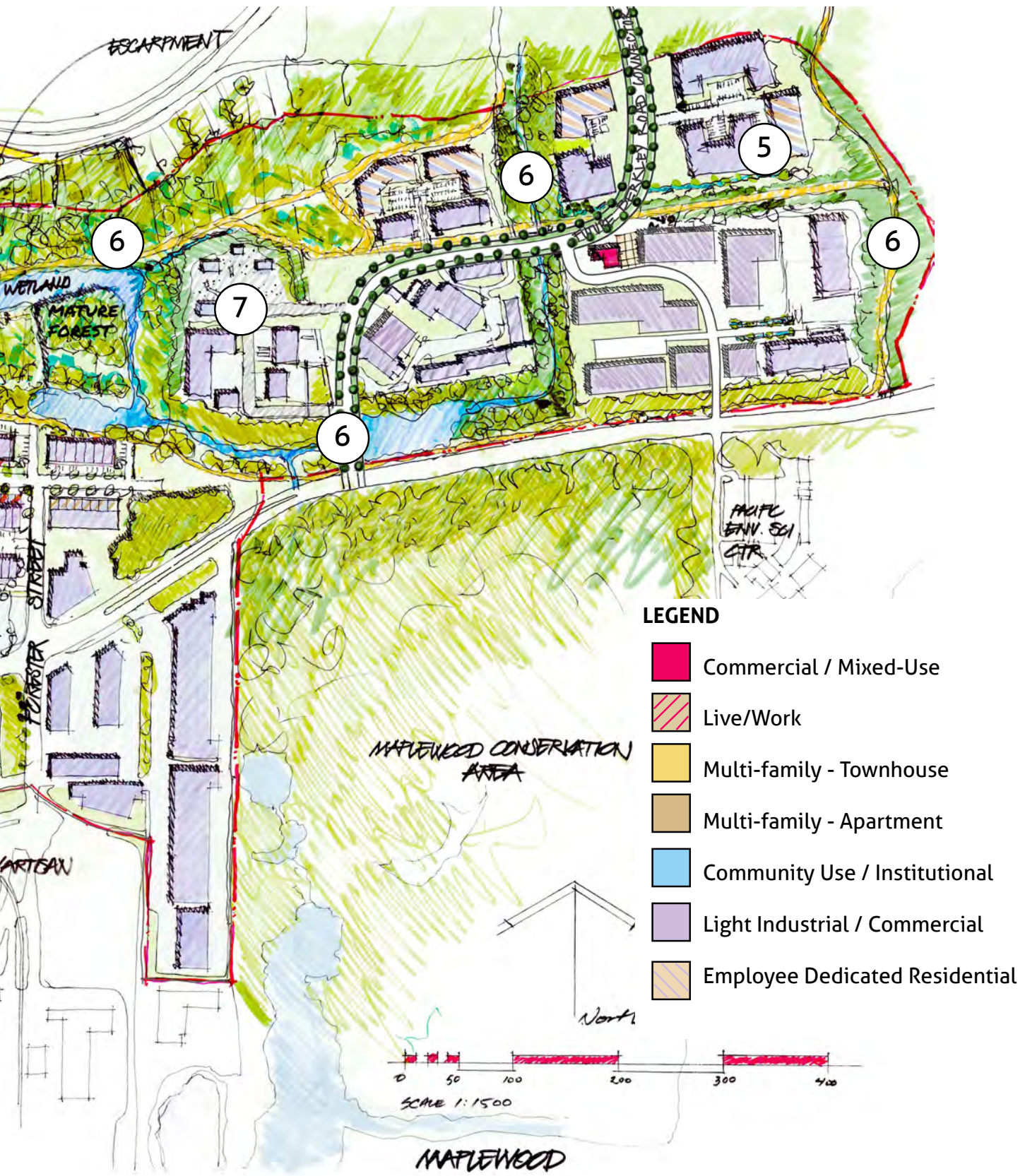


Figure 7: Illustrated Concept Plan for Maplewood












2.4 LAND USE DESIGNATIONS AND DENSITIES

Land use designations and associated densities are cited below:



Figure 8: Maplewood Land Use Plan

TABLE A: Land Use Designations

Land Use Category	Description
 Residential Level 4: Transition Multifamily	Areas designated for transitional multifamily are intended predominantly for multifamily uses within or in close proximity to centres and corridors, or as a transition between higher density sites and adjacent detached and attached residential areas. This designation typically allows for a mix of townhouse and apartment developments up to approximately 1.20 FSR.
 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 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 2	Areas designated for commercial residential mixed-use level 2 are intended predominantly for medium density general commercial purposes, such as retail, service and offices at limited sites within the District. Residential uses are typically expected to accompany commercial uses. Development in this designation is permitted up to approximately 2.50 FSR.
 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.
 Institutional	Areas designated for institutional are intended predominantly for a range of public assembly uses, such as schools, churches, recreation centres, and public buildings. Some commercial and accessory residential uses may be permitted.
 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.
 Light Industrial Commercial Mixed-Use - Innovation District	Areas designated for light industrial commercial mixed-use - innovation district are intended predominantly for a mix of industrial, warehouse, office, service, utility and business park type uses up to approximately 1.10 FSR. Light industrial uses at street level are generally encouraged, and commercial uses, such as retail, service and office, are typically expected above street level. Supportive uses including limited institutional, and limited recreational uses may be permitted.
 Light Industrial Residential Mixed-Use - Innovation District	Areas designated for light industrial residential mixed-use - innovation district are intended predominantly for a mix of industrial, warehouse, office, service, utility, and business park type uses up to approximately 1.10 FSR. Light industrial uses at street level are generally encouraged, and residential uses are typically expected above street level. Supportive uses including limited institutional, limited recreational, and residential-only uses may be permitted.
 Light Industrial Artisan	Areas designated for light industrial artisan are intended predominantly for a mix of small-scale light industrial, warehouse, service, utility and residential uses up to approximately 2.50 FSR. Light industrial uses at street level are generally encouraged, and residential uses are typically expected above street level. Supportive uses including limited office, and limited retail 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 focused 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.

LAND USE POLICIES

- Require land uses to be in accordance with the Maplewood Land Use Plan (Figure 8).
- Proposals for rezoning of lands should be evaluated relative to the uses identified on the Land Use Plan, the policies of this plan and other District plans and policies.
- Encourage redevelopment in the Village Centre that is consistent with the Land Use Plan and at densities that support local commercial and transit service.
- Support mixed-use, medium-density housing with retail or live/work options at street level along Old Dollarton Road (west of Riverside Drive) and west of Seymour River Place.
- Support mixed-use, medium-density housing with industrial at street level and industrial or office on the second storey along Old Dollarton Road (east of Riverside Drive) where small business owners can live, work and create.
- Support light industrial commercial uses, including intensification of light industrial commercial uses on existing employment lands in Dollarton Highway South.
- Introduce an Innovation District in Maplewood North to encourage a flexible mix of light industrial commercial, institutional, recreational and residential uses within the same area to co-locate people and jobs and provide for the changing nature of employment.
- Promote opportunities for renewable energy technology industries and jobs in the Maplewood area recognizing the growth potential in the renewable energy sector.
- Focus most new local-serving commercial and services in the Village Centre, except a limited amount of small scale services that directly support daily worker needs within the Maplewood North Innovation District.
- Incorporate a new community hub with community services that promote physical and social activity and a diversity of space offerings in the Village Centre.
- Incorporate civic facilities to relocate municipal and protective services, such as a consolidated fire station and fire training centre in the Maplewood North Innovation District area to improve fire response.
- Continue to work with School District 44 to investigate the opportunity to retain the school use at its current location within the Village Centre.
- Provide a community park and neighbourhood park for active recreational opportunities within the Village Centre and improve green space connections within the overall area.
- Develop a cohesive Public Art Master Plan that identifies clear opportunities and priorities for the provision of public art.
- Support alternative forms and tenures of multi-family housing, such as fee simple rowhousing, co-housing and lock-off suites within the Village Centre.

- Support auto repair uses in the light industrial areas, where appropriate and ensure sufficient access, parking and on-site provision for spill and nuisance containment is provided.
- Strongly discourage self storage and auto retail uses as stand-alone uses in developments.
- Enhance and improve designated landscape features, natural and environmentally sensitive areas.

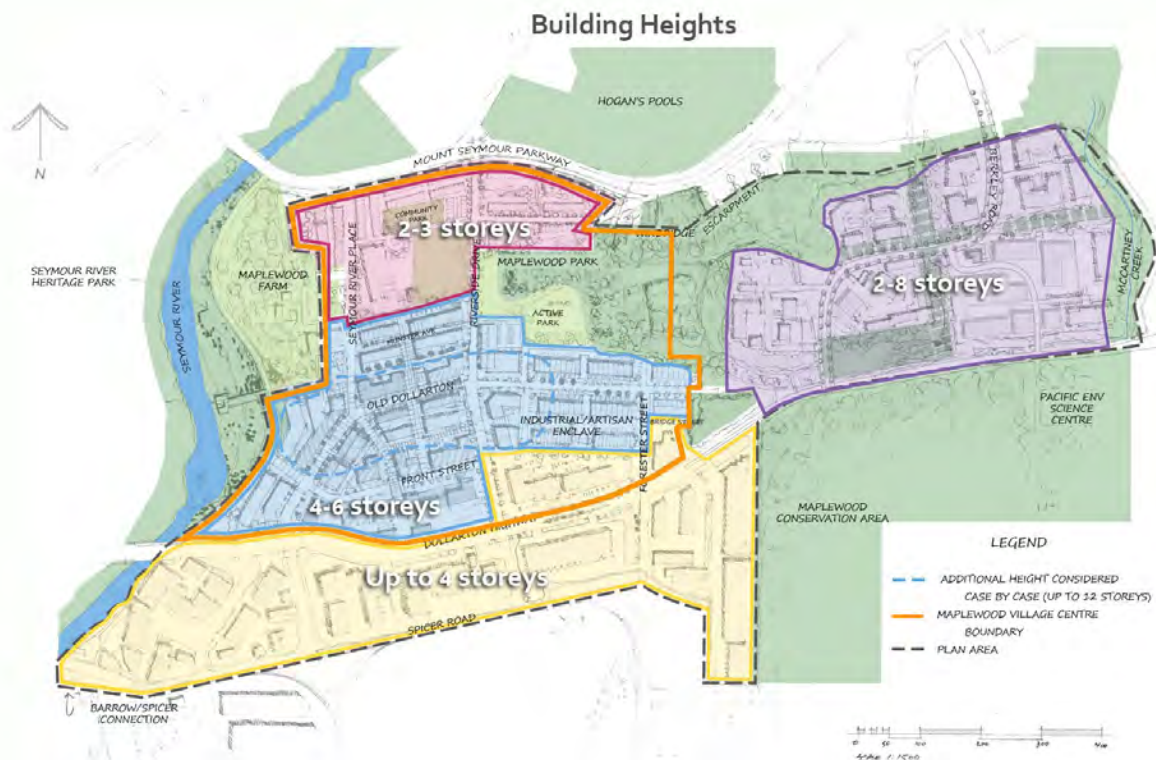


Figure 9: Maplewood Building Heights

2.5 BUILDING HEIGHTS

The concept plan outlines the approximate type and location of potential future buildings and heights to allow enough employment and residential density to create a vibrant community that support local retail activities, allow for improved transit and service over time, and assist in providing a diversity of housing. While building footprints are expected to be refined through the development review process, key urban design principles related to spacing of taller buildings and elevation are important considerations. Heights should maintain a human-scale, low to mid-rise character in the area, minimize shadowing of streets and public spaces and acknowledge views from upslope.

- a. Heights should generally comply with the range of building heights shown in Figure 9.

- b. Heights for specific buildings shall be determined through the rezoning process and will consider the following:
 - Shadowing of public and/semi-public open spaces, such as plaza and parks.
 - Impact on views from elsewhere in the District and overlook onto private spaces.
 - Appropriate building scale for the area to reflect the quality and character identified for different precincts within the plan.
 - Promote 'human-scaled' public space at the ground level (i.e. setback of upper storeys).
- c. Taller buildings (up to a maximum 12 storeys) may be permitted in the Village Centre on a case by case basis, generally in accordance with the area identified in Figure 9, in order to achieve housing and community amenity objectives identified in this plan. Taller buildings should minimize overshadowing of key public open spaces and be separated from each other by a minimum of 30 m.

2.6 HOUSING MIX

Maplewood Village Centre has a target of 1,500 net new residential units and an additional 9,290 square metres (100,000 square feet) of new commercial space by 2030. The plan aims to provide a diversity of housing types to accommodate all ages, incomes, and family circumstances including townhouses, co-housing, fee simple row housing, lock-off suites, apartment units, live/work and other innovative forms of housing. In addition, a mix of tenures including fee-simple ownership, strata, rental, purpose-built rental, co-op and non-market housing is encouraged. Maplewood currently has approximately 250 lower end of market purpose-built rental housing units within the Village Centre. The plan includes policies to increase the number of non-market housing units through a mix of strategies outlined in Section 2.7.

The plan includes employee-oriented housing (approximately 900 residential units) in the Maplewood North Innovation District to co-locate jobs and residents. The employee-oriented housing is intended to support employment-generating uses. The plan anticipates these employment lands can capture approximately 4,500 net new jobs in the District by 2030 and over a million square feet of employment floor area.

POLICIES

- Support a diversity of housing types including townhouses, row houses, co-housing, live/work, and apartments in mixed-use buildings in the Village Centre.
- Encourage residential lock-off units in multi-family developments to provide flexible housing options to fit changing household incomes and family sizes over time.
- Introduce innovative forms of live/work/studio housing in the area designated for Light Industrial Artisan east of Riverside Drive identified in the Land Use Plan.
- Provide opportunities for employee-oriented housing in townhouses, row houses

and apartments in the area designated for Light Industrial Residential Mixed-Use - Innovation District in Maplewood North.

- Encourage new, purpose-built market rental buildings, where appropriate.
- Consider sale restrictions, housing agreements and other methods to ensure housing in the Innovation District supports local employees.

2.7 NON-MARKET HOUSING

Development in Maplewood should support the District's *Rental and Affordable Housing Strategy* by providing, where possible, non-market housing secured through a number of innovative approaches including the following policies.

Non-market housing is encouraged in Maplewood Village Centre as well as in the Innovation District. A portion of the roughly 900 residential units anticipated in the Innovation District should be comprised of a mix of non-market rental and below-market ownership.

POLICIES

- Encourage the replacement of the approximately 250 existing purpose-built, market rental units in Maplewood as development occurs.
- Use District-owned lands to generate innovative, non-market housing opportunities, where appropriate.
- Require a portion of non-market rental or price controlled/restricted ownership units, or non-market units as part of new market housing development projects, or require provision of a cash-in-lieu contribution from development projects to the District's Affordable Housing Fund to be used to establish new non-market housing units, where possible.
- Encourage and incentivize purpose-built non-market rental buildings, where appropriate.
- Consider additional height and density in order to achieve housing objectives, up to a maximum of 12 storeys, as identified on Figure 9 within Maplewood Village Centre.
- Target up to 300 net new non-market housing units in the Maplewood Village Centre.
- Ensure below-market ownership units in the Innovation District are offered to employees in the Innovation District first.
- Ensure non-market employee-oriented rental housing in the Innovation District is offered to employees in the Innovation District first.
- Secure a minimum of 50% of the employee-oriented rental housing units as non-market.
- Secure non-market employee-oriented housing for the life of the buildings.

2.8 PHASING

A significant portion of the overall Industrial/Commercial floor space in the Innovation District should be coordinated with any supporting residential uses to provide housing options for employees needing to locate proximate to their work.

- Ensure a minimum of 50% of the Industrial/Commercial floor space and any accessory or supportive uses to support the vision occurs in the first phase of development.
- Ensure employee-oriented housing occurs concurrent with development of Industrial/Commercial floor space.
- Phase two of Innovation District development should include the remaining Industrial/Commercial uses and be coordinated with the remaining employee-oriented housing.

2.9 VILLAGE CENTRE

Maplewood has an evolving village heart between Old Dollarton Road and Dollarton Highway, west of Riverside Drive. This plan aims to further enhance the village heart as a vibrant, pedestrian-friendly area with a mix of residential, retail and community uses.

POLICIES

- Create a mix of street level retail or live/work opportunities with residential uses above in mixed-use buildings along Old Dollarton Road, the emerging High Street.
- Create a rhythm of retail storefront widths of 5-10 metre within the village heart.
- Create plazas and gathering places with sun exposure, that are safe, attractive, universally accessible, have a variety of seating opportunities, and include spontaneous play features.
- Create attractive, streetscapes that are universally accessible, safe and comfortable for pedestrians and cyclists and that include places to sit and meet.
- Ensure public spaces promote social connectedness and inclusivity for people of all ages and abilities.
- New public spaces should ensure seniors, as well as people with cognitive or mobility disabilities are comfortable and can easily navigate through the Village Centre.
- Design the new shared street, connecting Old Dollarton Road and Front Street, to be shared between pedestrians and slow-moving cyclists and vehicles.
- Include two plaza spaces at each end of the shared street and ensure the shared street includes infrastructure and multi-use features (e.g. power, water, staging, shelter, and refuge areas) to accommodate community events, street festivals and outdoor markets.

- Encourage retail uses fronting onto plazas and gathering spaces.
- Encourage pedestrian connections within large blocks to promote walkability within the Village Centre.

2.10 COMMUNITY AMENITIES

The Maplewood Village Centre Community Needs Assessment (2017) provides a summary of needed community amenity spaces in Maplewood to serve its growing population. Maplewood is currently home to the I Hope Centre and North Vancouver Community Arts Council, both located in an older building on the Maplewood Farm site. Currently, childcare opportunities are limited within the community and will require expansion to meet the needs of a growing population. Community meeting spaces and general programming spaces currently do not exist in the Village Centre.

POLICIES

- Secure sufficient space to re-locate the I Hope Centre and other community service providers into new multi purpose-built space with flexible community facilities (e.g. meeting rooms) in Maplewood Village Centre.
- Ensure the indoor amenities of the community hub facility include multi-use program rooms and meeting spaces, youth spaces, wellness/fitness facilities and seniors spaces in addition to the family programs and art programs offered by I Hope and the North Vancouver Community Arts Council.
- Community amenity spaces should be flexible and should promote physical and social inclusivity, and meet the needs of a variety of user groups (e.g. seniors, youth, families, and the general community).
- New community amenities should serve the residents and employees of Maplewood Village Centre and the Maplewood North Innovation District, including child care, outdoor play spaces, trails and green spaces, plazas, and gathering spaces.
- Support the provision of a continuum of childcare services in Maplewood Village Centre and Maplewood North Innovation District to include infant/toddlers, age 3-5 and before and after school care.
- Encourage outdoor play structures and opportunities for spontaneous play.
- Provide end of trip facilities for active transportation commuters.
- Incorporate opportunities to grow and buy fresh/locally produced fruits, vegetables and other goods through community gardens and farmers markets.
- Encourage public art installations, where appropriate.
- Incorporate interpretive signage along trail networks into public space planning.
- Improve trails and off-street cycling and pedestrian networks.

2.11 MOBILITY

Mobility policies aim to improve how people and goods move, circulate and connect to accommodate the anticipated growth in the Maplewood area. Streets should safely accommodate all users - people walking, cycling, taking transit or driving - for a range of uses (such as access to businesses or to accommodate deliveries).

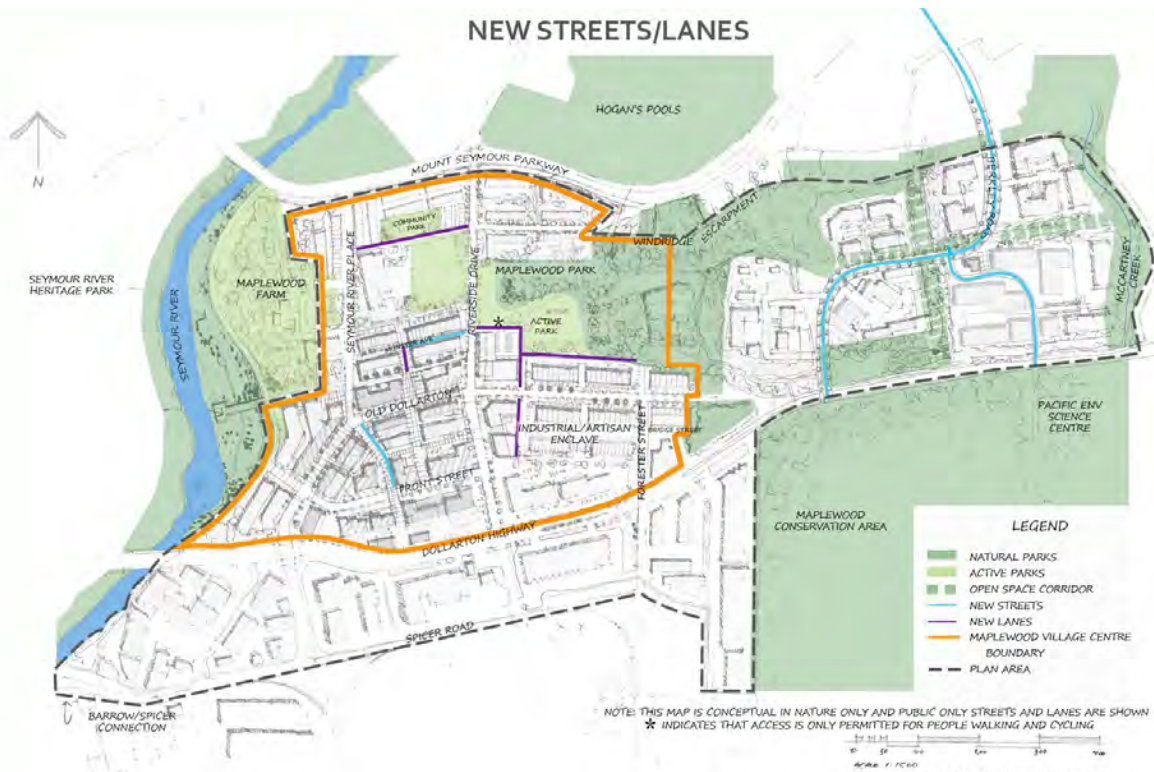


Figure 10: New Streets and Lanes

POLICIES

Streets

- Extend Berkeley Road, to connect Mount Seymour Parkway with Dollarton Highway to provide an additional north-south connection for all modes and to provide access to the Mapewood North Innovation District.
- Design all streets to be universally accessible, where feasible.
- Connect Seymour River Place south to Front Street to create a unique shared street that can be shared between pedestrians and slow-moving cyclists and vehicles.
- Ensure portions of the shared street can be easily closed to vehicular traffic for local markets and festivals.
- Design Old Dollarton Road as the High Street through Mapewood Village Centre.
- Provide a north-south lane east of Riverside Drive to access the new active park space and areas designated for new residential development.

- Extend the lane north of Kenneth Gordon Maplewood School to improve circulation, as a one-way eastbound connection to improve local circulation, road safety, and to reduce emissions.
- Extend Munster Avenue to Riverside Drive to improve east-west connections.
- Incorporate lanes through the area designated 'Light Industrial Artisan' to provide loading, deliveries, and connections to parking areas.
- Ensure that new development provides for electric vehicle charging facilities per the District's *Electric Vehicle Charging Infrastructure* policy.
- Encourage transportation demand management measures such as transit, pedestrian, cycling, car-share to reduce motor vehicle trip and parking demand.

Transit

- Continue to work with TransLink to extend the frequent transit network to include the Maplewood area as residential and employment growth occurs.
- Design Old Dollarton Road to accommodate transit stops for B-line service or better including possible future transit station design.
- Continue to work closely with TransLink and Coast Mountain Bus Company (CMBC) to provide high quality transit stops and transit stations along Old Dollarton Road, Riverside Drive, and Dollarton Highway to provide easy access to frequent transit in the village heart.
- Design convenient crossing infrastructure to allow transit users and pedestrians to safely cross the street to access transit.
- Ensure transit stops are designed to improve visibility of those waiting at stops, provide ample weather protection from sun, wind, and rain, and ensure that those using mobility aids and strollers can easily access transit loading platforms.
- Where feasible, integrate transit shelter design into the building design to be consistent with the street and street furniture character and complement the surrounding public realm design.
- Encourage employers to provide public transit vouchers instead of free parking as part of salary packages or incentives such as bonuses to reduce vehicle use outside of work hours.

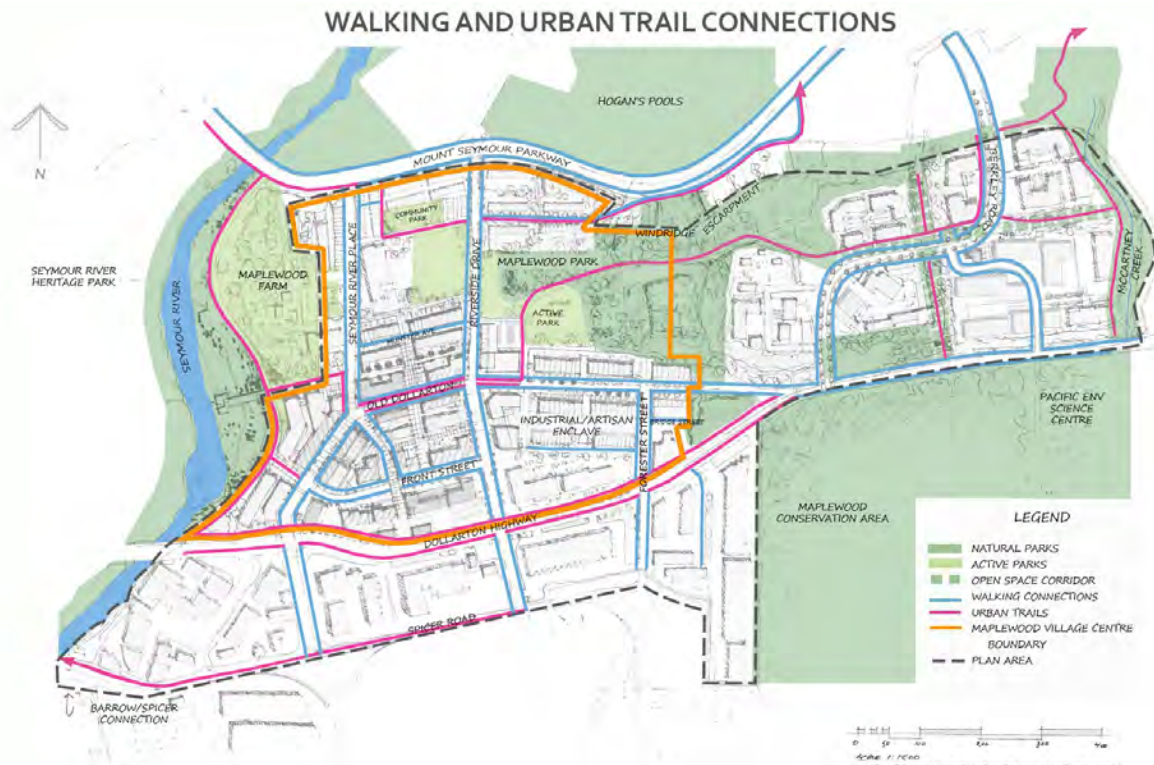


Figure 11: Walking and Urban Trail Connections

Walking

- Promote walking through an integrated network that connects all key destinations within the Maplewood area.
- Improve the quality and connectivity of sidewalks, especially along Riverside Drive and Dollarton Highway to allow direct access to shops, school, businesses, and amenities within the village heart and Maplewood North Innovation District.
- Utilize lanes and mid-block connections, where feasible, to provide additional options for those walking.

Urban Trails

- Create two types of trails within Maplewood to serve people walking and cycling: **paved urban trails** to accommodate people of all ages and abilities and **natural (unpaved) urban trails** to connect green spaces while protecting sensitive environmental areas.
- Extend the Spirit Trail alignment along Windridge Drive to complete the central section of the Spirit Trail to connect to Deep Cove.
- Create a continuous all ages and abilities urban trail from the west boundary of Maplewood from the look out over the Seymour River, through the forested natural parks to the trail network around Ron Andrews Community Recreation Centre and the Canlan Ice Sports Arena.

- Extend and improve the natural urban trail connection north-south within Seymour River Heritage Park, with a focus on the Seymour Greenway Trail.

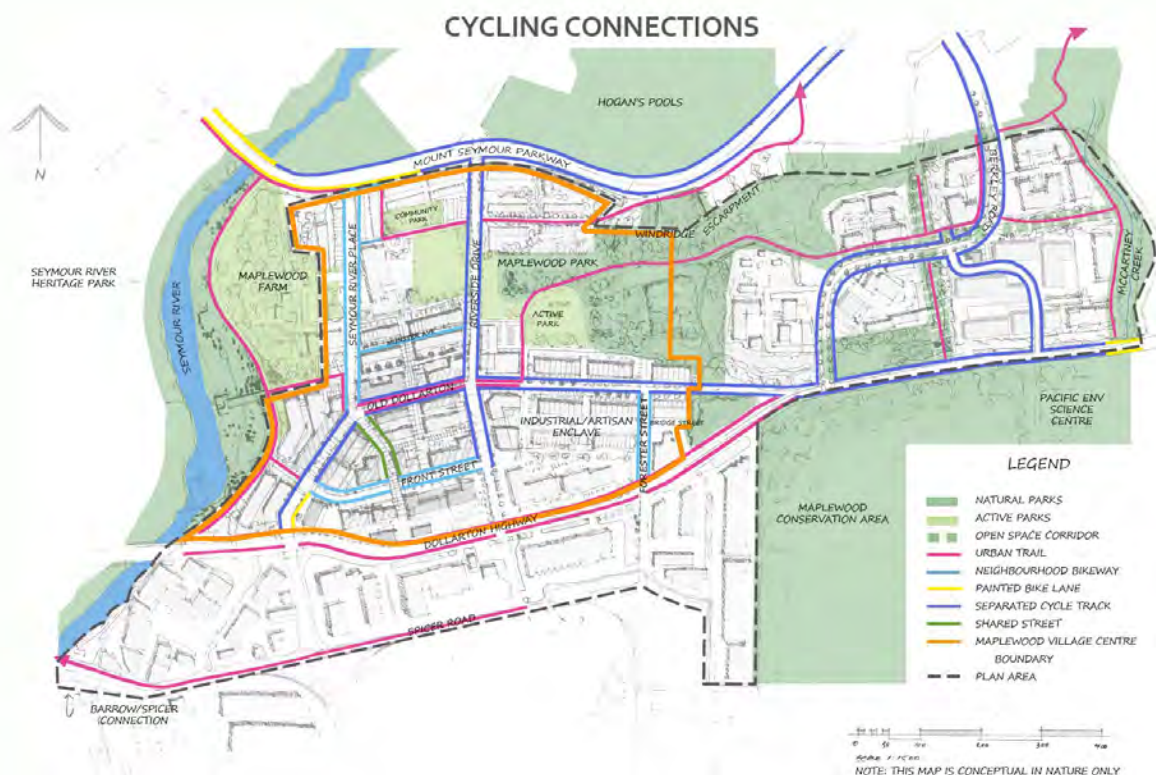


Figure 12: Cycling Connections

Cycling

- Ensure a broad range of cycling needs are met for the safe travel of commuters and recreational users on urban trails and streets.
- Implement a range of cycling facility types, including neighbourhood bikeways and urban trails to provide a well-connected network throughout Maplewood Village Centre and Maplewood North Innovation District.
- Require a separation for cyclists from vehicle travel lanes where vehicle volumes are higher and/or speeds are higher, where feasible.
- Prioritize cycle tracks along Mount Seymour Parkway, Riverside Drive, Old Dollarton Road, Dollarton Highway and Berkley Road, where feasible.
- Make use of neighbourhood bikeways on lower volume streets such as Seymour River Place, Forester Street, and Front Street.
- Provide cyclists of all ages and abilities with slower east-west routes including the urban trail that connects from the lookout over the Seymour River to Canlan Ice Sports Arena or the Spirit Trail.

2.12 CONSERVATION AND ECOLOGY - ENVIRONMENTALLY SENSITIVE AREAS

Maplewood has significant amounts of green space within and surrounding it including Maplewood Conservation Area, Windridge Park, Hogan's Pools Park, Maplewood Creek Park and Seymour River Heritage Park. These parks are largely natural areas. Maplewood also has several environmentally sensitive features within it and these areas include steep escarpment slopes, watercourses, and groundwater-fed springs, remnant forested areas, and riparian and mature forests which provide foraging and nesting habitat to wildlife and resident and migratory bird species. The escarpment slopes provide habitat for wildlife, and are also a source of groundwater, feeding watercourses and wetlands.

The **Environmentally Sensitive Areas (ESAs)** include the most valuable ecological areas including wetlands, watercourses and associated riparian areas, escarpment and escarpment buffer areas and identifies areas to conserve as parks or undeveloped open spaces.

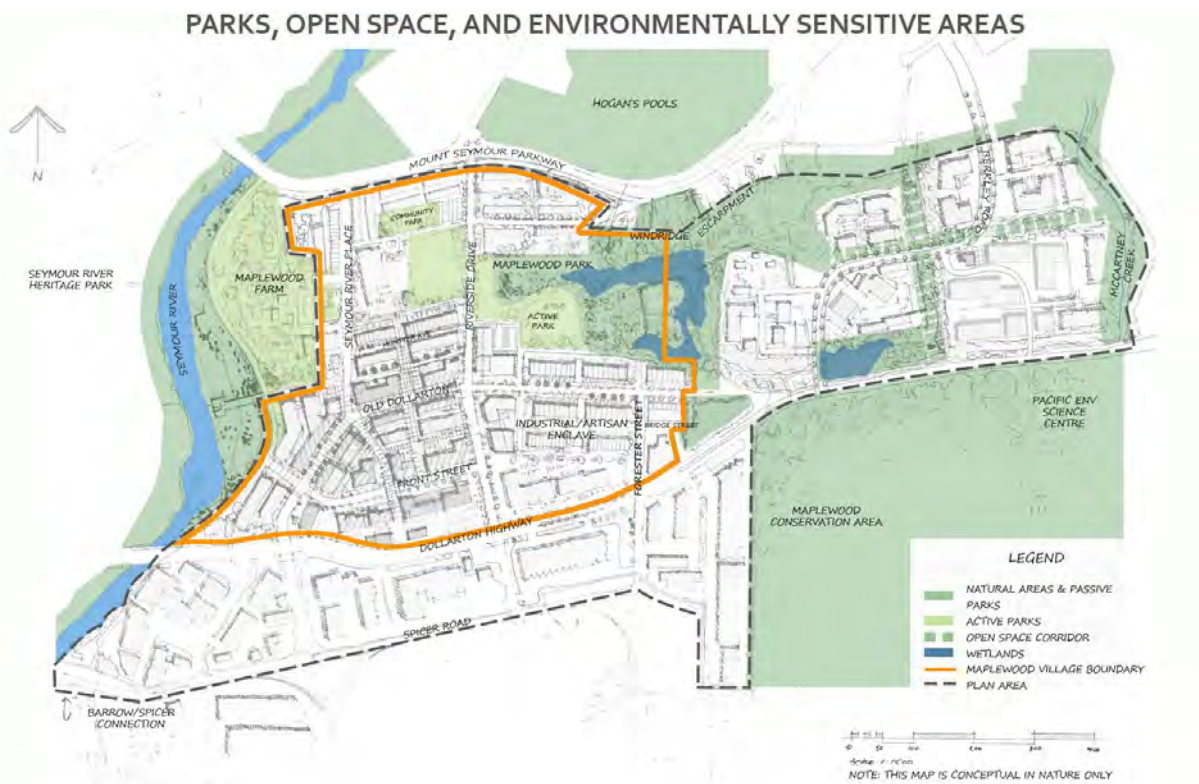


Figure 13: Parks, Open Space, and Environmentally Sensitive Areas

POLICIES

- Protect ESAs by restricting and buffering development.
- Enhance stream flows and wetlands by focusing flows to areas needing more water and managing stormwater through infiltration and surface management.
- Create or protect ecological and recreational connections between key natural areas with recreational trails and wildlife connections.
- Identify opportunities to integrate natural landscape into new development.
- Avoid development in areas where impacts to terrestrial and aquatic resources would be high and/or difficult to replace as compensation for loss of habitat.
- Consider opportunities to enhance ecological function and to restore fish access by removing barriers and re-establishing connections to Burrard Inlet.
- Consider opportunities to enhance or augment stream flows to wetlands in the Maplewood Conservation Area.
- Maintain forested vegetation on steep slopes to provide stability and continuity of forested wildlife habitat and provide for appropriate buffers from development at the toe and top of slope.
- Consider how impacts of development can be minimized on-site and without impacting adjacent habitats.
- Consider ways to maintain or improve the water quality of surface runoff.
- Groundwater should not be discharged or pumped to the municipal storm or sanitary sewer system. A hydrogeological report may be required to demonstrate how the impact to the existing groundwater table is to be mitigated.
- Encourage energy conservation and use of alternative energy sources.
- Enable flexibility in achieving energy efficiency objectives through supporting consideration of on-site or neighbourhood renewable energy generation systems and connections.
- Work with industry partners, large energy consumers, and agencies to facilitate and advance opportunities for alternate, renewable, and sustainable energy sources.
- Promote rainwater collection infrastructure in the design of all new buildings.

2.13 PARKS AND RECREATION

Maplewood is served by the existing Kenneth Gordon Maplewood School play fields, Seymour River Park, Maplewood Farm, Maplewood Conservation Area, Canlan Ice Sports Arena and Ron Andrews Community Recreation Centre. Walking connections to these latter two facilities are somewhat restricted by a lack of formalized trails and the steep Windridge escarpment. This plan aims to expand the parks and recreation system to accommodate the expected population and employment growth in the area.

POLICIES

- Support a variety of park amenities, including active sports fields, passive grass areas for informal use, seating, play spaces (natural and active play), public art, street trees, hard surfaced sport court, lit trails and community gardens.
- Create a community level park on District parkland north of Kenneth Gordon Maplewood School which incorporates the Spirit Trail and provides recreational amenities with natural features.
- Retain and enhance the urban forest along the northerly edge of the community park to create a treed buffer, where possible.
- Work co-operatively with School District 44, through joint user agreements and other means, to retain and upgrade the school field.
- Create a neighbourhood park on District-owned lands east of Riverside Drive providing active parkland opportunities for residents living in this area.
- Provide an additional sportsfield in the neighbourhood park if the current sportsfield located at Kenneth Gordon Maplewood School is decommissioned.
- Connect park spaces with a network of paved and natural urban trails.
- Explore opportunities in the natural parkland areas to incorporate interpretative trails and educational signage and nesting boxes, where appropriate.
- Expand park amenities and provide a park presence at the street for Maplewood farm to optimize vehicular, pedestrian and cycling connections to the farm and optimize parking at the farm.
- Enhance the farm entrance so that it celebrates the farm and includes both typical farm and ranch elements such as gates, public art, where appropriate, and improvements to landscaping.
- Consider a combination of heavy timbers and natural stone or other materials to reference both farm use and natural areas.

2.14 PROXIMITY TO HEAVY INDUSTRY

Industry contributes significantly to the prosperity and success of the District, by providing employment opportunities, goods, and services enjoyed by businesses and residents. Heavy industrial activity does create some risk to nearby areas. In the District, studies and assessments have determined chemical hazard associated to an accidental release of chlorine as a risk having potential off-site impacts to neighbouring or proximate areas. The District's intention is to manage risk associated with development in these areas through appropriate site planning and building design.

Risk contours have been established for the Maplewood area due to the proximity of hazardous substances potentially used in areas designated for heavy industrial activities. Each risk contour identifies allowable land uses and densities permitted, based on the distance from the risk source.

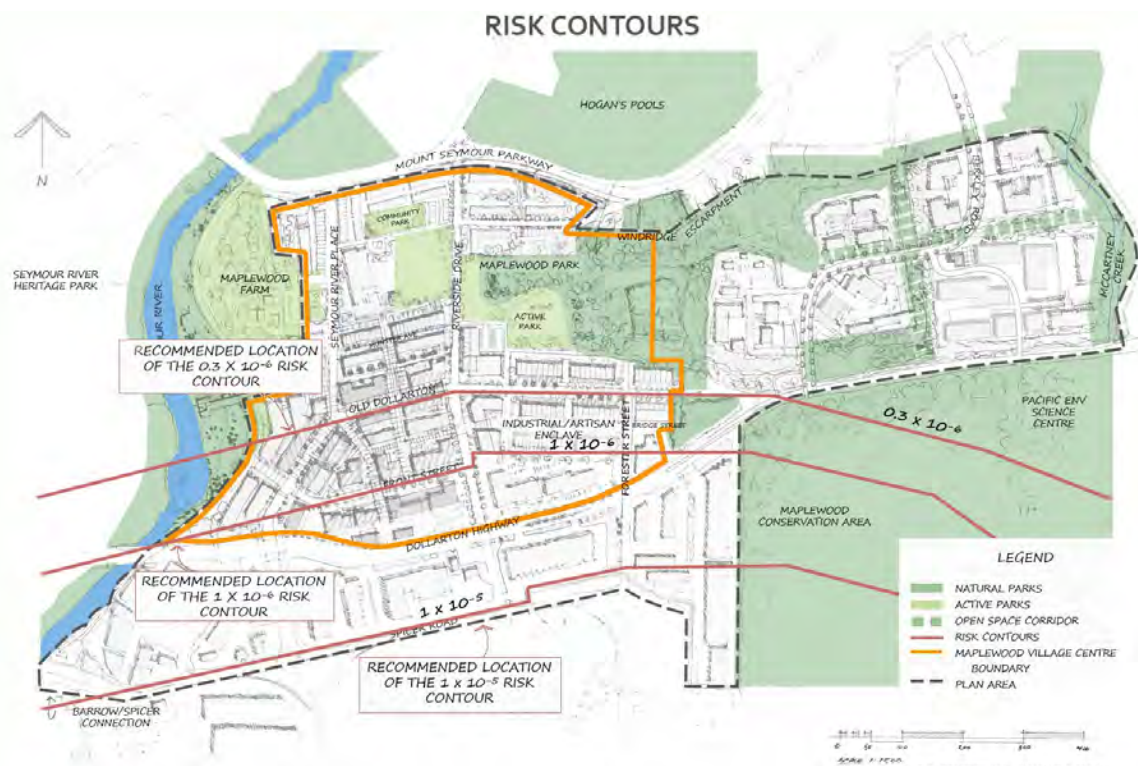


Figure 14: Risk Contours

POLICIES

- Encourage safety in the location and construction of development.
- Land uses, densities, building design and construction should generally be consistent with the MIACC (Major Industrial Accidents Council of Canada) best practice recommendations for appropriate land uses and densities from the risk source, or any similar, successor or replacement agency that may exist from time to time.

2.15 FLOOD PROTECTION AND RESILIENCE

Maplewood is located within both the coastal and river floodplains and is prone to flood risk from both sea-level rise and the Seymour River. The District's flood risk management strategy along the Seymour River will help to protect the area from flood hazards including channel avulsion, erosion, bedload deposition, and large woody debris impacts. Properties subject to potential flood risk are identified in the OCP's Creek Hazard Development Permit Area. Flood Construction Levels (FCLs) have been established for each parcel to ensure floor levels are elevated above street level to mitigate potential flood issues.



Figure 15: Flood Protection Strategy

POLICIES

- Refer to Parts 3 and 4 of Schedule B to the Official Community Plan for applicable policies and guidelines.
- Require Seymour River flood protection in the form of land raising to be integrated with development for an additional 30 metre wide area beyond the riparian setback to produce a continuous, wide platform of fill, where appropriate and possible.
- Ensure established FCLs for Maplewood are incorporated for all residential development to ensure that habitable space is adequately protected from possible flooding.
- Continue to develop the coastal sea-level component of the District's flood risk management strategy in partnership with other agencies and stakeholders such as Port of Vancouver, CN Rail and local industries.
- Incorporate identified sea-level rise mitigation works within the District's control to raise the eastern portion of Dollarton Highway to 4.7 metre geodetic elevation.

2.16 UNDERGROUND UTILITIES

Communication infrastructure for Maplewood is intended to provide a connected broadband fibre optics network for the entire community.

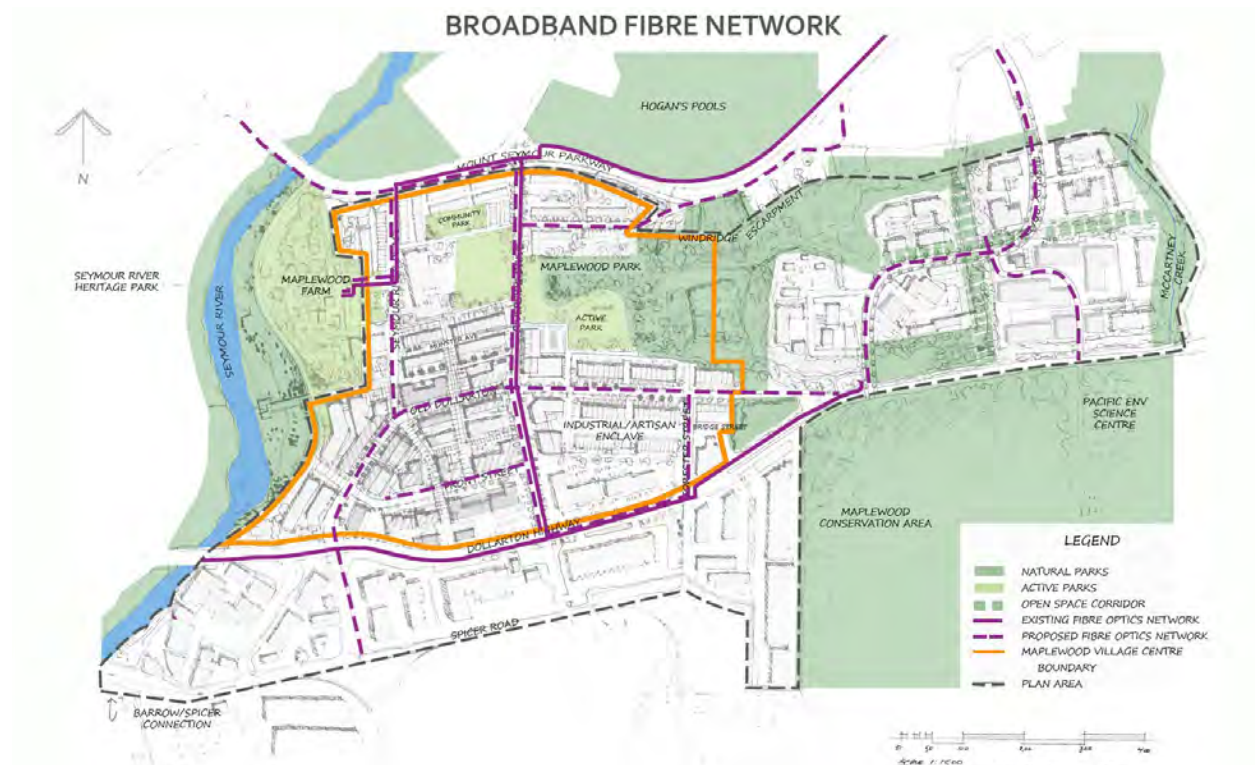


Figure 16: Broadband Fibre Network

POLICIES

- Ensure new and renewed water, sewer, drainage, electrical, telecommunications, and broadband infrastructure is provided and paid for by developers in accordance with District bylaws, policies, plans and standards.
- Electrical telecommunications and broadband infrastructure should be undergrounded, where feasible.
- Ensure development projects provide for fibre-optic infrastructure in required off-site civic works and servicing upgrades, where possible.
- Ensure communication duct assets are installed for future fibre optics network builds, where appropriate.
- Allow third party broadband carriers to provide choice of service for residential and business customers in the Maplewood community.

PART 3: MAPLEWOOD DESIGN GUIDELINES

The Maplewood Design Guidelines describe area-wide and precinct-specific design guidelines and strategies to enable the sensitive addition of new built form and public open space to the existing community. The guidelines apply across the entire Maplewood planning area, as well as within each of the unique precincts within Maplewood: the Village Centre, Maplewood North Innovation District, and Dollarton Highway South. As each precinct draws design inspiration from current and historic activities specific to the area, so do the built form and landscape design elements. The combination of area-wide and precinct-specific features and design elements will help maintain a level of consistency throughout Maplewood while allowing a unique character for each precinct to emerge.

The Maplewood Village Centre and Innovation District Implementation Plan and Design Guidelines are intended to augment the Form and Character guidelines in Schedule B of the Official Community Plan (2011), as amended.

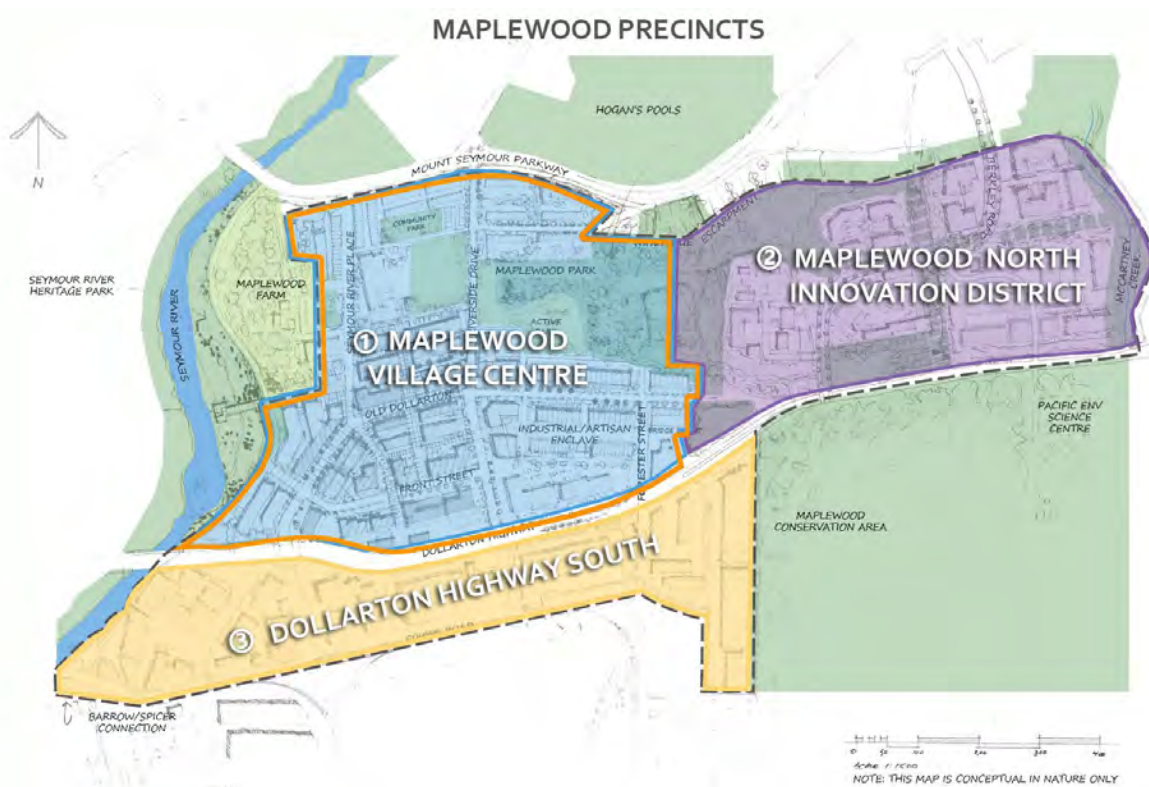


Figure 17: Maplewood Precincts

3 AREA-WIDE GUIDELINES

3.1 OVERALL INTENT

Maplewood's charm lies in the diversity of uses and styles that co-exist within a green and natural setting close to the Burrard Inlet. The intent of these guidelines is to support its emerging "eclectic mixed-use industrial" character. The plan establishes a clear vision for the neighbourhood as a highly sustainable, livable, and unique place that fits within and draws from its context and natural areas.

The overall intent of these guidelines is to create a vibrant, safe and accessible environment, whether urban or more natural, that is well connected, promotes pedestrian activity and comfort, and vibrant street life. This is achieved through supporting active transportation, transit-oriented design, creating a vibrant Village Centre and well-considered residential areas, as well as intensifying industrial commercial uses in Dollarton Highway South and establishing the Maplewood North Innovation District. These overall guidelines apply to all three precincts in the plan.

3.2 ORIENTATION AND SITING CONSIDERATIONS

- a. Building design should reflect the natural topography and context, and, to the extent possible, retain existing individual trees and forested areas.
- b. Development should avoid ESAs (Figure 13).
- c. Ensure new buildings meet energy efficiency standards and performance targets as guided by the BC Energy Step Code and promote the transition to net zero energy ready buildings by 2032.
- d. Encourage building energy benchmarking and labelling.
- e. For parcels located within the **1 x 10-6 risk contour**, new buildings or structures and associated accessory buildings or structures with residential components should incorporate the following measures in their design:
 - i. HVAC systems that maintain a slight positive pressure inside the building to prevent chlorine from entering.
 - ii. Toxic gas detectors for chlorine on building HVAC systems to automatically shut down air intake on high chlorine levels.
 - iii. Adequate exit routes (stair wells, doors, etc.) for evacuation, including battery backup lighting and/or other failsafe means of directional signage and guidance.
 - iv. Sealable doors at each floor level and/or within floor levels to restrict airflow movement as necessary.
 - v. Emergency phones for contact with emergency responders and building residents.
 - vi. Building public address systems for contact and communication with building occupants.
 - vii. Emergency plans clearly defining for all building occupants what to do to protect themselves should they be asked to evacuate or to shelter inside.

- viii. Designated “shelter in place” locations within buildings, where merited.

3.3 NATURAL AREAS, PARKS AND OPEN SPACE GUIDELINES

Plan policies aim to improve pedestrian connections by connecting park spaces with a network of paved and natural urban trails and expand active recreational park opportunities in the community.

NATURAL AREAS AND PASSIVE PARKS

- a. Buffer development with natural vegetation and features adjacent to ESAs, where ever possible.
- b. Enhance stream flows and health of wetlands by focusing flows to areas needing more water.
- c. Manage stormwater through infiltration and surface management.
- d. Create or protect ecological and recreational connections between key natural areas with recreational trails and wildlife connections.
- e. Explore opportunities in natural parkland areas to incorporate interpretative trails and educational signage.



ACTIVE PARKS AND RECREATION

- a. Support a variety of park amenities, including active sports fields, passive grass areas for informal use, seating, play spaces (natural and active play), public art, street trees, hard surfaced sport court, lit trails, and community gardens.
- b. Incorporate the Spirit Trail and recreational amenities with natural features in the community level park on District parkland north of Kenneth Gordon Maplewood School.
- c. Retain and enhance the urban forest along the northerly edge of the community park to create a treed buffer, where possible.





Bridges and boardwalks over creeks and lower lying areas make trails accessible and protect sensitive areas

- d. Create a neighbourhood park on District parklands east of Riverside Drive to provide active parkland for residents living in this area.
- e. Provide an additional sportsfield in the neighbourhood park if the current sportsfield located at Kenneth Gordon Maplewood School is decommissioned.

TRAILS

Maplewood's trail connections should be enhanced and extended to create better access and linkages between the riverfront, Village Centre and the new Maplewood North Innovation District. Two types of cycling networks should be established:

1. On-street (separated cycle tracks, and neighbourhood bikeways), and,
2. Off-street trail network for all ages and abilities

Extend the east-west urban trail along Windridge at the base of the escarpment connecting the riverfront with Canlan Ice Sports Arena across the Maplewood community.

Extend and improve the north-south natural urban trail connection within Seymour River Heritage Park, with a focus on the Seymour Greenway Trail.

Two types of trails should be implemented in Maplewood:

- a. Paved urban trails in the village centre that connect through the village core. Ensure pathways are well lit, a minimum 3.5 metre wide (asphalt [or concrete]) surface, and multi-use. Ensure additional space is provided for seating and landscaping. Provide a minimum of 4 metre wide (asphalt [or concrete]) surface for Spirit Trail sections.

- b. Natural (unpaved) urban trails outside of the village core through the ESAs. Ensure natural urban trails are, a minimum 3.5 metre wide (gravel [compacted rock dust]), and multi-use. Encourage habitat protection fencing and boardwalks along pathways, as required, to protect ESAs. Provide a minimum of 4 metre wide gravel (compacted rock dust) surface for Spirit Trail sections. Generally, the character and materials of urban trails should fit within the context of the area they are passing through (e.g. compacted rock dust, boardwalk, asphalt, and paving).



3.4 ACCESSIBILITY

INTENT

To design for pedestrian environments and streets that are safe for all user groups.

- a. Avoid changes of grade or gaps in paved surfaces greater than 6 mm, where possible.
- b. Provide tactile strips adjacent to crossings and between surfaces, such as at curbs.
- c. Avoid pavement slopes greater than 5% in direction of travel and 2% cross slope, where possible.
- d. Provide smooth walking surfaces to assist the visually impaired, where feasible.
- e. Prioritize the use of sawcut joints over tooled joints, where possible.
- f. Ensure that transit stops utilize the new Universally Accessible Bus Stop (UABS) Design Guidelines designed by TransLink.
- g. Provide bench pads that are 1.0 metre longer than the proposed bench to accommodate strollers, wheelchairs, scooters and other mobility aids, where space permits.
- h. Include audible tones and pedestrian countdown signals at signalized crossings and consider fully accessible pedestrian signals including braille, vibrating plate and audible location identifier.

3.5 PUBLIC REALM AND STREETScape GUIDELINES (GENERAL)

The street design guidelines are intended to support a high quality public realm and to complement existing street design elements in Maplewood. Included in the relevant precinct sections are guidelines for specific streets including the village High Street (Old Dollarton Road), shared street, Riverside Drive, Dollarton Highway, and Berkley Road. Where possible, developers should be required to underground any fronting overhead hydro and telecommunications wires at the time of development.

- Street lighting on new streets, paths, and public realm areas should have a unified character.
- Locations for street lighting, including pedestrian level lighting for Maplewood Village Centre, Maplewood North Innovation District and Dollarton Highway South are illustrated on Figure 18.
- Banner brackets are recommended for all street lights on Old Dollarton Road, Seymour River Place (shared street portion), Riverside Drive, and Berkley Road.

LIGHT DISTRIBUTION

- Light fixtures should direct appropriate light levels effectively to desired areas, and avoid glare and light spillage to other areas, particularly residential uses.
- Light levels should be consistent within areas of similar use, and should avoid creating bright and dark areas.
- Consider including small scale, low level lighting along pedestrian routes, such as under benches, lighting associated with public art, and up-lighting of trees to add character and ambiance to pedestrian areas.
- All light fixtures should be energy efficient and night sky compliant.



Figure 18: Maplewood Lighting Strategy

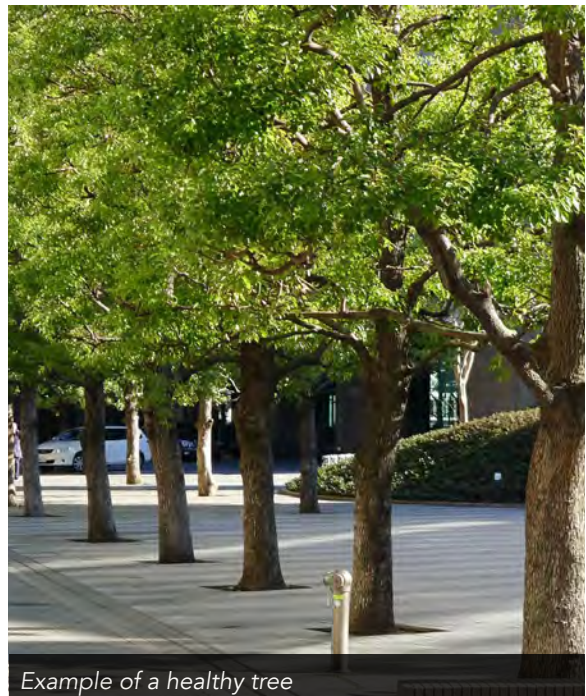
3.6 STREET TREES AND OTHER VEGETATION

INTENT

Healthy and attractive trees and plants are an important element of the public realm in Maplewood. The District has developed guidelines for street tree planting to ensure that trees can mature in healthy condition. Natural and environmentally sensitive areas are of particular importance and special care should be given to sensitively integrate new development and avoid the proliferation of invasive plants.

GENERAL GUIDELINES

- a. Street trees should be planted to optimize health and extend lifespan.
- b. Street trees should have a minimum caliper of 7cm when planted.
- c. All street trees should follow BCLNTA (British Columbia Landscape & Nursery Association) and BCSLA (British Columbia Society of Landscape Architects) standards.
- d. Best practices for street tree plantings should be used, which may include continuous tree trenches in boulevards, minimum recommended soil volumes, and soil cells and/or structural soil.
- e. Landscape lighting should be included in areas of higher pedestrian use.
- f. Permeable paving or landscaping should be provided at the base of trees.
- g. Natural forms or clusters of trees referencing forest tree groupings should be encouraged along Berkley Road and where appropriate, such as open spaces of the Innovation District, and in and on edges of active parks.
- h. Conifers are recommended where space permits (2.5 metre minimum depending on species) and where they do not impede sidewalks and other public spaces.
- i. Retention of larger conifers on private property should be encouraged, where possible, in the Innovation District.
- j. The following are recommended plant species for public spaces and streetscapes:



Example of a healthy tree

TABLE B: PLANT LIST



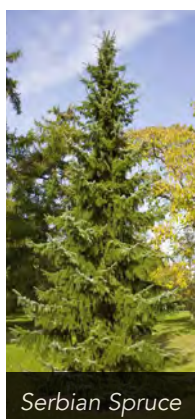
Red Maple



Japanese Zelkova



Black Gum



Serbian Spruce



Vine Maple

PLANT LIST

Street Trees

<i>Acer rubrum</i> 'Armstrong'	Red Maple
<i>Acer rubrum</i> 'Morgan'	Red Maple
<i>Acer platanoides</i> 'Easy Street'	Norway Maple
<i>Carpinus betulus</i> 'Frans Fontaine'	Hornbeam
<i>Fraxinus americana</i> 'Autumn Applause'	White Ash
<i>Liquidambar styraciflua</i> 'Worplesdon'	Worplesdon Sweet Gum
<i>Zelkova serrata</i> 'Green Vase'	Japanese Zelkova
<i>Quercus palustris</i> 'Green Pillar'	Green Pillar Pin Oak

Trees and Shrubs for informal groupings and clusters

<i>Acer circinatum</i>	Vine Maple
<i>Acer griseum</i>	Paperbark Maple
<i>Acer glabrum</i> var. <i>douglasii</i>	Douglas Maple
<i>Amelanchier x grandiflora</i> 'Autumn Brilliance'	Apple Serviceberry
<i>Carpinus betulus</i> 'fastigiata'	Fastigate European Hornbeam
<i>Cornus nuttallii</i>	Pacific Dogwood
<i>Cercidiphyllum japonicum</i>	Katsura Tree
<i>Ginkgo biloba</i>	Ginko
<i>Nyssa sylvatica</i>	Black Gum
<i>Picea omorika</i>	Serbian Spruce
<i>Pinus nigra</i>	Black Pine
<i>Thuja plicata</i>	Western Red Cedar (for natural areas)
<i>Styrax japonica</i>	Japanese snowbell tree

Shrubs and Groundcover

<i>Adiantum pedatum</i>	Northern maidenhair fern
<i>Amelanchier x 'grandiflora'</i> 'Autumn Brilliance'	Autumn Brilliance Apple Serviceberry
<i>Arctostaphylos uva-ursi</i> 'Vancouver Jade'	Bearberry

<i>Arctostaphylos uva-ursi</i>	Kinnikinnick, Bearberry
<i>Asarum caudatum</i>	Wild ginger
<i>Blechnum spicant</i>	Deer Fern
<i>Calluna vulgaris</i> var.	Heather
<i>Cornus sericea</i>	Red Twig Dogwood
<i>Echinacea purpurea</i> 'Kim's Knee High'	Dwarf purple coneflower
<i>Euphorbia myrsinites</i>	Donkey-Tail Spurge
<i>Festuca glauca</i>	Blue fescue
<i>Gaultheria shallon</i>	Salal
<i>Hamamelis virginiana</i>	Witchhazel
<i>Lonicera pileata</i>	Privet Honeysuckle
<i>Mahonia aquifolium</i>	Oregon Grape
<i>Mahonia nervosa</i>	Cascade Oregon Grape
<i>Polystichum munitum</i>	Sword Fern
<i>Spirea douglasii</i>	Hardhack
<i>Spirea japonica</i> 'Walbumba'	Magic Carpet Spirea

Recommended Plants for Raingardens

Areas of periodic or frequent standing or flowing water

Emergent Plants

<i>Carex aquatilis</i>	Water Sedge
<i>Carex obnupta</i>	Slough Sedge
<i>Carex rostrata</i>	Beaked Sedge
<i>Carex stipata</i>	Sawbeak Sedge
<i>Eleocharis palustris</i>	Creeping Spikerush
<i>Iris tenax</i>	Purple Iris
<i>Juncus acuminatus</i>	Taper tipped Rush
<i>Juncus ensifolius</i>	Dagger-leaf Rush
<i>Juncus tenuis</i>	Slender Rush
<i>Scirpus microcarpus</i>	Small-flower Bulrush

Shrubs - Deciduous

<i>Cornus sericea</i>	Red-Osier Dogwood
<i>Cornus sericea</i> 'Kelseyi'	Dwarf red-twig Dogwood
<i>Cornus sericea</i> 'Flaviramea'	Yellow Dogwood
<i>Cornus sanguinea</i> 'Midwinter Fire'	Blood-twig Dogwood
<i>Physocarpus capitatus</i>	Pacific ninebark
<i>Rosa pisocarpa</i>	Clustered Wild Rose



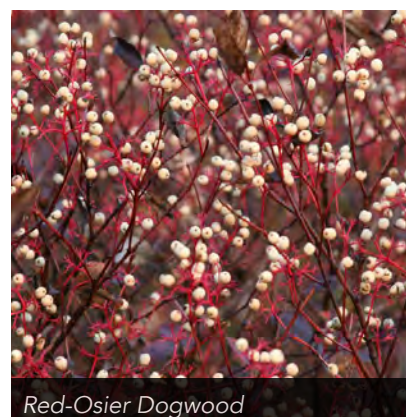
Oregon Grape



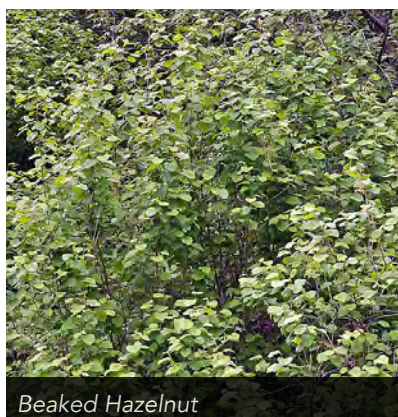
Deer Fern



Purple Iris



Red-Osier Dogwood



Beaked Hazelnut



Oceanspray



Large Leaved Lupine

<i>Spirea douglasii</i>	Steeplebush
<i>Salix purpurea</i> 'Nana'	Dwarf Artic Willow
Shrubs - Evergreen	
<i>Myrica californica</i>	Pacific Wax Myrtle
<i>Vaccinium ovatum</i>	Evergreen Huckleberry
Trees/Large Shrubs - Deciduous	
<i>Acer circinatum</i>	Vine Maple
<i>Amelanchier alnifolia</i>	Western Serviceberry
<i>Corylus cornuta</i>	Beaked Hazelnut
<i>Rhamnus purshiana</i>	Cascara
Areas with dryer soils, infrequently subject to inundation or saturation (e.g. side slopes)	
Groundcovers	
<i>Gaultheria shallon</i>	Salal
<i>Mahonia repens</i>	Spreading Oregon Grape
Shrubs – Deciduous	
<i>Holodiscus discolor</i>	Oceanspray
<i>Symphoricarpus albus</i>	Snowberry
<i>Symphoricarpus orbiculatus</i>	Coralberry
<i>Ribes sanguineum</i>	Red-flowering Currant
<i>Rubus parviflorus</i>	Thimbleberry
Shrubs - Evergreen	
<i>Arbutus unedo</i> 'Compacta'	Strawberry Tree
<i>Mahonia nervosa</i>	Cascade Oregon Grape
<i>Mahonia aquifolium</i>	Tall Oregon Grape
Trees/Large Shrubs - Deciduous	
<i>Malus fusca</i>	Pacific Crabapple
Perennials/Grasses	
<i>Aquilegia Formosa</i>	Red Columbine
<i>Aster subspicatus</i>	Douglas Aster
<i>Helictotrichon sempervirens</i>	Blue Oat Grass
<i>Hemerocallis</i> var.	Day Lily

<i>Lupinus officinalis</i>	Large Leaved Lupine
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<i>Pennisetum alopecuroides</i> 'Hamelin'	Hamelin Dwarf Fountain Grass
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Ferns

<i>Polystichum munitum</i>	Western Swordfern
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<i>Blechnum spicant</i>	Deer Fern
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Recommended Plant Species for Informal Groupings on Private Property and Parks

Trees (Large)

<i>Acer macrophyllum</i>	Big Leaf Maple
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<i>Carpinus betulus</i> 'fastigiata'	Fastigate European Hornbeam
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<i>Cercidiphyllum japonicum</i>	Katsura Tree
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<i>Cornus</i> 'Eddie's White Wonder'	Dogwood 'Eddie's White Wonder'
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<i>Ginkgo biloba</i>	Ginkgo
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<i>Nyssa sylvatica</i>	Black Gum
------------------------	-----------

<i>Pseudotsuga menziesii</i> / Douglas Fir	Douglas Fir
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<i>Thuja plicata</i> / Western Red Cedar	Western Red Cedar
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Trees (Medium)

<i>Abies lasiocarpa</i>	Subalpine fir
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<i>Acer circinatum</i>	Vine Maple
------------------------	------------

<i>Acer griseum</i>	Paperbark Maple
---------------------	-----------------

<i>Acer glabrum</i> var. <i>douglasii</i>	Douglas Maple
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<i>Betula platyphylla</i> var. <i>japonica</i> 'Whitespire'	Whitespire Japanese white birch
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<i>Chamaecyparis nootkatensis</i> 'Green Arrow'	Weeping Alaskan Yellow Cedar
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<i>Davidia involucrate</i>	Dove Tree
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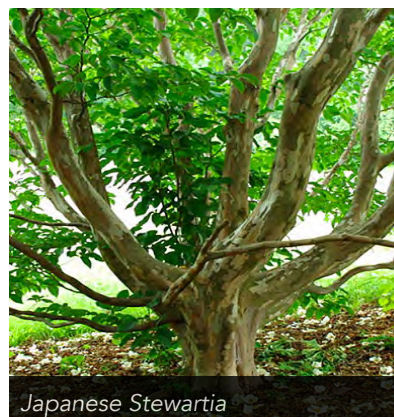
<i>Parrotia persica</i>	Parrotia
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<i>Picea omorika</i> 'Pendula Bruns'	Bruns Weeping Serbian Spruce
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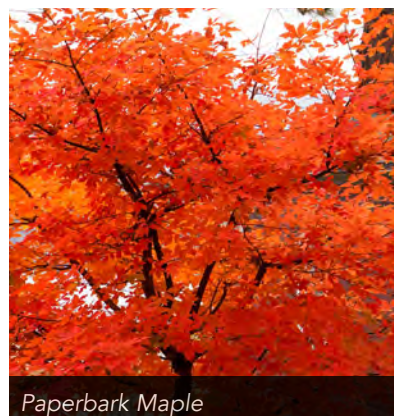
<i>Picea glauca</i> 'Pendula'	Weeping White Spruce
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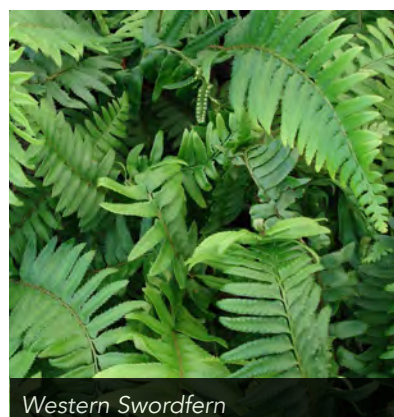
Katsura Tree



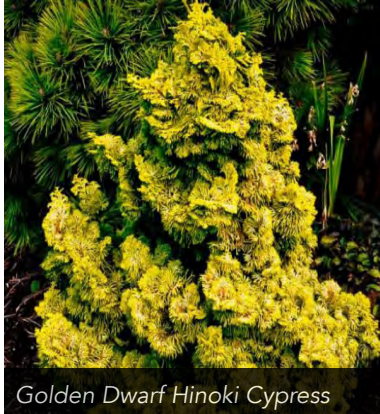
Japanese Stewartia



Paperbark Maple



Western Swordfern



Golden Dwarf Hinoki Cypress



Japanese Blood Grass



Lavendar Cotton

Pinus sylvestris 'Fastigiata' Scotch pine

Populus tremula 'Erecta' Columnar European Aspen

Stewartia pseudocamellia Japanese Stewartia

Shrubs and Groundcover

Shrubs and groundcover from public spaces may also be included as well as the following:

Imperata cylindrical 'Rubra' Japanese blood grass

Chamaecyparis obtuse 'Nana Lutea' Golden Dwarf Hinoki Cypress

Liriope muscari Lily turf

Pennisetum alopecuroides Fountain grass

Santolia chamaecyparissus Lavender Cotton

Sedum 'Autumn Joy' Autumn Joy Stonecrop

3.7 PUBLIC ART

Public art plays an important role in supporting the emerging character of Maplewood, and helps to articulate each precinct's unique identity. 'Eye catching' sculptures along with finer grain elements such as banners and mosaics are encouraged to creatively explore, interpret, and reinforce aspects of the region that people feel connected to and want to celebrate. Artists are encouraged to draw upon Maplewood's interesting history, its Coast Salish beginnings, industrial innovations, thriving bird sanctuary, bohemian artist community, environmental heroes, and celebrated urban farm. Public art marks gateways, enhances pedestrian streetscapes, and animates public plazas and gathering spaces. Public art reflects and gives expression to local stories while celebrating the character and identity of Maplewood.

- Encourage the design of interactive public art features to animate the two plazas and gathering spaces in the Village Centre, and at a central location in the Innovation District (See Figure 8).
- Consider large-scale gateway features at intersections entering Maplewood; Berkley Road, Riverside Drive at Mount Seymour Parkway, and Dollarton Highway at Old Dollarton Road.



Coast Salish Art



"Nest" by Douglas Senft



"Moving Up" by Karen Kazmer

- c. Integrate pedestrian-scale trail and trail-head markers at key locations on trails.
- d. Promote artist-designed banners to reinforce Maplewood's identity and locate along Dollarton Highway, Mount Seymour Parkway, Berkley Road Old Dollarton Road, and Riverside Drive.
- e. Incorporate public art into private and public spaces that are accessible to the public.
- f. Encourage multiple forms of public art, from stand alone sculptures, to integrated functional components that can be incorporated into, architecture, streetscape and the public realm.
- g. Reflect First Nations history and culture, highlighting their stewardship of precious natural and environmental resources.
- h. Celebrate the richness and diversity of the area's unique ecological heritage: from the social and environmental history of the mudflats to the wetlands.
- i. Highlight the area's urban farming and industrial heritage, using materials and integrating design characteristics that reflect a strong sense of place.
- j. Focus on themes of stewardship, sustainability and innovative practices in respect of the natural environment.

3.8 ACCESS, SERVICING AND ON-STREET PARKING

Plan policies aim to ensure developments provide adequate access, servicing and on-street parking for vehicles and bicycles, while minimizing negative impacts on the safety and attractiveness of the public realm.

VEHICLE ACCESS, SERVICING, AND ON-STREET PARKING

- a. On-street surface parking should be located to the rear of the building with parking access from the lane or adjacent street with the lowest functional classification.
 - i. If not feasible, locate on-street surface parking beside or in front of the building, adjacent to the public sidewalk provided the area is properly screened from the public sidewalk and other active open space areas. Consider the use of landscaping as a screen provided it maintains clear visibility into the parking areas to promote personal safety and security.
- b. Where property faces streets with the same functional classification, the following should be considered:
 - i. Access should be from the long face of the block.
 - ii. Minimal interruption of the public realm and streetscape treatment should be maintained.
 - iii. Appropriate surface treatments should be incorporated to denote designated cycle tracks or urban trails.
 - iv. Waiting or pick-up/drop-off areas should be located internal to the site and not be located in the public right-of-way.
 - v. Not more than one interruption per block face and one curb cut per street should be considered.
- c. Underground parking or covered on-street parking should be required for new residential and mixed-use buildings, where possible.
- d. Where underground parking is considered, ensure that groundwater is not discharged to the storm sewer or sanitary sewer.
- e. Structured underground or “tucked-under” parking should be preferred over on-street surface parking.
- f. Provide co-operative car and car sharing parking spaces on-site, and provide these parking spaces at grade and visible from the street, where possible.
- g. Any vehicular entrance and its associated components (gates, ramps, etc.), whether from the street or lane, should be architecturally integrated into the building to minimize its exposure.
- h. Shared parking and access is encouraged, where feasible.
- i. Large parking lots should be discouraged.

- j. Ensure that new development provides for electric vehicle charging facilities per the District's *Electric Vehicle Charging Infrastructure* policy.
- k. Explore opportunities for supporting infrastructure that meets the needs of renewably-powered vehicles.
- l. Consider reductions in parking requirements for developments that include sufficient Transportation Demand Management (TDM) measures, and discourage excess parking for developments.

BICYCLE PARKING, SERVICING AND ACCESS

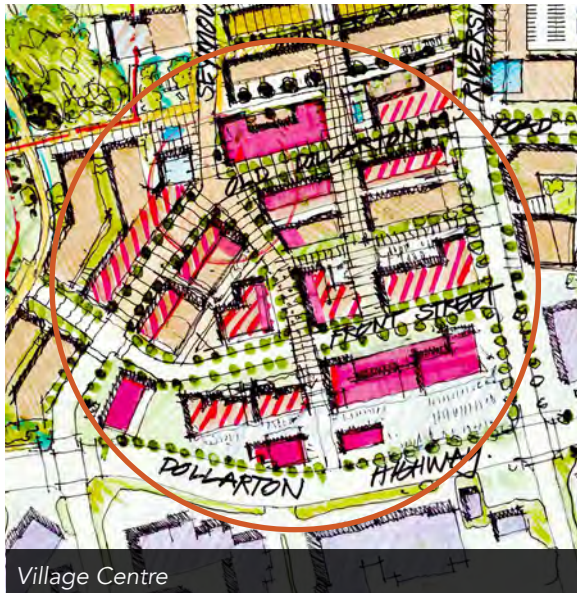
- a. Long-term bicycle parking should be encouraged for multi-family residential and employment-generating uses, where possible.
 - i. A minimum of two long-term bicycle parking spaces per residential unit in multi-family residential and employment-generating developments should be encouraged.
 - ii. Long-term bicycle parking should be located in a secure bicycle storage facility that is only accessible to residents of the building.
 - iii. Secure bicycle storage facilities should consider including waterproof bicycle lockers, and secured bicycle rooms or compounds with bicycle racks within a building.
 - iv. Electrical outlets should be provided in all bicycle storage facilities, and bicycle parking spaces should be within 5 metre from an outlet.
- b. Short-term bicycle parking should be encouraged throughout the Maplewood community, where feasible and where appropriate.
 - i. Bicycle racks located outdoors should follow the design standard identified in this plan (See pages 66 and 76.)
 - ii. Explore opportunities to provide weather protection for clusters of outdoor short-term bicycle parking (e.g. under canopies or shelters), where possible.
 - iii. Bicycle parking should be located close to building entrances to provide a clear visual connection from the building entrance to the bicycle parking.
- c. End-of-trip facilities (i.e. showers, lockers, change rooms, etc.) should be provided with employment-generating uses.

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4 VILLAGE CENTRE

4.1 OVERALL INTENT

The Maplewood Village Centre area is envisioned to be a vibrant, pedestrian-friendly, mixed-use village centre with compact forms of commercial and mixed-use commercial/residential buildings as well as live/work and community uses.



4.2 BUILT FORM GUIDELINES

TALL BUILDINGS

- Encourage siting, massing, and design of tall buildings (over 6 storeys in height) that minimizes negative impacts on views, privacy, and solar access for individual units, reduces the perceived bulk and minimizes impacts on adjacent public streets and open spaces.
- Identity for the main entrance should be achieved by stepping back the base building (podium) at the primary entrance to allow the tall building to visually connect with the street. Locate primary entrances so that they are clearly visible and directly accessible from the public sidewalk, plaza, or other open space.

- An interesting and varied roof form should be achieved (for example, by incorporating a top-level penthouse or amenity space to conceal appurtenances and mechanical equipment).





The architecture of buildings should show their use through form and relationship with the street. Live/work buildings should be sited right next to the sidewalk



The live/work nature of these buildings is expressed in the design of the façade



Live/work buildings allow for two ground-oriented floors for office/artist studio spaces

ARCHITECTURAL STYLE AND CHARACTER

Mixed Use and Live/Work

- Buildings containing live/work uses should be identifiable by the design of frontages.
- Façades which appear purely residential should be avoided.
- Options could include differentiating the living zones from the working zones architecturally through façade design and colour.
- Consider the use of canopies and upper storey step backs to further emphasize this character. This could be a glazed façade portion for artist or live/work studios and corner shop style designs for more traditional design approaches.

West of Riverside and east Artisan Industrial

- Exterior materials and detailing should reflect the marine and industrial heritage of the site. Natural materials such as wood, architectural metal siding elements, glass, block, brick or concrete are appropriate for portions of mixed-use residential commercial and live/work buildings, for example.
- Materials and finishes should be detailed and applied to emphasize their simplicity and integrity.
- Building materials with low environmental impacts should be encouraged. This could include the use of recycled and recyclable materials, materials with recycled content, locally sourced products, and materials with low embodied energy.

BUILDING MATERIALS

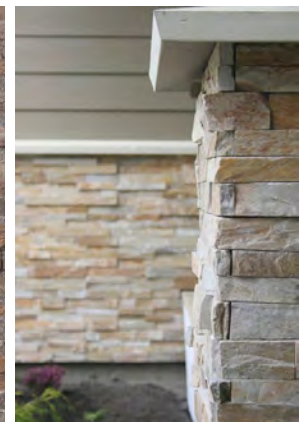
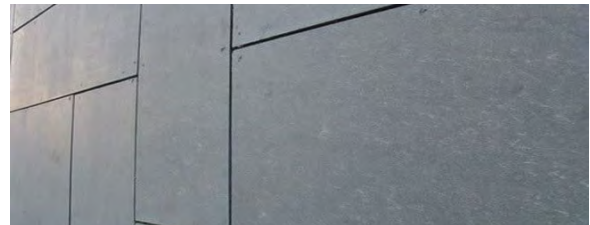
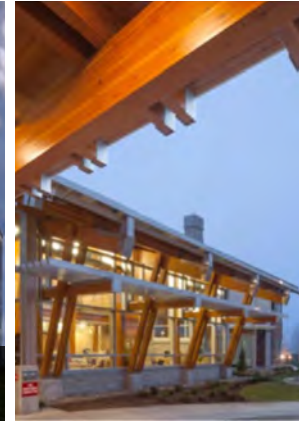
Specific Building Materials

The form and character of Village Centre developments should support the “eclectic mixed-use industrial” theme and incorporate elements that reference Maplewood’s natural environment.

- a. Natural building materials with bright accent colours are strongly recommended.
- b. Building elevations emphasizing one or two natural building materials, in addition to glazing, are strongly encouraged.
- c. The use of large timbers and overhangs is encouraged.
- d. Well crafted, durable materials that support sustainability and Village Centre themes are expected throughout.
- e. Natural building materials including wood, stone, concrete and brick should dominate the expression on lower floors and along the street wall including retaining and garden walls.
- f. Materials on upper floors should be consistent with the quality, durability and craftsmanship on the lower levels.
- g. Functional screens, shading devices and other passive solar design elements that complement the architecture are highly recommended.
- h. Heavy timber and engineered wood elements especially along the base of the building and at entrances are strongly encouraged.
- i. Wood elements should be protected from weathering using best building practices and appropriate finishes that preserve the natural colour and texture.



Large timbers & overhangs





Green tones



Stone greys and autumn maple tones

- j. Colours should be chosen to complement the palette of natural stone and wood: tones of grey are considered most appropriate.
- k. Soffit materials should be consistent with the building's overall durability and quality (vinyl and perforated materials are discouraged).
- l. Wood soffits are preferred where feasible.
- m. Clear vision glass is preferred over tinted products.
- n. Material transitions should avoid a "wallpaper" look.
- o. The use of vinyl or aluminum siding or other materials made to imitate natural finishes is discouraged.

PREFERRED COLOUR PALETTE

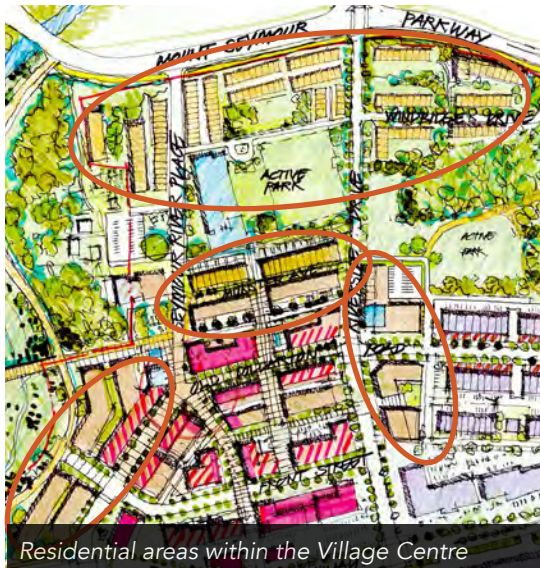
The use of colour is encouraged. The aim is to achieve a mix of colours and textures, while keeping the materials and colour scheme of each individual project within a cohesive palette.

- a. The primary colour palette within the Village references local forest colours and materials.
- b. Brighter, complementary accent colours should be used for smaller portions of building façades.
- c. "Maple brown" colour, matching the existing street lights is to be used consistently for street lights along Old Dollarton Road (High Street).

5 RESIDENTIAL AREAS

5.1 INTENT

Maplewood's residential areas, located to the north, west and east within the Village Centre are intended to provide a range of attractive housing types and tenures that support, and are well connected to, a vibrant walkable Village Centre.



Residential areas within the Village Centre



This residential live/work development uses variation in materials and roof lines integrated with the building articulation and fenestration pattern to create differentiation of ownership and uses

5.2 BUILT FORM GUIDELINES

Many of the new residential dwellings in Maplewood will be infill and redevelopment sites, and the aim is to achieve an eclectic mix of colours and textures, while keeping the materials and colour scheme of each individual project within a cohesive palette.

BUILDING MATERIALS

In general, new buildings should incorporate natural building materials into façades to avoid a "thin veneer" look and feel. These can be incorporated with more contemporary treatments, including glass curtain walls (e.g. for live-work artist studio buildings).

Recommended:

- a. Large dimension timber
- b. Natural wood materials, including:
Milled and un-milled timbers, window and door trim, canopy structures, signage
- c. Brick masonry, stone
- d. Glazed tiles, flat profile "slate" concrete tiles

- e. Concrete
- f. Wood and aluminum for windows
- g. Powder-coated steel for exterior staircases, balconies and railings
- h. Standing seam metal roofing
- i. Corrugated metal siding/roofing

Acceptable:

- a. Pre-finished metal, non-corrugated type, emphasizing either vertical or horizontal arrangements
- b. Limited amounts of stucco in combination with other materials

Discouraged:

- a. Vinyl siding
- b. Large expanses of stucco
- c. Vinyl window frames

COLOUR PALETTE

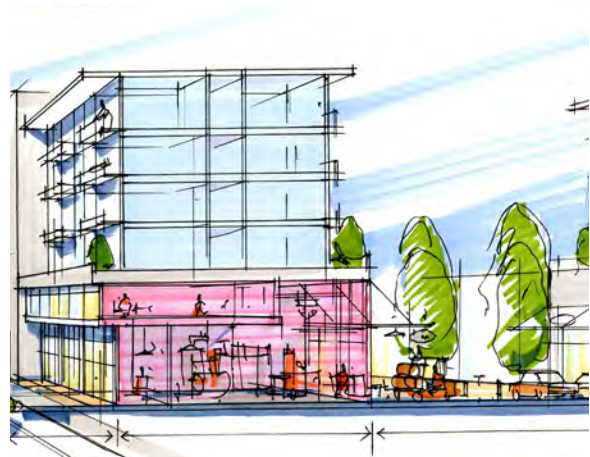
The use of colour is encouraged to achieve a mix of colours and textures, while still reflecting a cohesive palette.



6 LIGHT INDUSTRIAL ARTISAN GUIDELINES

6.1 INTENT

Artisan-Industrial/Live-Work use along Old Dollarton Road east of Riverside Drive will allow for small manufacturers and craftspeople to live and work in a vibrant, pedestrian-friendly environment. Residential buildings integrated with small manufacturing/office functions need particular design attention. The design of these buildings must balance dual purposes. Their office and light industrial spaces define the public realm and should contribute to its scale and vitality.



Artisan industrial with housing offers two ground oriented floors for office/small manufacturing uses with a maximum of 4 residential floors above

6.2 BUILT FORM GUIDELINES

BUILDING HEIGHT AND MASSING

- First and second storeys are dedicated to small manufacturing and office use, and upper storeys dedicated to residential use.
- Upper residential storeys should be set back to optimize sunlight penetration, accommodate residential balconies, and reduce massing impacts.
- First storey working spaces should have taller ceilings than typical residential floors.



Innovative forms of artisan industrial live-work housing

COMPATIBILITY OF USES

- a. Buildings should be designed to be compatible and use design features to mitigate negative impacts of employment uses on residential uses, including: noxious fumes, dust, lighting, vibration, sounds, and smells.
- b. Residential entrances should be separate from light industrial employment uses.



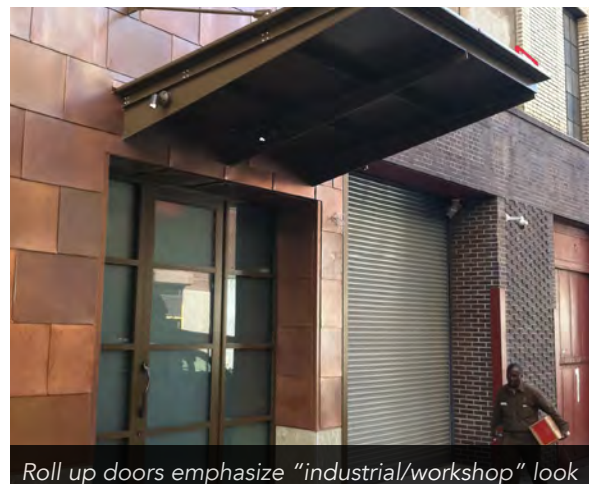
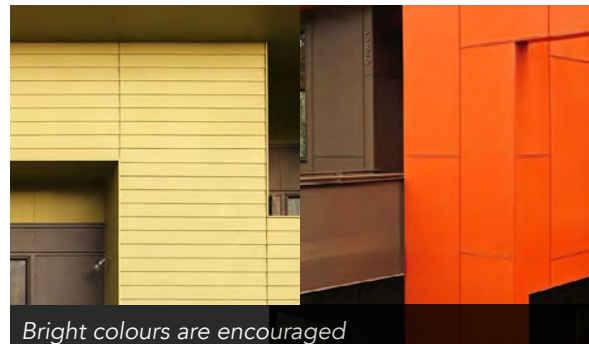
RELATIONSHIP WITH STREET

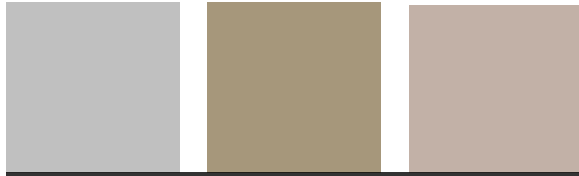
- a. Mixed-use artisan industrial buildings should be built close to the property line, while including space for outdoor displays.
- b. Buildings should be designed to express the “industrial or manufacturing nature” of the first and second floor office/industrial uses.
- c. Individuality within a unified appearance is encouraged for buildings with multiple units and uses which could be expressed through colour, materials and articulation of architectural elements.



CHARACTER AND MATERIALS

- a. Small scale light industrial use with residential uses above should be expressed in character, colour, and materials of buildings.
- b. Emphasize the “industrial/workshop” look and feel of this special use by encouraging the use of roll up doors and frames and higher ceilings in working areas.

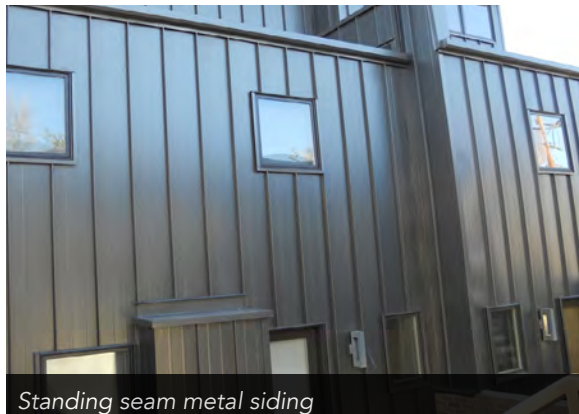




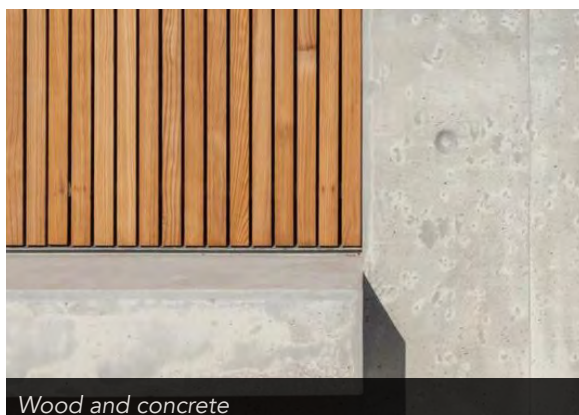
Primary Colour Palette



Accent Colours



Standing seam metal siding



Wood and concrete

- c. Materials such as corrugated metal siding/roofing, different types of flat metal siding, galvanized powder coated steel, fiber cement siding are suitable.
- d. Large expanses of stucco are not desirable.

PREFERRED COLOUR PALETTE

- a. The bold use of accent colours is encouraged. This can be expressed in cladding materials, window/door frames and accessory elements.
- b. Various tones of industrial greys and browns are encouraged to make up the primary colour palette.

6.3 PUBLIC REALM AND STREETScape GUIDELINES

HIGH STREET (Old Dollarton Road)

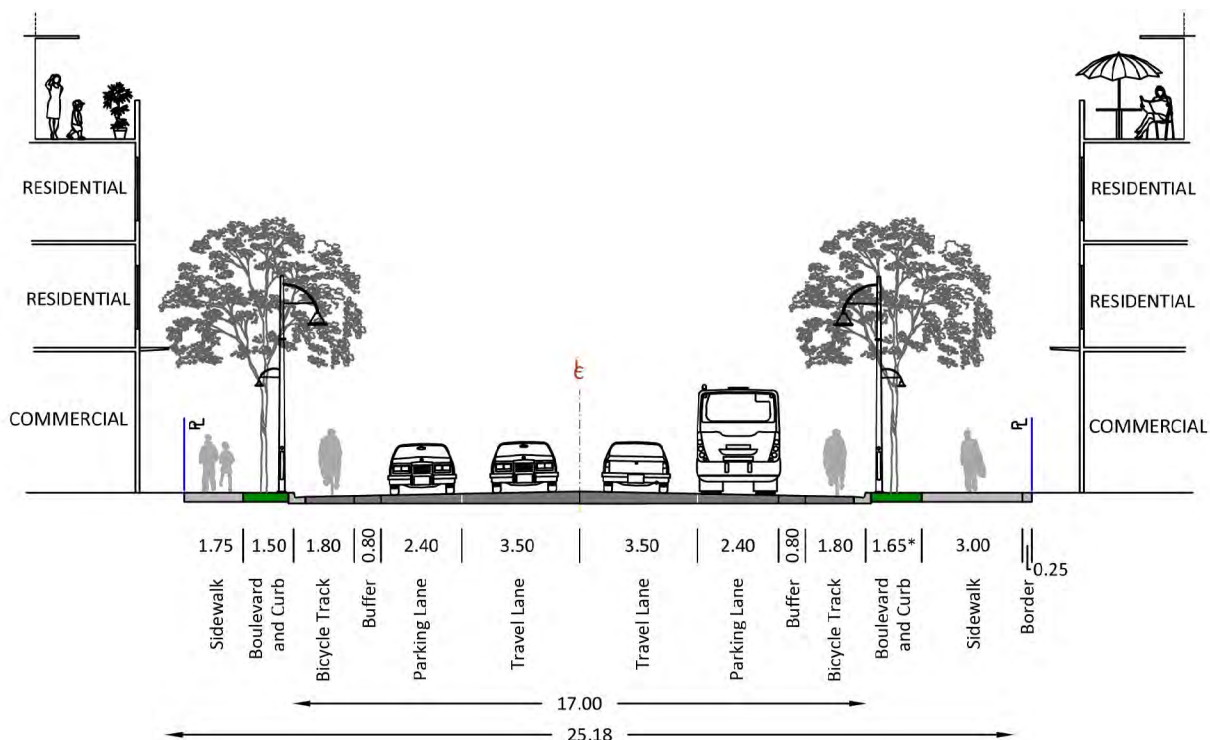
Intent

To create a high quality pedestrian-oriented street through the centre of the Village with places to shop, live, work and create. The character of Old Dollarton Road will change from a village heart character west of Riverside Drive to a grittier artisan industrial character east of Riverside Drive.

HIGH STREET

(Old Dollarton Road – west of Riverside Drive)

This section of Old Dollarton Road should be an attractive pedestrian-oriented street with wide sidewalks, street trees, special street furniture and lights with banners. The High Street should accommodate on-street parking pockets where feasible, and is intended to be a possible future B-line route for transit.

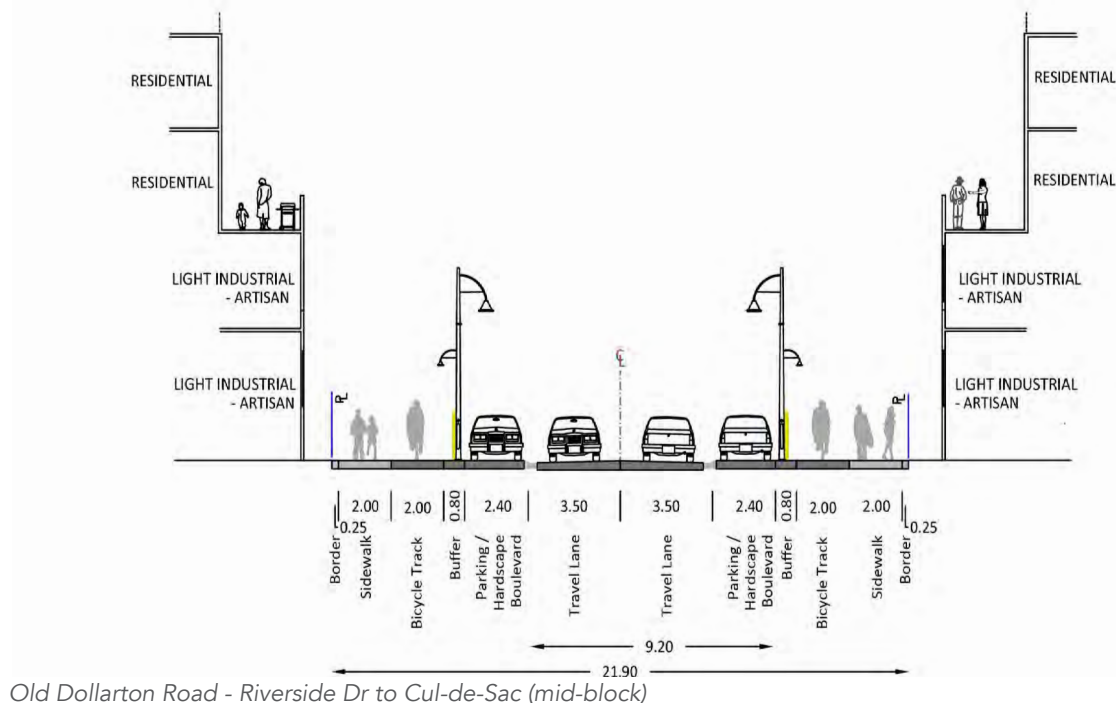


Old Dollarton Road - Seymour Pl to Riverside Dr (west segment mid-block)

Riverside Drive to Cul-de-Sac

Old Dollarton Road transitions to an artisan industrial grittier character east of Riverside Drive. This street should be flush with unique paving materials to encourage a seamless integration of users moving across the street. Businesses should be encouraged to display their goods to create a shared sense of place along this street.

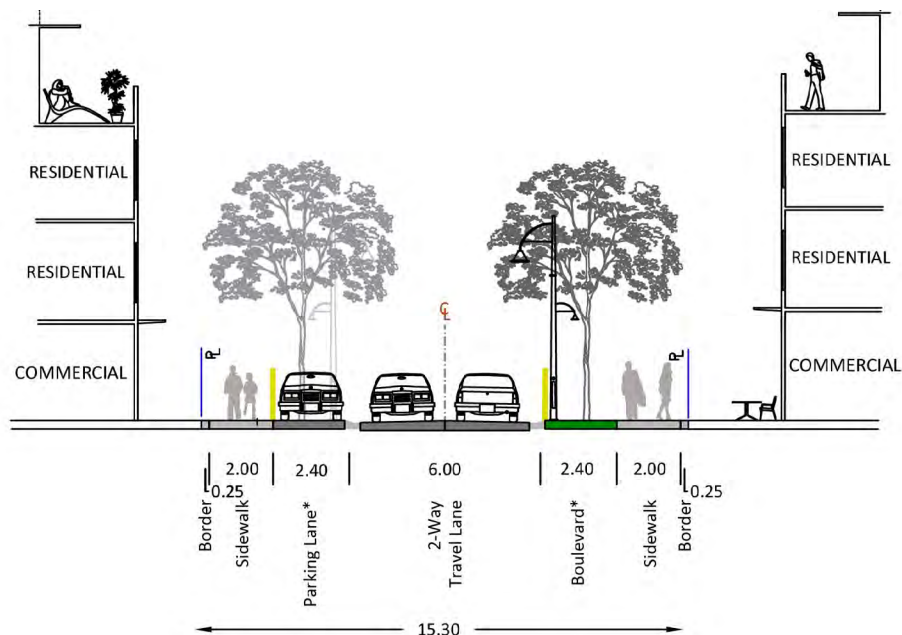
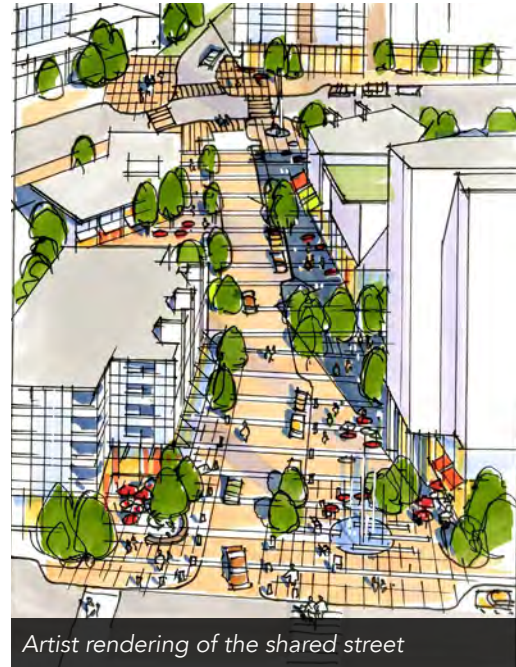
- a. Separated cycle tracks will be denoted by a smooth surface to ensure an accessible and enjoyable riding experience.
- b. The street should be designed to allow for weekend markets. Alternative access for loading and delivery and parkades through the use of lanes ensures a pedestrian-oriented environment through the centre of the artisan industrial space.
- c. Abbotsford Standard Series 'Charcoal' herringbone concrete pavers are recommended for travel lanes and on-street parking.
- d. Use a smooth surface to provide pleasant riding conditions for those who wish to cycle to the artisan industrial businesses, to adjacent amenities or for those travelling through.
- e. Street furniture selections should reflect the artisan industrial character, and highlight the uniqueness of this node from adjacent areas.
- f. Design the street to be easily closed off to vehicles from the mid-block lane to Forester Street to allow for weekend markets and festivals, while still providing access to the lane for parking, delivery access, and to the fire hall site.
- g. Street frontages should be designed to provide adequate weather protection from wind, sun, and rain, to encourage people to stop and visit local businesses.
- h. Provide separation between cycle tracks and vehicle parking.



SHARED STREET (OLD DOLLARTON ROAD – FRONT STREET)

The shared street runs north/south and joins Old Dollarton Road to Front Street. It should be designed as a flexible shared space, providing gathering spaces, plazas, and local markets - a vibrant, pedestrian oriented-street lined by mixed use commercial and multi-family residences. Pedestrians share the space with cyclists and slow moving vehicles.

- a. Abbotsford Standard Series 'Charcoal' herringbone concrete pavers are recommended for travel lanes and on-street parking.
- b. Infrastructure including structural support, electricity, water supply, and removable bollards (to accommodate seasonal and/or community events including the ability to close off portions of the street to vehicles, should be integrated).
- c. Incorporate street trees in groupings alternating with on-street parking.
- d. Flush curbs/concrete bands that incorporate trench drains with decorative covers are recommended for enhanced pedestrian mobility.
- e. Consider incorporating public art in the plazas at the entrances to this street.
- f. Provide a variety of seating opportunities.



Seymour River Place - Front St to Old Dollarton Rd (mid-block) * Parking lane and boulevard alternate sides.

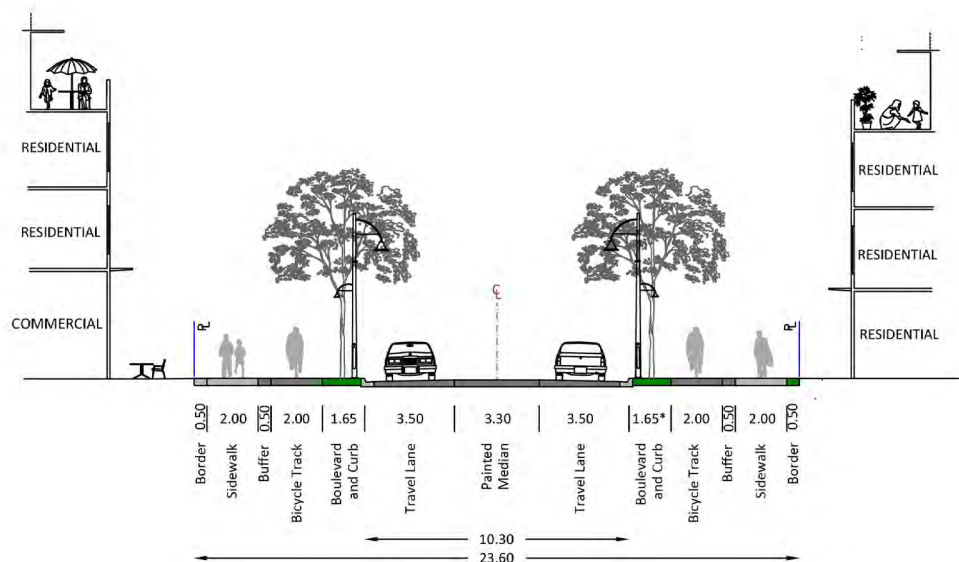
RIVERSIDE DRIVE

Riverside Drive is the key north-south street in the Village Centre. It connects Mount Seymour Parkway and Dollarton Highway and provides direct access to key amenities within the village. Due to its proximity to the High Street, natural and active parkland, Kenneth Gordon play field and to local businesses, this street should be designed as the central spine through the Village Centre.

Intent

To create a high quality street through the centre of the village that is comfortable for all users with ample sidewalk space, separated cycling connections, and treed boulevards, where possible.

- Create a multi-modal street that provides separated space for walking and cycling while still accommodating the efficient movement of goods and those who choose to drive and take transit.
- Design boulevards to provide an ample buffer between those who are cycling and those who walking or driving, where feasible.
- Provide safe and convenient pedestrian and cycling crossings for those crossing Riverside Drive to access the natural and active parks, the school as well as the urban and natural trails through Maplewood Park and on Windridge Drive.



Riverside Drive - Old Dollarton to Windridge

PUBLIC PLAZAS

Two public plazas should be located at each end of the shared street in the village, at the intersections of Old Dollarton Road and Seymour River Place and Seymour River Place and Front Street (See Figure 8). These plazas should be positioned to benefit from sunlight during the day. Together they are intended to form gateways to the central gathering area within the Village Centre.

- a. A variety of seating opportunities should be provided in locations that receive direct sun during the day and in places that have rain protection.
- b. Plazas should provide universal access to people of all ages and abilities and offer spaces for informal play and rest.
- c. Seating should be designed to be integral to the design concept and use materials that complement the material palette of adjacent buildings.
- d. Coordinate site furnishings (e.g. garbage containers, bike racks, lighting, tables and seating) with streetscape furnishings.
- e. Paving should be compatible with the streetscape materials palette and patterned to both respond to surrounding building architecture (entrances, pilasters, etc.) and merge seamlessly into the overall paving pattern of adjacent sidewalks.
- f. Ensure a clear visual connection between the transit stop on Old Dollarton Road and the plaza.
- g. Public art should be incorporated as either free-standing elements to enhance the gateway function of these plazas, or integrated into benches, storm grates, etc.
- h. Facilities such as power and water should be considered to support future plaza programming opportunities.



STREET FURNITURE

Intent

Maplewood Village Centre furnishings are decorative and should continue the character already established with the Northwoods Village, a mixed-use development including benches, bollards, litter bins, and bike racks. In addition, special designs relating to Maplewood's character are encouraged throughout the Village Centre including public art and artist-designed elements. Street furniture including street lights along Old Dollarton Road should be finished with brown (PROTEC 1672-4 Maple Brown) to match new street lights (See Appendix for additional details). Street furniture in other parts of the village and local streets should be finished black (e.g. Philipps Lumec textured black BKTX).

Street Lights

- a. The pole and luminaire should be continued along all streets as identified on the Maplewood Lighting Strategy in Figure 17.

Street Lighting Types and Details

Maplewood Village Centre furnishings are decorative and should continue the character already established with the Northwoods Village development (including benches, bollards, trash receptacles, and bike racks).

**Maplewood Village Centre
Furnishings - Pole and Luminaire**
PROTEC 1672-4 Maple Brown.

Benches

- a. Refer to adjacent images for preferred benches and seating designs.
- b. Benches, litter bins and recycling containers should be part of the same product line to ensure visual consistency.
- c. Pads for benches not within the boulevard should be 1.0 metre longer than the proposed bench of the same material as the sidewalk.



*Preferred benches, lighting and bollards
for Village Centre*



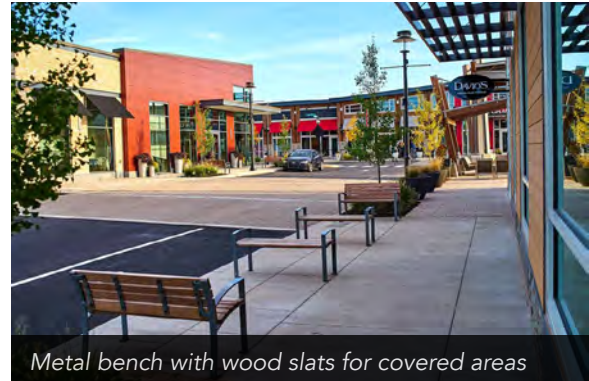
Metal bench with glossy black finish



Examples of bicycle racks

Bicycle racks

- a. Bike racks should support the bicycle by the frame, not only by the wheels.
- b. Bike racks should be selected to address the anticipated usage at locations throughout the Village Centre.
- c. Explore the possibility of using bike racks as public art.
- d. Individual rings or U-shaped racks offer the possibility to be placed in small or larger quantities as needed.
- e. Consider covered bike racks for weather protection, and include outlets for e-bike charging where appropriate.



Metal bench with wood slats for covered areas



Examples custom designs for manhole cover and drainage channel cover

Water fountains

- a. Use models that meet requirements for access by people in wheelchairs.
- b. Seek opportunities for integrating public art into these elements.
- c. Ensure that water fountains include drinking facilities for pets.

Utility covers

- a. Should reflect Maplewood's character.
- b. Consider local art competitions to develop custom designs for covers.

7 MAPLEWOOD NORTH INNOVATION DISTRICT

7.1 INTENT

The Maplewood North Innovation District is one of three areas with a distinct character, purpose and identity. It will be a neighbourhood where high tech mixes with a beautiful natural setting while offering combinations of working and living that are new to this region. It will include educational institutions and local serving commercial uses. The goal of these guidelines is to support the creation of a physically-compact, visually diverse, transit-accessible and technically-wired neighbourhood with a campus-like character that respects the existing environment and promotes an active and healthy lifestyle.

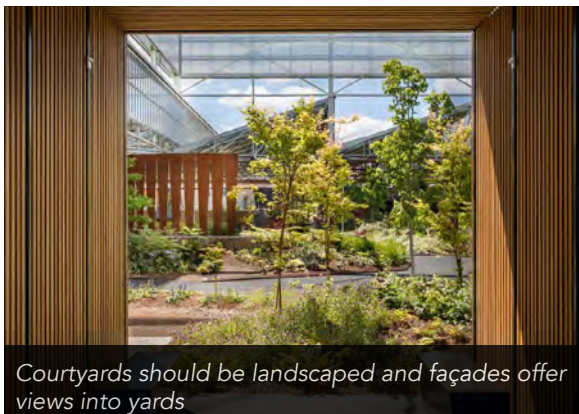


7.2 BUILT FORM GUIDELINES

CHARACTER

The built form and public realm of the Innovation District should work together to achieve an integrated, mixed-use neighbourhood that displays excellence in design and a commitment to sustainable development. This new neighbourhood should have its own identity recognizable in built form, public realm and public art. It should feature buildings sited within a campus-like setting, with a generous amount of landscaping around buildings, and should reflect





Maplewood's cultural heritage and history while embracing new contemporary uses.

In general, developments should:

- Be contemporary in appearance and expressive of building functions.
- Buildings should express individuality with unique and distinct designs.
- Express innovation in form with massing and detailing.
- Provide daylighting by utilizing methods such as limiting building depths or providing atrium elements.
- Provide end-of-trip facilities to support active modes of transportation (including showers, change rooms, lockers).
- Provide retail and community uses at ground level where appropriate.

HEIGHT AND MASSING

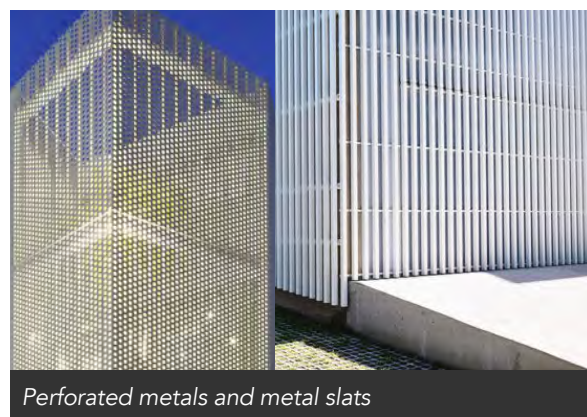
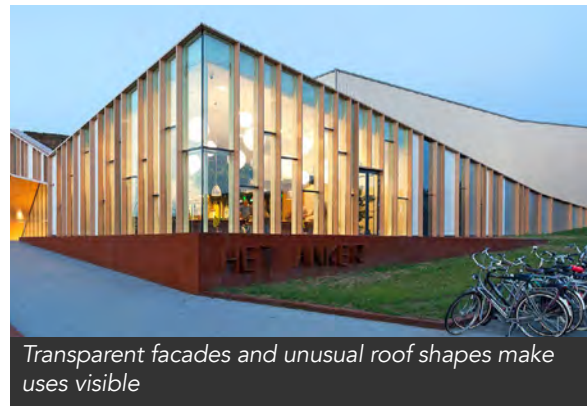
- Heights should range from 2-8 storeys and should be applied to achieve an appropriate response to the size, shape and orientation of the site.
- Achieve height and massing that creates variety between separate developments.
- Provide more prominent massing and architectural treatments on corner and other important sites.

RELATIONSHIP TO STREET

- Avoid continuous unarticulated façades of over 45 metre in length.
- Provide active façades that promote passive surveillance.

BUILDING MATERIALS

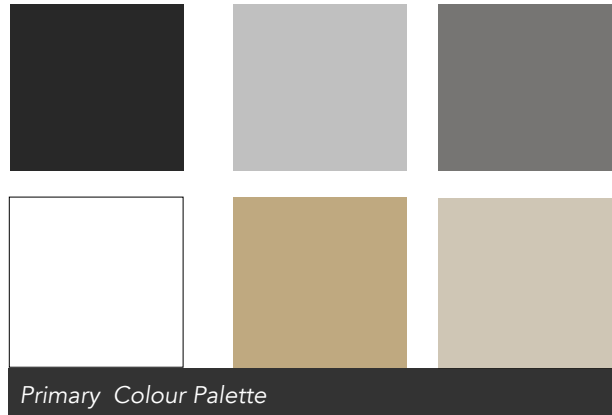
- a. Building elevations incorporating one natural building material, in addition to glazing, are strongly recommended.
- b. The use of innovative materials, and contemporary use of traditional materials is encouraged.
- c. Well crafted, durable materials that support sustainability and Innovation District themes are expected throughout.
- d. The nature of materials is derived from the rich historic and future innovative uses of the site.
- e. Exterior materials and detailing should reflect the innovative nature of the development and be contemporary in expression.
- f. Façade materials should be robust and durable and resist deterioration and fading.
- g. Chose materials that minimize the need for cleaning and recoating.
- h. Incorporate a range of materials, for example, ribbed or corrugated steel, cladding, panelised cladding (expressed joints), polycarbonate sheeting, glass, timber and louvre screening.
- i. Avoid rendered finishes and large expanses of flat pre-finished steel cladding.
- j. Sun-shading is an important component in the performance and comfort of buildings. Sun-shading should be integral to the design of the building.
- k. Weather protection and overhangs are expected at building entrances, and along pedestrian walkways.





PREFERRED COLOUR PALETTE

- a. The use of vivid accent colours is encouraged and can reference building uses and/or the forest environment theme.



7.3 PUBLIC REALM AND STREETScape GUIDELINES

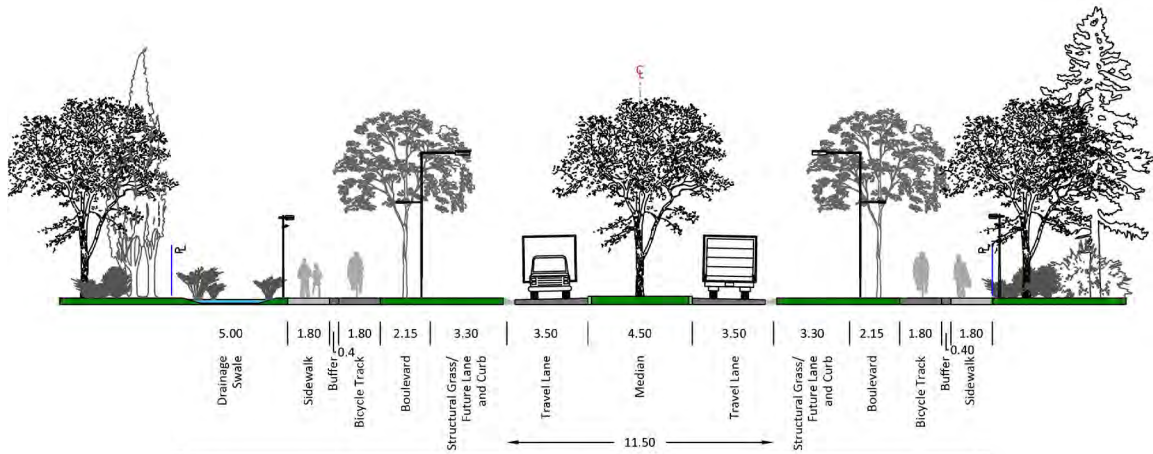
BERKLEY ROAD EXTENSION

The Berkley Road extension will provide direct access from Mount Seymour Parkway to Dollarton Highway for all users.

INTENT

To create a high quality street through the Maplewood North Innovation District that is comfortable for all users with ample sidewalk space, separated cycling connections, treed boulevards wherever possible and considers buffers to environmentally sensitive areas, where appropriate.

- a. Design the Berkley Road extension as a key north-south connector for all modes of travel.
- b. Encourage movement of goods on Berkley Road to shift heavy vehicle traffic away from Riverside Drive while still providing a pleasant experience along Berkley Road for pedestrians and cyclists.
- c. Ensure Berkley Road maintains a grade that does not exceed 8%, and slopes for 30 metre on all sides of intersections should not exceed 4%.
- d. Berkley Road should have no more than two intersections (including the existing Burr Place) between Dollarton Highway and Mount Seymour Parkway, with minimum intersection spacing of 200 metre. Up to three intersections may be considered.
- e. Steeper segments for walking and cycling along this corridor should be minimized and should allow for resting platforms approximately every 100 metre.
- f. Accommodate transit stops and transit-supportive features bus pull outs, shelters and benches as necessary.
- g. Provide boulevard separated cycle tracks for the full length of the corridor.
- h. Ensure the walking experience is enhanced by providing clear connections to properties, trails and other recreational amenities.
- i. Provide clear links from adjacent trails to walking and cycling facilities on Berkley Road to improve access to amenities such as Ron Andrews Recreation Centre and Canlan Ice Sports Arena.
- j. Provide a minimum 5 metre wide bioswale along Berkley Road adjacent to wildlife corridors and environmentally sensitive areas.
- k. Incorporate boulevards and treed landscaped medians to create a more pleasant environment for those walking, cycling, driving and using transit.
- l. Access points onto Berkley Road should be consistent with the planned intersections to preserve its mobility function for those walking, cycling, driving and using transit and to mitigate potential conflicts.

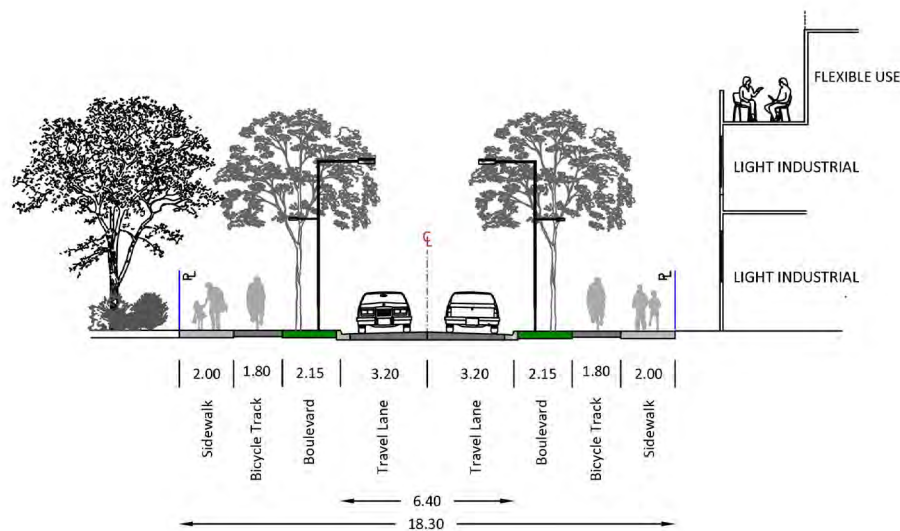


Berkley Road - Mount Seymour Pkwy to Dollarton Hwy (mid-block)

"ROAD A" – MAPLEWOOD NORTH INNOVATION DISTRICT

"Road A" should provide access and connectivity for those who choose to walk, cycle, or drive from their work or home to other key destinations.

- Connect existing urban trails with walking and cycling facilities located on the road network.
- Use clear signage and paint markings to denote where driveways intersect with walking and cycling facilities.
- Use landscaped boulevards to create a welcoming and pleasant walking, cycling and driving environment through the industrial and residential areas in Maplewood North.
- Ensure "Road A" intersects with Berkley Road east of the open space corridor. "Road A" should intersect with Dollarton Highway at the Pacific Environmental Science Centre.



Road 'A' - Northlands (mid-block)

RELATIONSHIP TO THE FOREST EDGE:

- a. Provide a visual and ecological extension of the forest into the private and public realms through appropriate retention of existing trees, replanting displaced trees and/or naturalized landscape design.
- b. Retain clusters of trees, where possible.
- c. Maintain adequate buffer zones and development setbacks to respect and protect the natural forest edge.



On-street parking spots can temporarily be taken over by pop up community activities

EXISTING WETLANDS AND RUNOFF MANAGEMENT

- a. Preserve, enhance, and incorporate existing wetland areas into the design of the Innovation District.
- b. Development within the areas designated as environmentally sensitive (ESA) is not permitted.
- c. Ensure adequate buffer zones and development setbacks respect and protect ESA's as per the streamside DPA guidelines.
- d. Employ best practices and, specifically, low-impact development techniques for street and landscape design to integrate runoff management, including quality and quantity considerations, and where appropriate, xeri-scaping for planted medians and boulevards.



Landscape lighting should be integrated on main pedestrian routes



Design of buildings and landscape is site responsive

MAPLEWOOD NORTH PLAZAS AND OPEN SPACES

A central plaza or series of plazas should be incorporated in the Innovation District.

- a. Provide a variety of quality open space types: active and passive catering to all ages and abilities.



Lush planted areas support livability



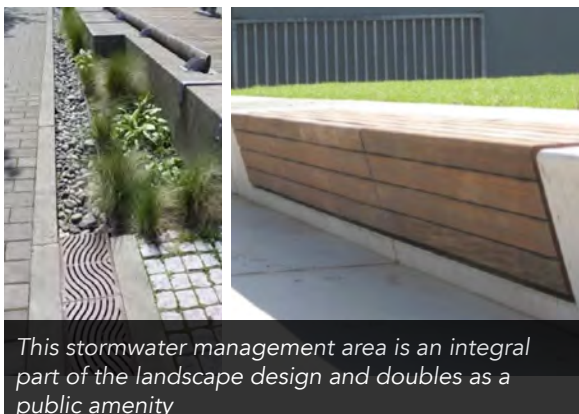
Lush planted areas frame this pedestrian walkway



This stormwater management area is an integral part of the landscape design and doubles as public amenity



Green streets and sustainable materials are integrated across the site



This stormwater management area is an integral part of the landscape design and doubles as a public amenity

- b. Ensure the location, distribution and organization of open space complements the built form arrangement.
- c. Encourage opportunities for social interaction and play and a variety of seating opportunities in the design of outdoor spaces.
- d. Provide barrier-free access to private and semi-private outdoor spaces.
- e. Provide covered outdoor areas to increase livability and opportunities for social interaction during rainy months, including ground floor patios and covered, at-grade bike parking, where possible.
- f. Offer connections to existing open space and recreational community infrastructure. Provide habitat protection fencing and native planting along edges of parks and environmentally sensitive areas.
- g. Ensure materials are durable and easily maintained so the design remains attractive and flexible as the planting matures with time.
- h. Maximize biodiversity throughout the area.

LARGER PLAZAS WITHIN THE INNOVATION DISTRICT

- a. Plazas should be flexible, multi-purpose spaces designed with informal gatherings, programming of local events and celebrations in mind: food trucks, markets, seasonal ice skating, musical performances (e.g. temporary stage), shows, etc.
- b. Plazas should be surrounded by active building edges and provide opportunities for outdoor eating in good weather.

- c. Designs and orientation should take advantage of solar aspects and provide ample seating opportunities in both shaded and sunny areas, and weather protection along building façades.
- d. Consider the incorporation of both hard and soft landscape surfaces, such as wood, lawn, paving (preferably single unit pavers of concrete or natural stone).
- e. Large expanses of in situ concrete should be avoided. Concrete banding is acceptable.
- f. Use shade trees and other vegetation to soften to provide shade, texture and seasonal changes.
- g. Consider the inclusion of water fountains and surface water jets as additional attraction.
- h. Ensure that the plaza is universally accessible.
- i. Incorporate newest technologies to manage runoff, e.g. pervious paving, rain gardens and swales.



Pop up kiosks and more permanent structures - here with solar panels and green roof - enliven the public sphere



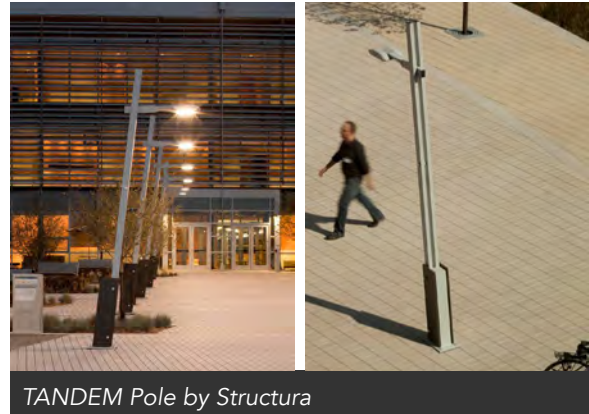
The upland residential areas express a relationship to the site through stepping of the architecture and use of wood in façade materials

SITE FURNISHINGS AND LIGHTING

Site furnishings and lighting in the Innovation District should support the innovative contemporary character of the area and express the “District in the forest” theme through use of materials such as wood.

Poles and Luminaires

- a. TANDEM Pole by Structura, model Ortho or Tilt depending on situation - Pole colour: Silver.
Side Panel colour: Titanium (to match site furnishings). See Appendix for more specifications.
- b. Luminaire: Lineal by Structura. Colour to match pole colour.



TANDEM Pole by Structura



Bancal bench with and without backrest

- a. Bancal Bench from Landscape Forms in a variety of configurations. Always with arm rests.
- b. Suggested colour: Titanium.

Bollard

- a. Annapolis from Landscape Forms.
- b. Suggested colour to match benches (Titanium).



Litter & Recycling Receptacle

- a. Plexus from Landscape Forms.
- b. Side Opening (20" x 40" x 30 Gal.)
- c. Suggested colour to match bench frame (titanium). Liner colour: Black.



Bike Rack

- a. Ring from Landscape Forms.
- b. Colour: match benches (Titanium).

8 DOLLARTON HIGHWAY SOUTH

8.1 INTENT

The area south of Dollarton Highway will continue to be focused on light industrial uses. The intent is to allow intensification of this area over time to create more employment opportunities. Multi-storey buildings with smaller units are encouraged as long as parking requirements can be met.



Dollarton Highway South area

8.2 BUILT FORM GUIDELINES

HEIGHTS AND MASSING

- Additional storeys should be visually differentiated while complementing the existing building.
- The use of materials should be consistent on all elevations.
- Steel, metal, glass, manufactured or natural stone, and concrete are preferred materials.
- Where materials on an office portion cannot be the same as on a plant portion, the materials should be compatible and designed in a unified manner.





PARKING

Intensification will require innovative approaches to parking to ensure sufficient supply is achieved on site while not using large surface areas of land.

- a. Explore parking under buildings.
- b. Explore rooftop parking.
- c. Consider the potential for shared parking including sharing of parking where time of day usage applies.
- d. Consider a parkade.

8.3 PUBLIC REALM AND STREETScape GUIDELINES

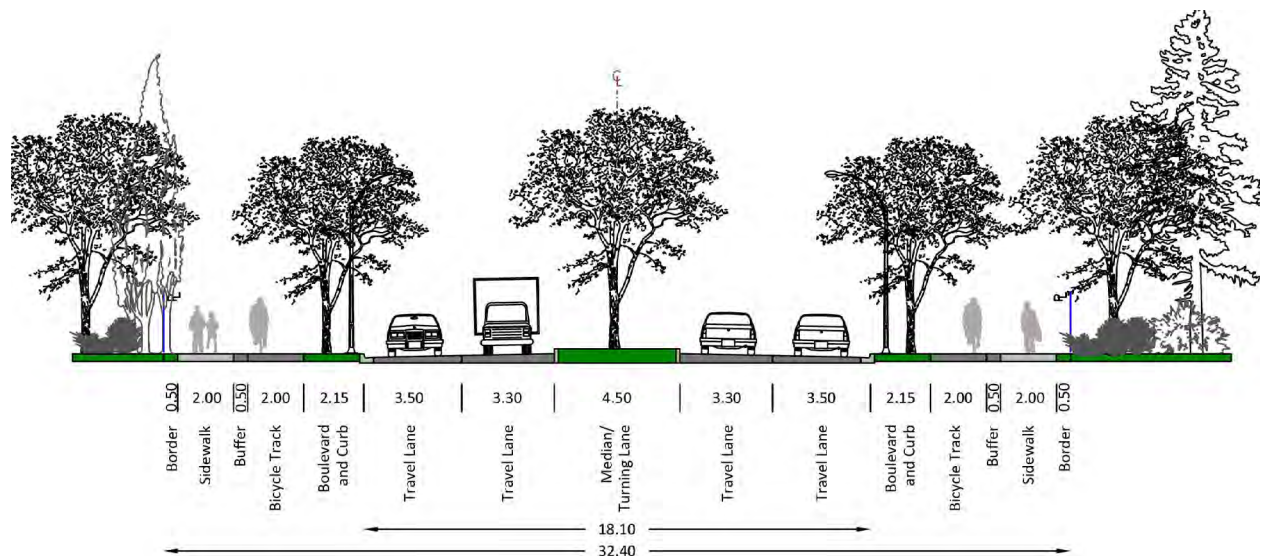
DOLLARTON HIGHWAY

Dollarton Highway from the Seymour River to Forester Street acts as a gateway into Maplewood. Recognize this character by including a wide, treed and landscaped median and boulevard with walking and cycling facilities on either side to maintain this unique gateway characteristic.

Intent

Continue the streetscape established for Dollarton Highway and improve walking and cycling connections from Forester Street to Ellis Street.

- Improve walking and cycling connections from the existing urban trail to separated facilities along Dollarton Highway from Forester Street to Ellis Street.
- Allocate adequate separations between walking and cycling facilities.
- Ensure the connections are appropriately signed for users transitioning from the existing urban trail to separated facilities in a manner that is safe and easy to understand.
- Provide a safe and convenient transition from the separated cycling facilities on Old Dollarton Road to Dollarton Highway.
- Collect data and monitor urban trail usage along Dollarton Highway for additional separation between people walking and cycling.



Dollarton Highway- Forester Street to Ellis Street (mid-block)

APPENDIX

LIGHTING STANDARDS AND SPECIFICATIONS

Maplewood Village Centre Street Lighting Specifications*	Specifications
Pole and luminaire colour	Protec 1672-4 Maple Brown
Pole type	Straight round heavy duty 5 9/16"; steel, galvanized and powder coated
Pole base cover	Type A: Nova Maplewood NSR059/16-30' Type B: Nova Maplewood NSR059/16-25'
Pole height	Type A: 30' Type B: 25'
Concrete base	Round sonotube / type B >343mm diameter
Luminaire and mounting arm – upper	Lumca CPGL0418 with CFMD12815
Luminaire and mounting arm – lower	Type A: Lumca CPL0418 with CF50 Type B: n/a
Banner arms	Lumca BEN-S x 2
Lamp type and colour temperature	LED 4000K

Innovation District Street Lighting Specifications	Specifications
Pole and luminaire colour	Silver (to match site furnishings)
Pole type	Tandem by Structura model Ortho or Tilt depending on situation
Pole base panel and colour	Painted aluminum, colour: Titanium
Pole height	To be determined based on street lighting design
Luminaire and mounting arm	Lineal by Structura
Lamp type and colour temperature	LED 4000K

Dollarton Highway South Lighting Specifications**	All lighting standards for the Dollarton Highway South precinct should meet District Lighting Standards
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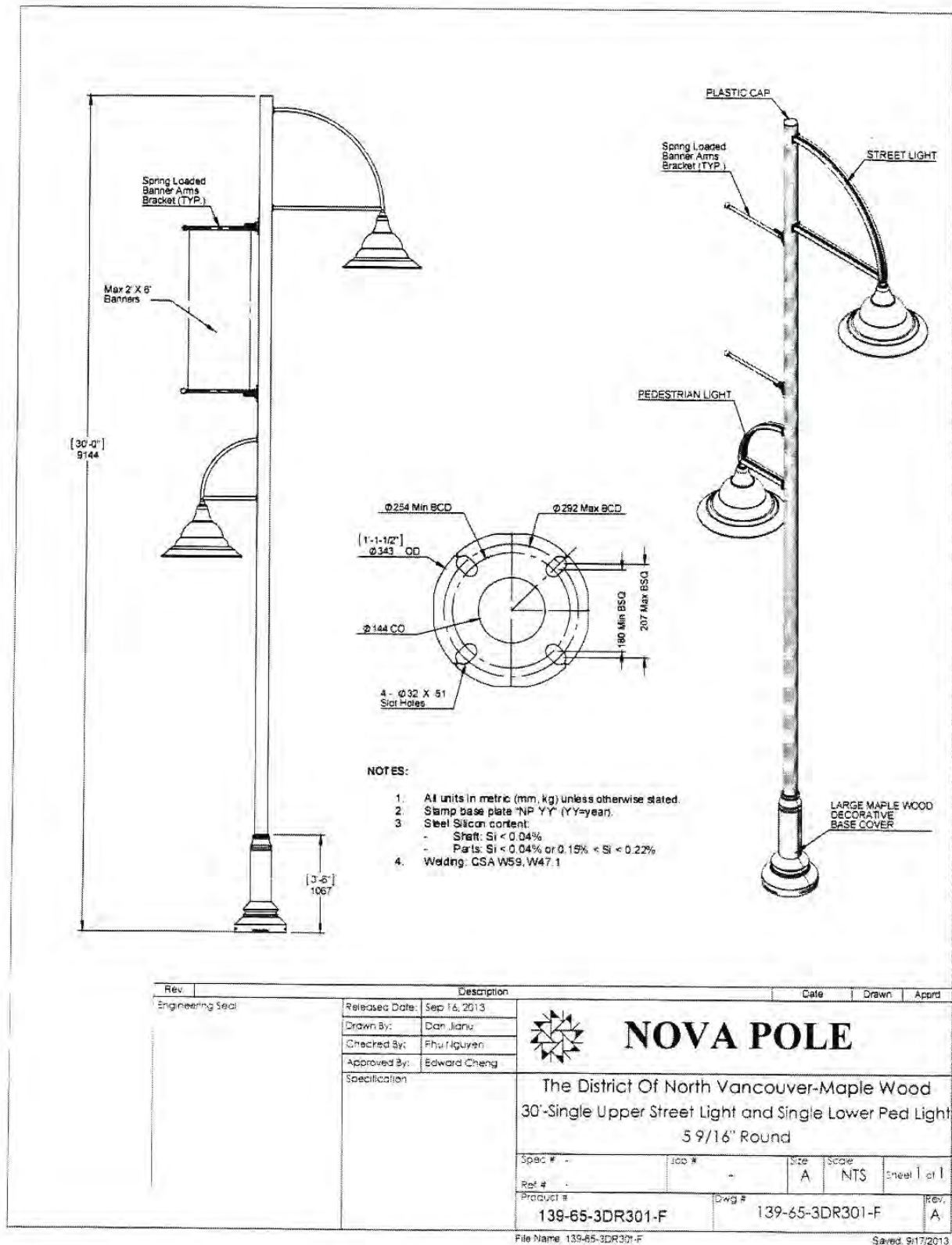
*NOTE: Type A and Type B reference standards for specific streets.

Type A: Old Dollarton Road, Riverside Drive, Shared Street, Berkley Road

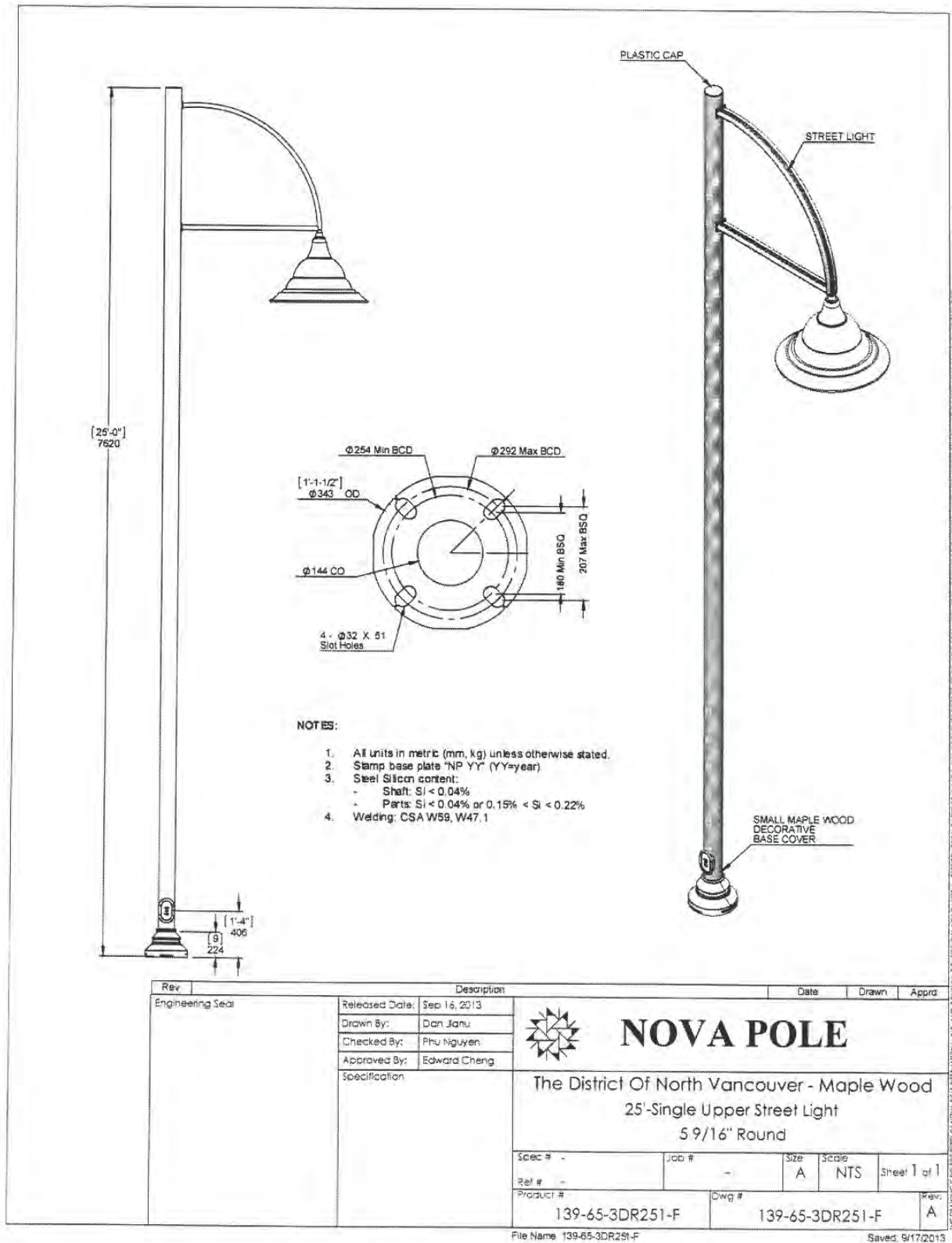
Type B: Seymour River Place, Front Street, Windridge Drive, Heritage Park Lane, Forester Street, Bridge Street

**NOTE: Lighting for Dollarton Highway South also applies to Mount Seymour Parkway, Dollarton Highway, and Windridge Drive east of the Maplewood Village Centre Boundary

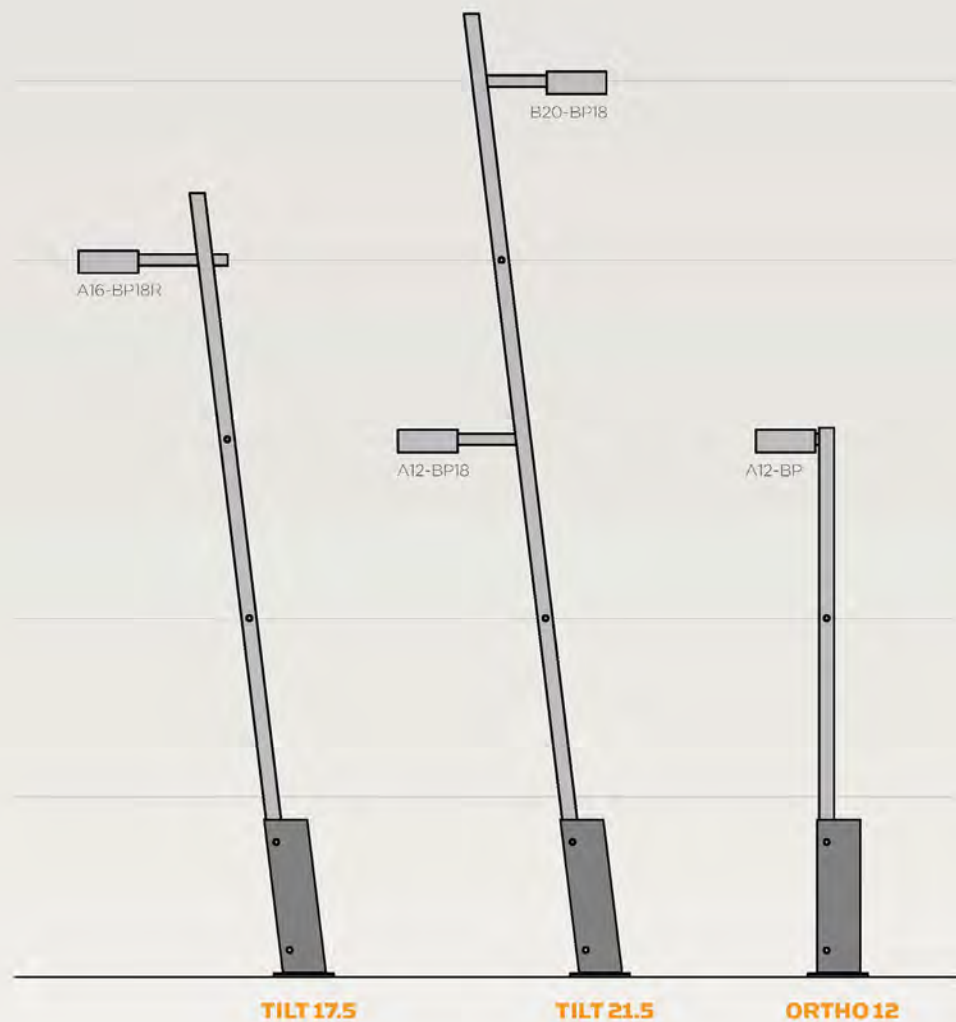
MAPLEWOOD VILLAGE CENTRE STANDARD: TYPE A



MAPLEWOOD VILLAGE CENTRE STANDARD: TYPE B



MAPLEWOOD INNOVATION DISTRICT: POLE SPECIFICATIONS

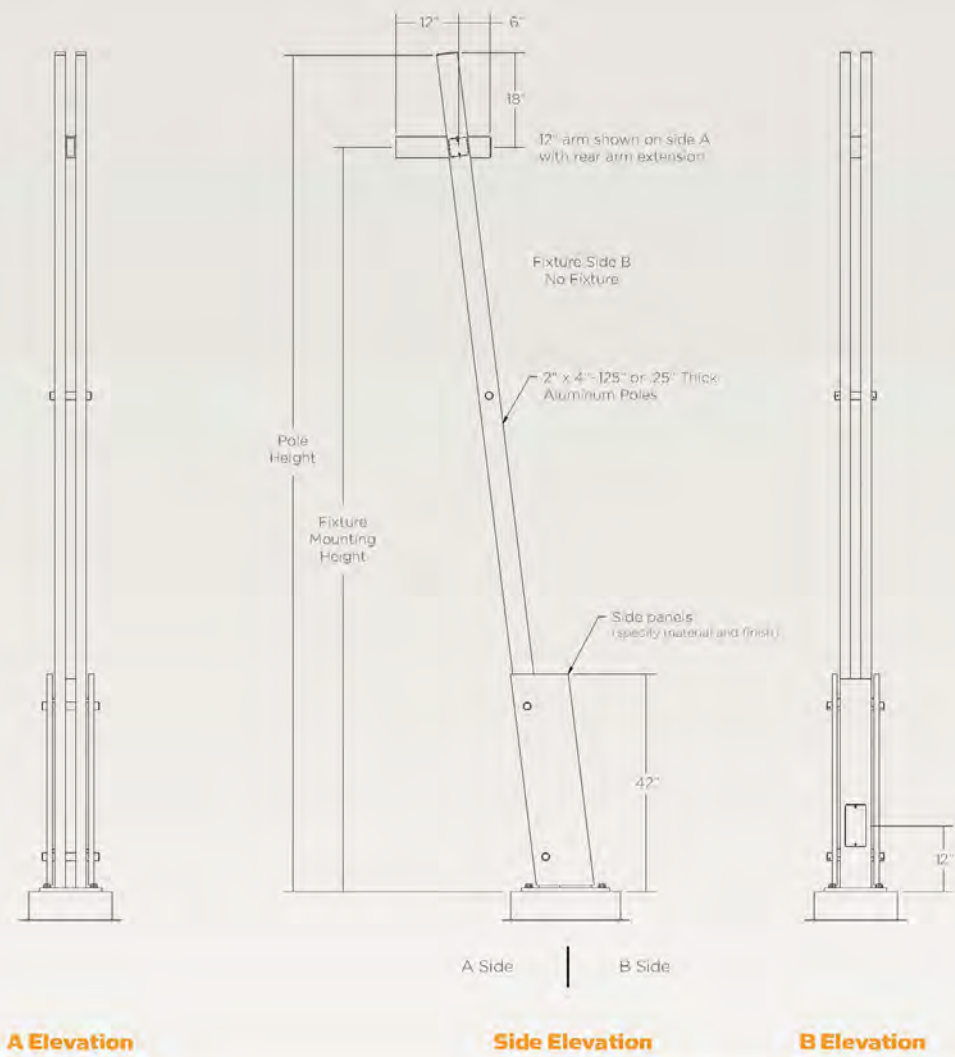


Configure Tandem to uniquely respond to your project's needs. Mount street side luminaires high allowing for greater distance between poles and better light distribution. Mount low-wattage pedestrian scale luminaires at lower heights to bring a more human scale to public spaces.

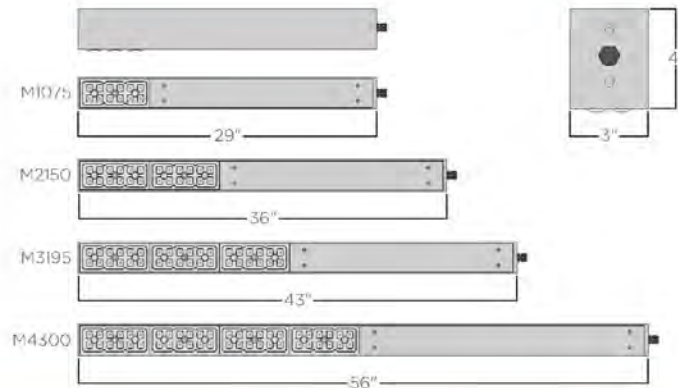
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ELEVATION DRAWINGS



MAPLEWOOD INNOVATION DISTRICT: LUMINAIRE SPECIFICATIONS



	3000K				4000K					
mA	Lumen	Wattage	CRI	Efficacy	Lumen	Wattage	CRI	Efficacy	EPA	Weight
750	3896	37.4	>80	104.1	4220	37.4	>80	112.8	0.81ft²	12.3lbs.
1500	7792	74.8	>80	104.1	8439	74.8	>80	112.8	1.00ft²	14.2lbs.
1950	10150	97.5	>80	104.1	10971	97.5	>80	112.8	1.19ft²	16.2lbs.
3000	15584	149.7	>80	104.1	16877	149.7	>80	112.8	1.55ft²	20.7lbs.

ORDERING GUIDE: EXAMPLE: LIN-M2150-UNV-L30-3-C4-5P-WC-M5/L3-STD

LIN								
1	2	3	4	5	6	7	8	9

1	Series	4	Color Temperature ⁽³⁾	7	Mounting
LIN	Linear	L30 L40	3000K 4000K	SP ST NA	Structura Pole ⁽⁵⁾ Square Steel Pole by Structura ⁽⁶⁾ Pole by Others
2	Output ⁽¹⁾	5	Distribution ⁽⁴⁾	8	Options
M1075 M2150 M3195 M4300	750mA 1500mA 1950mA 3000mA	2 3	Type II Type III	WC MS/L* SS	Wireless Control ⁽⁷⁾ Motion Sensor/PhotoCell ⁽⁸⁾ 20kA Surge Suppressor ⁽⁹⁾
3	Voltage	6	Metal Finish	9	Special
UNV 347 480	120-277V 347V ⁽⁷⁾ 480V ⁽²⁾	C* CSM	See color options on finishes technical sheet Custom Color	STD MOD	Standard Modified

1. Contact factory for alternative output options.
2. Step down transformer required and only available with Structura supplied pole.
3. Contact factory for other color temperature options.
4. Contact factory for other distribution options.
5. Structura pole specification sheet must be completed showing mounting locations and quantities as a separate item.
6. Specify steel pole on page 158 as separate item.
7. Synapse Wireless site gateway controller must be ordered separately. Please contact factory for design assistance.
8. Specify coverage pattern (see page 157 for detail).
9. 20kA surge suppressor is only available when pole is supplied by Structura. 10kA surge suppressor supplied as standard in the fixture.

Product specification sheets subject to change.

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MAPLEWOOD INNOVATION DISTRICT: LUMINAIRE SPECIFICATIONS

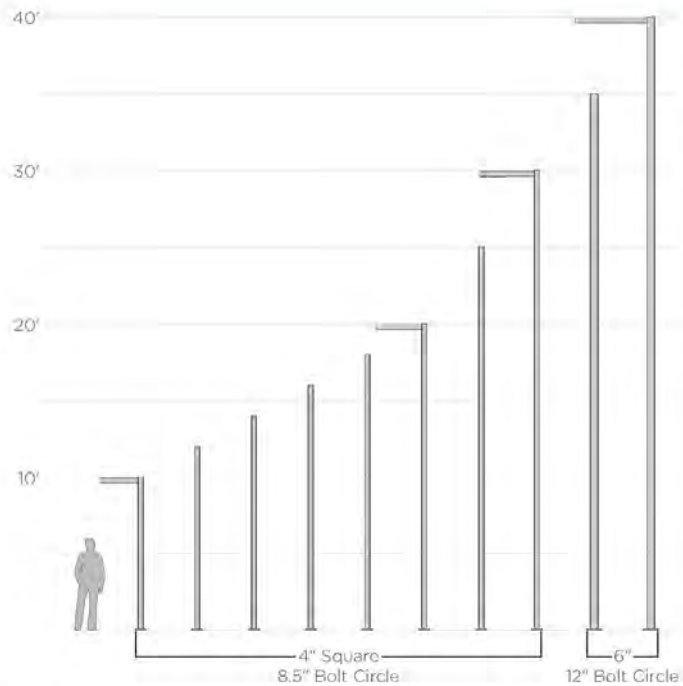
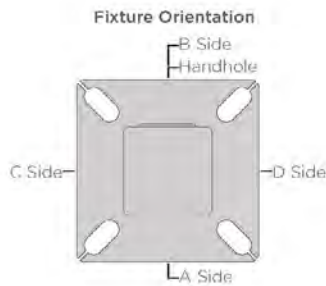
ST Straight Square Steel Pole

FIXTURE TYPE: _____

PROJECT NAME: _____

FEATURES:

- Heights available from 10' to 40'
- Galvanized then polyester powder coat painted (AAMA 2604 standard)
- Supplied with a two piece casted aluminum base cover
- Multiple mounting options



ORDERING GUIDE: EXAMPLE: ST-20-BLK-A20-B12-STD


ST								
1	2	3	4	5	6	7	8	9

1	Series	4	A Side Fixture Mounting Height	7	D Side Fixture Mounting Height
ST	Square Steel Pole	Blank	No fixture on this side	Blank	No fixture on this side
2	Pole Height	A10	10" A Side	D**	Specify
10	10'	A12	12" A Side	8	Options
40	40'	A**	Specify	BNR	Banner ¹⁾
**	Specify	5	B Side Fixture Mounting Height	DUP	Duplex Receptacle
3	Pole Finish	Blank	No fixture on this side	9	Special
****	See color options on finishes technical sheet	B**	Specify	STD	Standard
CSM	Custom Color	6	C Side Fixture Mounting Height	MOD	Modified
		Blank	No fixture on this side		
		C**	Specify		

1. Consult factory for allowable EPA for banners.

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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.



Figure 81

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.



Figure 82

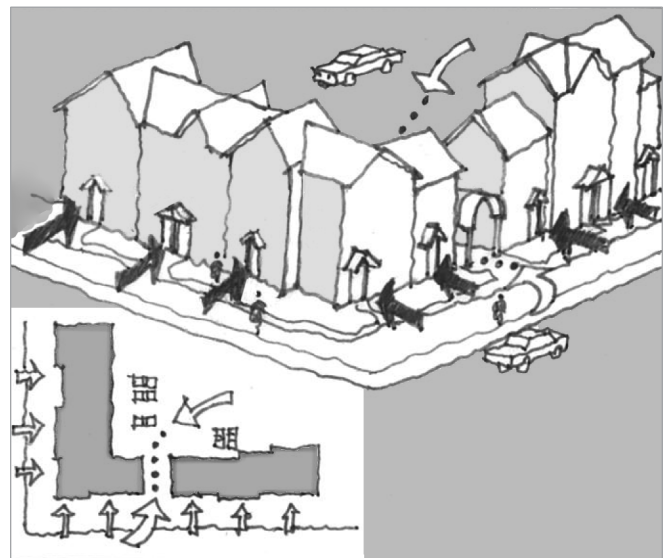


Figure 83

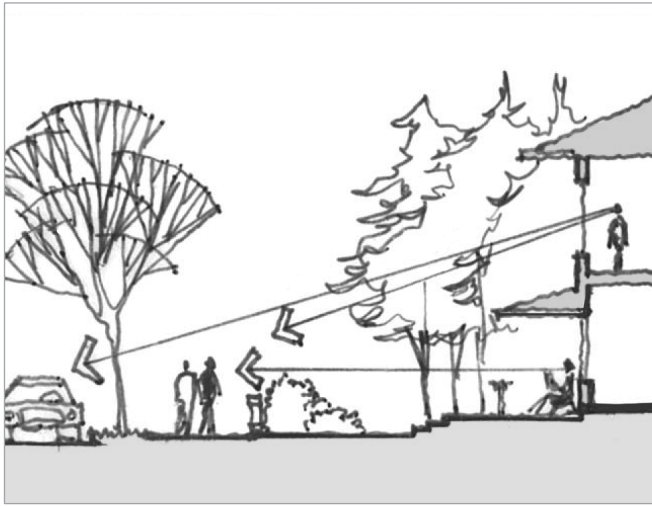


Figure 84

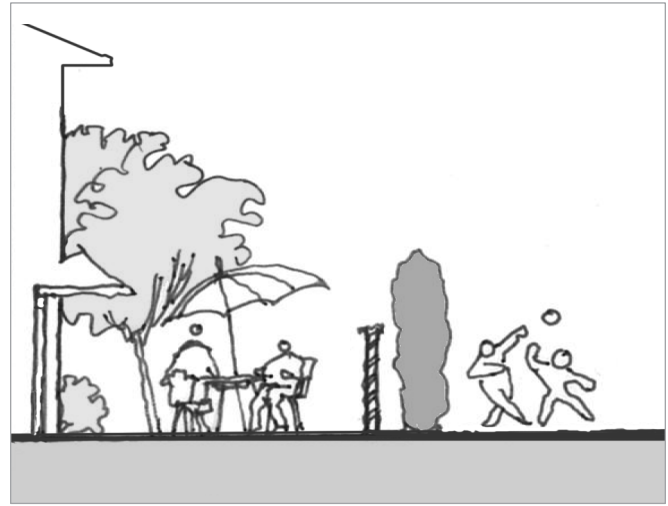


Figure 85

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)

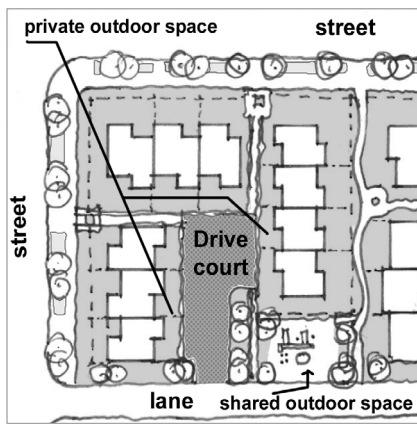


Figure 86

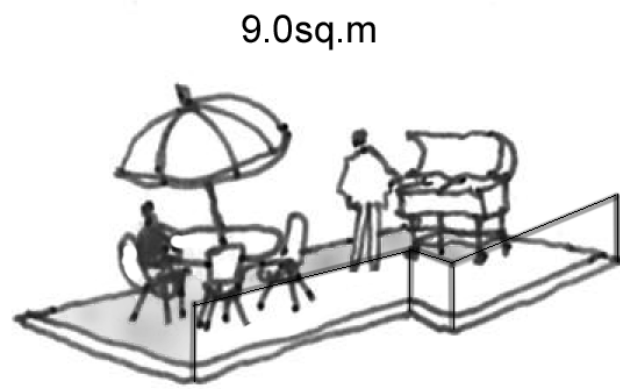


Figure 87

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.

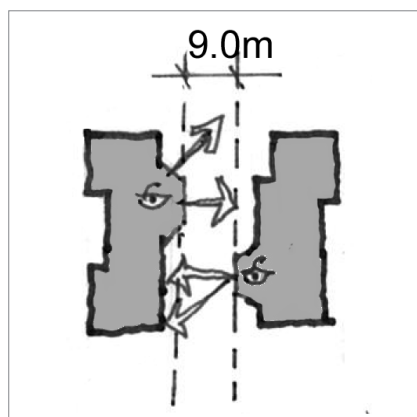


Figure 88

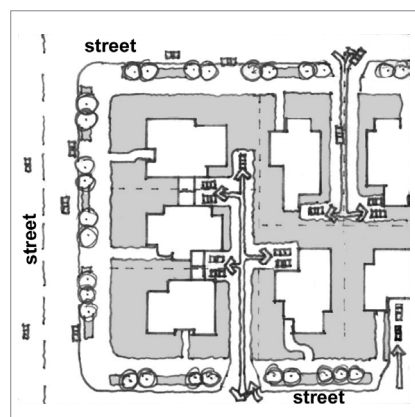


Figure 89

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.



Figure 90

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.

PORTION OF DWELLING UNIT	NOISE LEVEL (DECIBELS)
bedrooms	35
living, dining, recreation rooms	40
kitchen, bathrooms, hallways	45

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



August 1st, 2017
4410.40

Brennan Finley
Development Coordinator
Anthem Properties
300-550 Burrard Street
Vancouver, BC
V6C 2B5

VIA E-MAIL: bfmley@anthemproperties.com

Dear Brennan:

**Re: Maplewood West Transportation Review, North Vancouver, BC
Final Letter Report**

Bunt & Associates (Bunt) has completed a Transportation Review Update for the proposed 43-unit residential townhouse development at 2049 – 2059 Heritage Park Lane (Maplewood West) in North Vancouver, BC. This report is an update to the April 2016 Bunt study given changes to the site plan since then.

The report focuses on the changes to traffic volumes on the local street network with the development in place, as well as understanding local operations at the nearby school, and Maplewood Farm and potential impacts at the intersection of Seymour River Place and Old Dollarton Road with other future developments planned in the area.

We trust that this information will assist you in moving forward with your rezoning application. Please do not hesitate to contact us should you have any questions about this report.

Yours truly,
Bunt & Associates

Tyler Thomson, MURP, MCIP, RPP, PTP
Transportation Planner

Nicole He, MURP, EIT
Transportation Analyst

1. INTRODUCTION

1.1 Our Understanding

Anthem Properties is proposing a new townhouse development in the Maplewood Village area in the District of North Vancouver, BC. The site location is highlighted in the context of the surrounding road network in **Exhibit 1.1**.

Maplewood West is located on the south side of Heritage Park Lane, immediately west of Anthem's recently completed Maplewood Place development. The development will consist of 14 2-bedroom units and 29 3-bedroom units for a total of 43 townhouse units. The underground parking access for the site will be located off of Heritage Park Lane.

The development site is located near the Kenneth Gordon Maplewood School (KGMS) and Maplewood Farm, both of which are addressed in this report as they are known as reasonable vehicle demand generators in the local area. The key transportation considerations for this project are to understand the potential impact of new vehicle movements generated by the site on Seymour River Place with regards to the school, and Maplewood Farm, as well as overall implications at Seymour River Place and Old Dollarton Road with future development in the area.

A review of the intersection between Seymour River Place and Heritage Park Lane was conducted with the Maplewood Place study. The intersection was originally a 3-legged T-intersection, and has been re-designed to a small mountable traffic circle in part to allow U-turn movements mainly associated with KGMS as recommended in this study. During the most recent survey of the intersection by Bunt the new traffic circle appeared to be performing well.

1.2 Report Layout

Based on our proposed scope of work for this project the report will proceed with the following sections:

- Section 2 – Existing Traffic Conditions;
- Section 3 – Development Plan;
- Section 4 – Future Operational Conditions;
- Section 5 – Transportation Demand Management Plan; and,
- Section 6 – Conclusions



S:\PROJECTS\TT\4410-24 Maplewood West TIA\5.0 Deliverables\Graphics

Exhibit 1.1 Site Context

2. EXISTING CONDITIONS

In order to understand the operation of the new traffic circle near the site, traffic counts were carried out on December 3rd, 2015 from (7am – 9am) and (3pm – 6pm) to capture the peak hours. Bunt has also previously conducted additional traffic counts in the area related to other nearby projects, with new data for the intersection of Seymour River Place and Old Dollarton Highway which was collected in the fall (September) of 2015 for this project.

The following describes the existing study area and street network conditions and summarizes the existing vehicle movements on Seymour River Place and operations at KGMS.

2.1 Study Area

The proposed development site is currently occupied by five single-family homes, and is bordered by Anthem's Maplewood Place development to the east, Maplewood Park and Maplewood Farm to the west and south and Heritage Park Lane to the north. Heritage Park Lane is a small two-lane local street which ends at Maplewood Park west of the site. Seymour River Place is a two-lane local street running north-south with parking generally on both sides except where restricted for pick-up and drop-off activity at KGMS. Seymour River Place and the proposed site are in turn only accessed from the south via Old Dollarton Road.

Old Dollarton Road is a short two-lane collector street running east-west and provides connections to Dollarton Highway and Highway 1 to the west, and Riverside Drive and Mount Seymour Parkway to the east.

There are some sections with on-street parking near Seymour River Place and on residential sections, and bus service for routes #211, #214, and #C15 operates along Old Dollarton Road.

The intersection of Seymour River Place and Old Dollarton Road is stop-controlled on the minor north/south approaches and free-flowing on Old Dollarton with marked pedestrian crosswalks on all approaches at the intersection.

In general, the study area around the site is mostly residential with some commercial-retail services on Old Dollarton Road (and new ones to open at Northwood Village between Front Street and Dollarton Highway), as well as some institutional uses nearby such as KGMS, in addition to recreational uses like Maplewood Farm.

2.2 Walking and Cycling

Sidewalks are provided along some of streets in the area but are inconsistent, with notable deficiencies along the west side of Seymour River Place south of Maplewood Place, and along the south side of Heritage Park Lane fronting the site. A new sidewalk is expected to be built along site frontage on Heritage Park Lane with the redevelopment of the proposed site.

Cycling facilities are currently limited in the immediate area with painted bike lanes on Mount Seymour Parkway, and an off-street path on Dollarton Highway, however with the low volumes along most roads and relatively gentle grades cycling is a potential transportation option for future residents to key local destinations (i.e. Capilano University, Northwoods Village etc.). Mount Seymour Parkway is labeled as a high priority area for cycling improvements near the site, and many other streets in the area are labeled as high priority including Riverside Drive, Old Dollarton Highway and Seymour River place south of KGMS. These new future cycling upgrades will greatly improve cycling connections to the development site.

2.3 Transit

There is reasonably frequent transit services within a short walking distance from the proposed development with the 211, 214 and C15 routes all having stops near the site on Mount Seymour Parkway (~250m from the site). These routes provide connections to Deep Cove, Blueridge, Seymour, Phibbs Exchange and Downtown Vancouver and make commuting by transit a reasonable travel option for the future residents.

Planned improvements to TransLink's Frequent Transit Network service are expected to extend to Maplewood Village and beyond helping provide a more reliable transit service in the area.

2.4 Existing Traffic Conditions

The following section highlights existing traffic conditions at the intersections of Seymour River Place / Heritage Park Lane, Seymour River Place / Old Dollarton Road and the street Seymour River Place, as well as activity associated with KGMS.

2.4.1 Observed Vehicle Movements

Vehicle movement surveys indicate the AM and PM peak hours to be 8:00am – 9:00am, and 3:00pm – 4:00pm, respectively. These peaks are influenced by pick-up/drop-off activity associated with KGMS, which is evident given turning movement patterns entering and exiting Seymour River Place, and corresponding hours of operation for the school (8:30am – 3:00pm). Existing peak hour vehicle movements are highlighted in **Exhibit 2.1**.

Overall, peak hour two-way flows on Seymour River Place are around 180 vehicles in the morning and 155 vehicles in the afternoon near KGMS, while they are around 300 vehicles in the morning and 280 vehicles in the afternoon near Old Dollarton Road. This difference is likely due to vehicles from the townhouse and multi-family developments at the south end of Seymour River Place.

The roundabout at the north end of Seymour River Place experiences very low volumes, with approximately 15 U-turn movements in both the AM and PM peak hours which are likely due to pick-up/drop-off activities at KGMS. It should also be noted that there was an observed vehicle movement differential between the roundabout on Heritage Park Lane and the KGMS driveway. This

is likely due to pick-up drop-off activities associated with KGMS, Maplewood farm trips and residents along Seymour River Place north of the KGMS driveway.

Vehicle volumes along Seymour River Place are typical for a local residential street even with the school use, and equate to approximately 3 vehicles per minute towards the north of Seymour River Place and approximately 5 vehicles per minute towards the south of Seymour River Place during the peak hours. These volumes will be used as a base for comparison with future site generated traffic in order to understand the impact of the development on Seymour River Place (see Section 3).

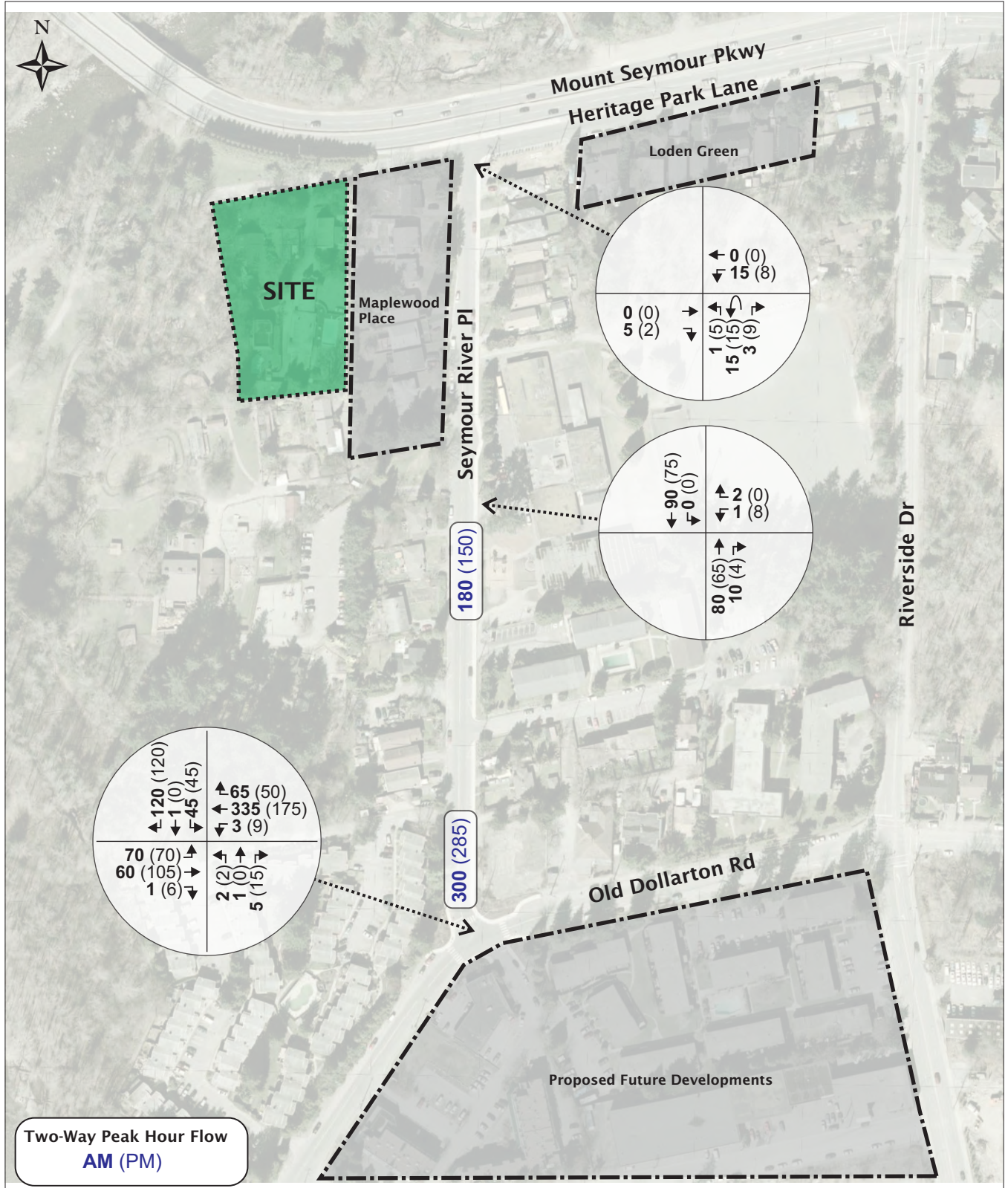


Exhibit 2.1
Existing Peak Hour Vehicle Volumes

2.4.2 Kenneth Gordon Maplewood School Activity

A key aspect of the original Transportation Review was to assess the traffic operations on Seymour River Place with respect to the Kenneth Gordon Maplewood School's pick-up / drop-off activity. The school operates from 8:30am to 3:00pm, coinciding with the morning and afternoon peak periods of the street network.

Pick-up / drop-off activity for the school was monitored on January 23rd, 2013 during the peak hour periods and is summarized at **Exhibit 2.2**. The main pick-up / drop-off zone at the time of the survey was located on-street in front of the school and was marked by signage restricting parking. **Figure 1** shows the vehicle turnaround area that was in use during the initial survey and which since has been removed and returned to a conventional layout with parking on both sides.

Figure 1: Former Vehicle Turnaround at KGMS (looking north)



The maximum number of vehicles concurrently dropping-off at the school in the morning was 10, at around 8:20 to 8:25am, while 35 vehicles concurrently picked-up at the school, at around 3:15 to 3:20pm, in the afternoon. A higher number of vehicles in the afternoon period is typical for schools as parents often wait to collect their children, lowering the turnover. Indeed it was observed in the afternoon period, that some vehicles waited on the Maplewood Farms driveway to pick-up (as there was no space on-street). This activity is, however, was noted to be short-term in nature and did not appear to have a material influence generally on the operations along Seymour River Place.

Since the original Transportation Assessment there are some notable changes at KGMS and along Seymour River Place. A new traffic circle has been installed at the intersection of Seymour River

Place and Heritage Mountain Boulevard with a goal of providing parents with a safe space to turn around, and a north access to the school has been created to enable a pick-up / drop-off loop within the school parking area. Anecdotal evidence from the Headmaster of KGMS has confirmed that the new roundabout and north access has improved pick-up drop-off operations for the school. According to the recently collected vehicle volumes (December 2015) for the intersection shown in Exhibit 2.1, approximately 15 movements are U-turns during the AM and PM peak hours.

The on-street turn around section has been removed and replaced with on-street parking since the survey and this was done in conjunction with the Maplewood Place development. The Headmaster of KGMS has reported that these traffic calming and management measures are having a positive affect at the school with its operations. Despite increases in the total number of students, reports of more students and teachers walking and taking public transit to the school appears to have reduced total pick-up / drop-off traffic for the school.

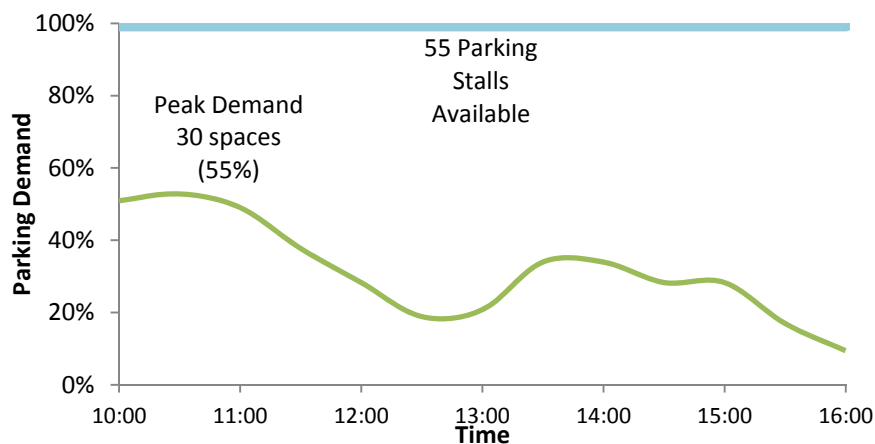
In summary, travel behaviour changes and traffic management measures have improved the pick-up drop-off operations for KGMS since the first observation in January 2013.

2.4.3 Maplewood Farm Parking Survey

As requested by DNV staff, Bunt reviewed existing conditions related to Maplewood Farm located south of the site off of Seymour River Place across from KGMS. Maplewood Farm is a local attraction that draws moderate amounts traffic throughout the day.

A parking demand survey was conducted on Thursday December 3rd, 2015 from 10:00 am to 4:00 pm which captured the opening hours at the farm. There are a total of 53 parking spaces on site which includes 51 regular visitor spaces, 2 handicapped spaces and 2 staff spaces. Both staff parking spaces were full for the entire duration of the survey. **Figure 2** below shows the parking demand profile for the farm which does not include the staff parking.

Figure 2: Maplewood Farm Parking Demand Profile



As shown in the above graph, the parking demand on site peaked at 10:30 am in the morning with a demand of 30 spaces which represents an occupancy of 55%. The demand for the remainder of the day was well below 50%, although the parking demand may be quite different during the peak summer periods. In Bunt's previous study it was noted that parents picking up their children from KGMS would often park on the Maplewood Farm Driveway if Seymour River Place was too crowded, however during these parking surveys there were no cars parked on the Maplewood Farm driveway which further indicates the improved conditions on Seymour River Place.

It should also be noted that the parking for Maplewood Farm is also shared with Maplewood House I Hope Family Centre (a family services of the North Shore facility), but there is not a clear demarcation between these two facilities with the parking on site.

Based on the parking demand survey and the general observations of the site surveyor, there are no concerns with the parking supply and operations at Maplewood Farm at this time.

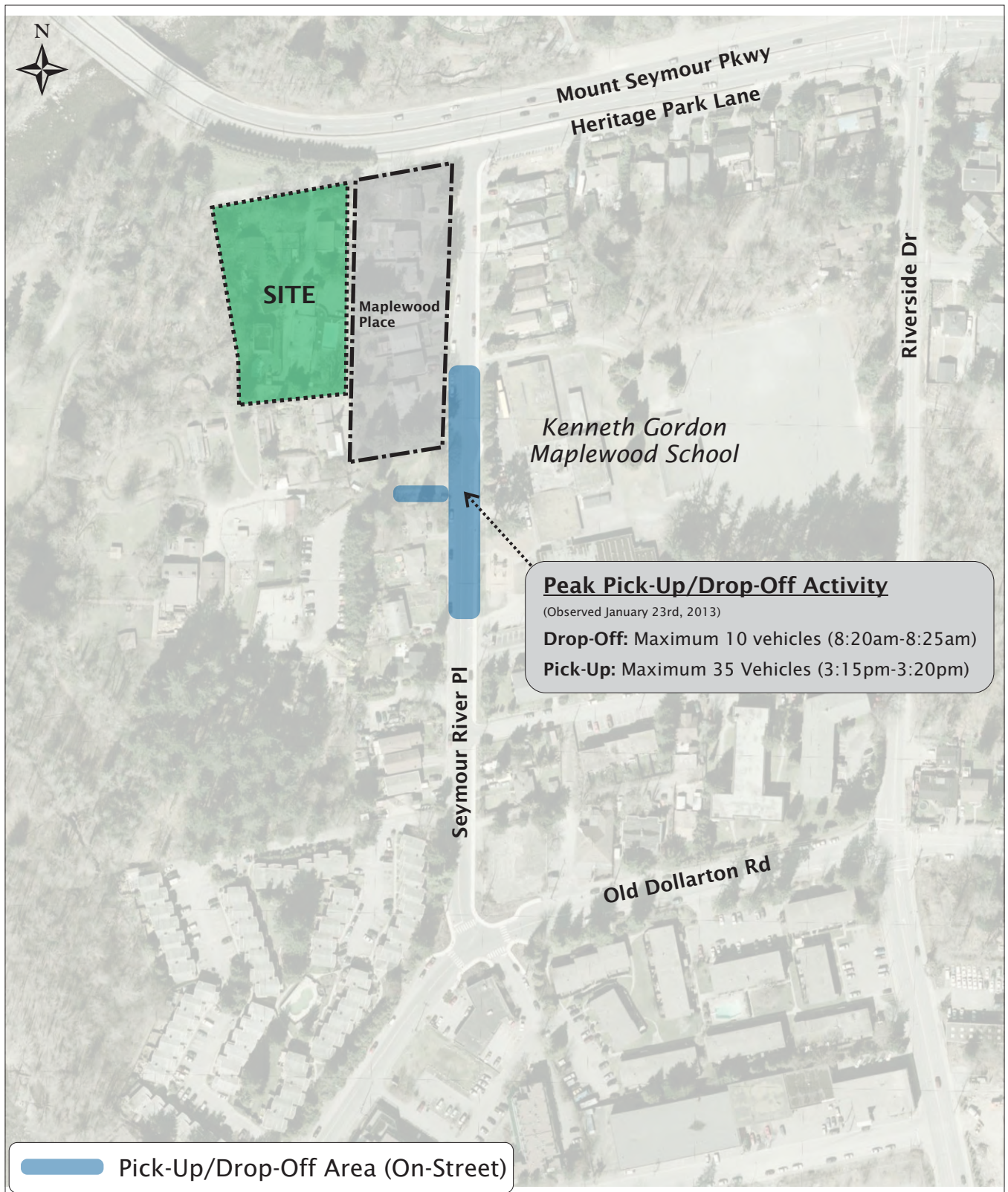


Exhibit 2.2 Kenneth Gordon Maplewood School Pick-Up/Drop-Off Activity

Maplewood West Transportation Assessment
4410.40 June 2017 Scale NTS

3. DEVELOPMENT PLAN

3.1 Development Content

The proposed Maplewood West development will consist of 43 townhouses (previously 42 units in the April 2016 Bunt report), with a combination of 2 and 3 bedroom units. The overall FSR for the project is 1.19 when including the creek that runs through the site. **Table 3.1** shows the unit mix and breakdown for the development. The site plan for the development is shown in **Exhibit 3.1**.

Table 3.1: Maplewood West Development Content

UNIT TYPE	% BREAKDOWN	# OF UNITS	UNIT AREA (SQ FT)	TOTAL FLOOR AREA (SQ FT)
Unit B (2-bedroom)	33%	14	936 - 940	12,929
Unit C (3-bedroom)	67%	29	1,432 - 1,474	40,560
TOTAL	100%	43	-	53,489

The development plan consists of three separate townhome buildings separated by a north-south pedestrian corridor through the site providing access to the townhomes, and connecting to a pedestrian bridge on the north end and another short east-west lane allowing access from the east side. Access to the underground parkade is provided from a ramp on the northwest corner of the site on Heritage Park Lane.

The development site plan is highlighted at **Exhibit 3.1** which outlines vehicle access to the site. The exhibit also shows the new pedestrian amenities that will be included with the site including the pedestrian bridge and walkway.

3.2 Parking Review

The District of North Vancouver's off-street parking and loading requirements, and bicycle parking requirements are described in the context of the development below.

3.2.1 District of North Vancouver Off-Street Parking Requirements

Table 3.2 summarizes the District of North Vancouver's off-street parking rates as per the Zoning Bylaw, as well as the required number of parking stalls for Maplewood West based on those rates.

Table 3.2: Maplewood West Bylaw Parking Requirement

USE	# OF UNITS	BYLAW PARKING RATE	REQUIRED PARKING	PROPOSED PARKING
Resident	43	1 space per unit plus 1 space per 100m 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)	74	62
Visitor		0.25 spaces per unit included in resident parking requirement (above)	11	7
Handicap		1 space for every 100 spaces or part thereof, where 22 or more spaces are required for all other occupancies	1	1
TOTAL	43	-	86	70

The District's parking bylaw requires a total of 86 stalls inclusive of visitor and handicapped parking base on the maximum rate of 2 spaces per dwelling unit. The development is proposing to provide 70 parking stalls of which 7 will be dedicated to visitor parking and 63 resident stalls (including one handicapped stall). This will result in a reduced parking supply of 11 parking spaces for residents, and 5 spaces for visitors compared with the bylaw. However based on parking supply and demand information collected in the local area (ICBC) and from other past Bunt projects with similar uses the proposed supply is expected to be more than sufficient to meet the on-site parking demands (section 3.2.2).

Beyond this, the District also requires that 20% of the parking spaces for multi-family residential developments must have Electric Vehicle (EV) charging infrastructure, and wired for level 1 (110v) charging, and that conduit be in place so that all of the parking spaces can later be wired for level 1 charging. Therefore, there will be 17 parking spaces that are EV-ready (level 1) for the development.

3.2.2 Residential Parking Demand Review

Local Parking Demand Data – Market Condominium

Bunt has previously collected vehicle registration data from ICBC for various multi-family residential developments in the District, including buildings near the development site in the Maplewood and Seymour/Parkgate areas, as well as a development in Edgemont Village for comparison. **Table 3.3** summarizes the parking demand rates derived from the ICBC data for the subject sites which includes a factor of 10% to represent vehicles which may be registered off-site.

Table 3.3: ICBC Vehicle Registration Data

BUILDING/ADDRESS	# OF UNITS	REGISTERED VEHICLES	OFF-SITE VEHICLE REGISTRATION (10%)	TOTAL PARKING DEMAND RATE
Maplewood Living – 2138 Old Dollarton Rd	16	21	2	1.44
Parkway Terrace I + II 1,000/1,050 Bowron Crt	88	91	9	1.14
Roche Point Tower – 995 Roche Point Dr	72	66	7	1.01
Nature's Cove – 3732 Mt Seymour Pkwy	23	27	3	1.29
Parkgate Manor – 3670/3680/3690 Banff Crt	136	153	15	1.24
The Brook – 650 Evergreen Pl (Delbrook Area for Comparison)	24	29	3	1.33
WEIGHTED AVERAGE				1.20

As shown, the average parking demand rate observed for the surveyed buildings was 1.20 vehicles per unit, which is inclusive of the 10% factor to represent vehicles which may be registered off-site at another location and which would not be captured by ICBC data for these addresses.

Therefore, based on this rate it is anticipated that the proposed development will generate a parking demand of approximately 50 parking spaces excluding visitor parking. This is much less than the Bylaw requirement for resident parking of 74 spaces (i.e. excluding 11 visitor spaces), and can be accommodated by the proposed supply of 63 spaces (including one handicapped stall). In fact, even using the highest observed demand rate of 1.44 spaces per unit, only 60 spaces would be required which is still less than the proposed supply.

3.2.3 Parking Summary

Based on parking demand data for similar developments collected by Bunt, and data in the Metro Vancouver Apartment Parking Study, the proposed parking supply is anticipated to meet the requirements of the development. The proposed parking supplies are as follows;

- Residential Parking – 63 spaces (1.47 spaces per unit excluding visitors); and,
- Visitor Parking – 7 spaces (0.16 spaces per unit)

The proposed residential and visitor parking supply exceeds the anticipated demands of 50 spaces (1.2 spaces per unit) for residents and 4 spaces (0.1 spaces per unit) for visitors.

3.3 Parking Design

AutoTURN software was used to test the underground parking layout and access to each of the parking spaces. **Exhibit 3.2** shows vehicles turning paths for the most restricted parking spaces in the underground parking lot. The design vehicle used for the analysis was a TAC Passenger Car.

Exhibit 3.3 shows the pick-up/drop-off swept paths for the garbage truck and **Exhibit 3.4** demonstrates the inbound and outbound movements of the District's fire truck. As shown in the exhibits, all of the parking spaces are easily accessible and the general parking layout is deemed to be sufficient.

3.4 Sightline Review

A sightline review was conducted to understand the available Stopping Sight Distance (SSD) from the vehicle access towards oncoming vehicles from the east via Seymour River Place. Given the short length, and narrow width of Heritage Park Lane and that it is a no-through road at both ends with limited access it functions more as a mews than a street and therefore it is assumed that the design speed is 30km/h.

Based on this, the Transportation Association of Canada (TAC) requires a minimum SSD of 45m for vehicles approaching the driveway from either the east or west. As shown in **Exhibit 3.5**, the available SSD to the east is 135m, or up to the traffic circle at Seymour River Place, while the available SSD to the west is 75m, or up to the cul-de-sac at the west end of Heritage Park Lane. In both cases the required SSD is met.

3.5 Off-Street Loading Requirements

The District of North Vancouver does not have a loading requirement for residential uses. Servicing for the Maplewood West site is to be provided along the site frontage on Heritage Park Lane. If required, signage could be implemented along the site frontage in order to create a loading zone for residential uses.

The garbage for the development will be located in an underground staging room and will be hauled up the ramp by a staging vehicle before it is picked up by the municipal waste services.

Servicing vehicles to Maplewood West (i.e. garbage trucks, moving trucks) will be able to use the turnaround at the north end of Seymour River Place to access the site. A recycling/garbage storage area located to the north of the site driveway will facilitate on-street collection for servicing vehicles.

3.6 Bicycle Parking Requirements

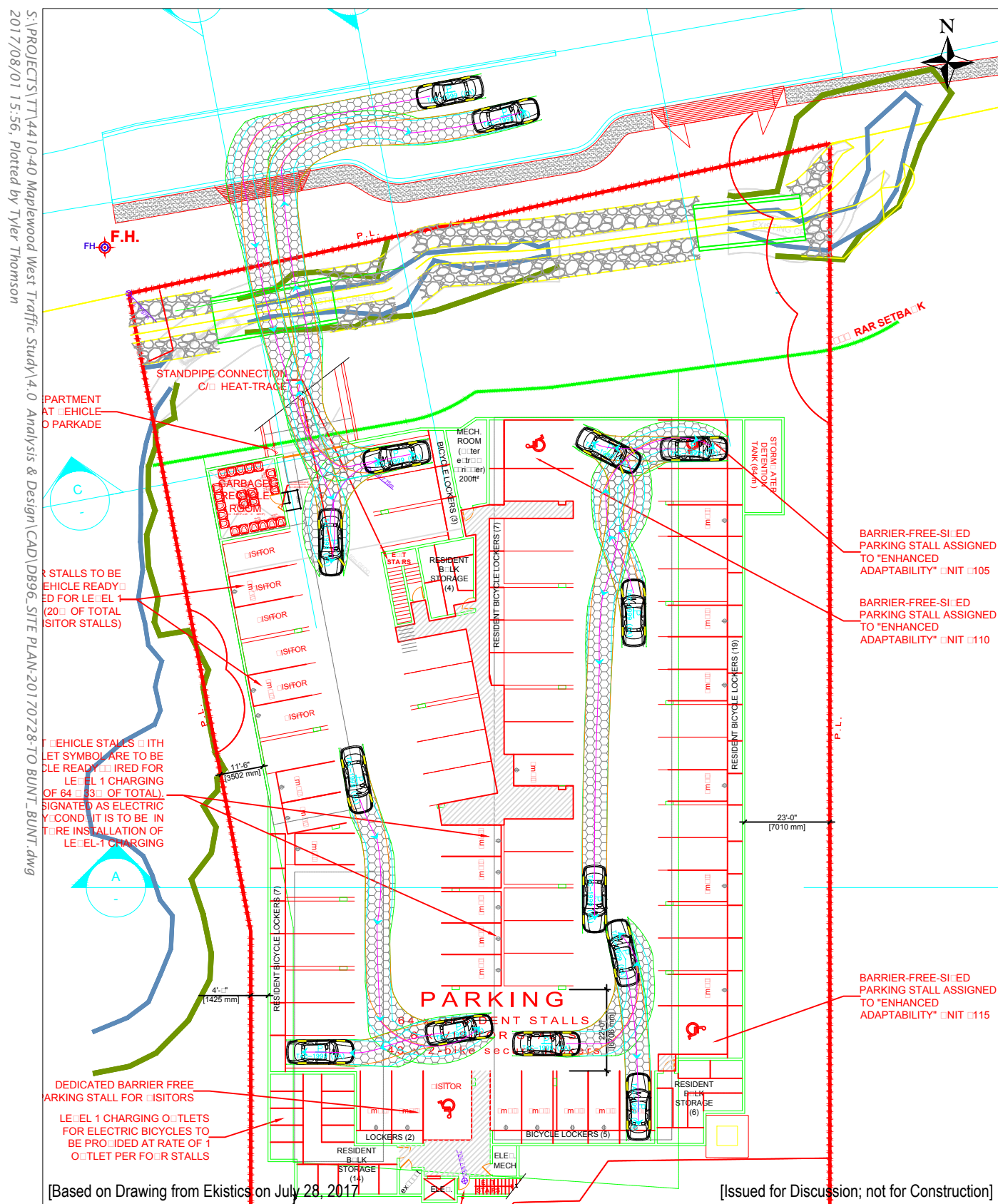
Table 3.4 shows the proposed bicycle parking bylaw rates for the development site along with the proposed supply for the development. The District's "Class 2" bicycle parking requirement for multi-family residential buildings is 0.2 spaces per unit (Bylaw 3210 - Section 1008), and the District's new Multi-family development parking policy identifies a minimum "Class 1" bicycle parking rate for multi-family residential uses which is 1 space per unit.

Table 3.4: Maplewood West Bicycle Parking

USE	BYLAW REQUIREMENT		PROPOSED SUPPLY	
	Class 1	Class 2	Class 1	Class 2
Multi-Family Residential	43*	8	48	8

*DNV does not have an official Class 1 bicycle parking requirement for multi-family residential, however recommends providing Class 1 parking at 1 space per unit.

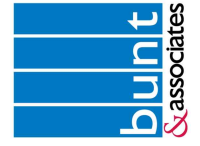
The development is planning on exceeding the District's recommended Class 1 bicycle parking requirement and meeting its Class 2 bicycle parking requirement. The Class 2 bicycle parking spaces are to be located in a well lit and easily accessible area on site, and the Class 1 spaces will be accommodated within the residential storage lockers located in the underground parking area.



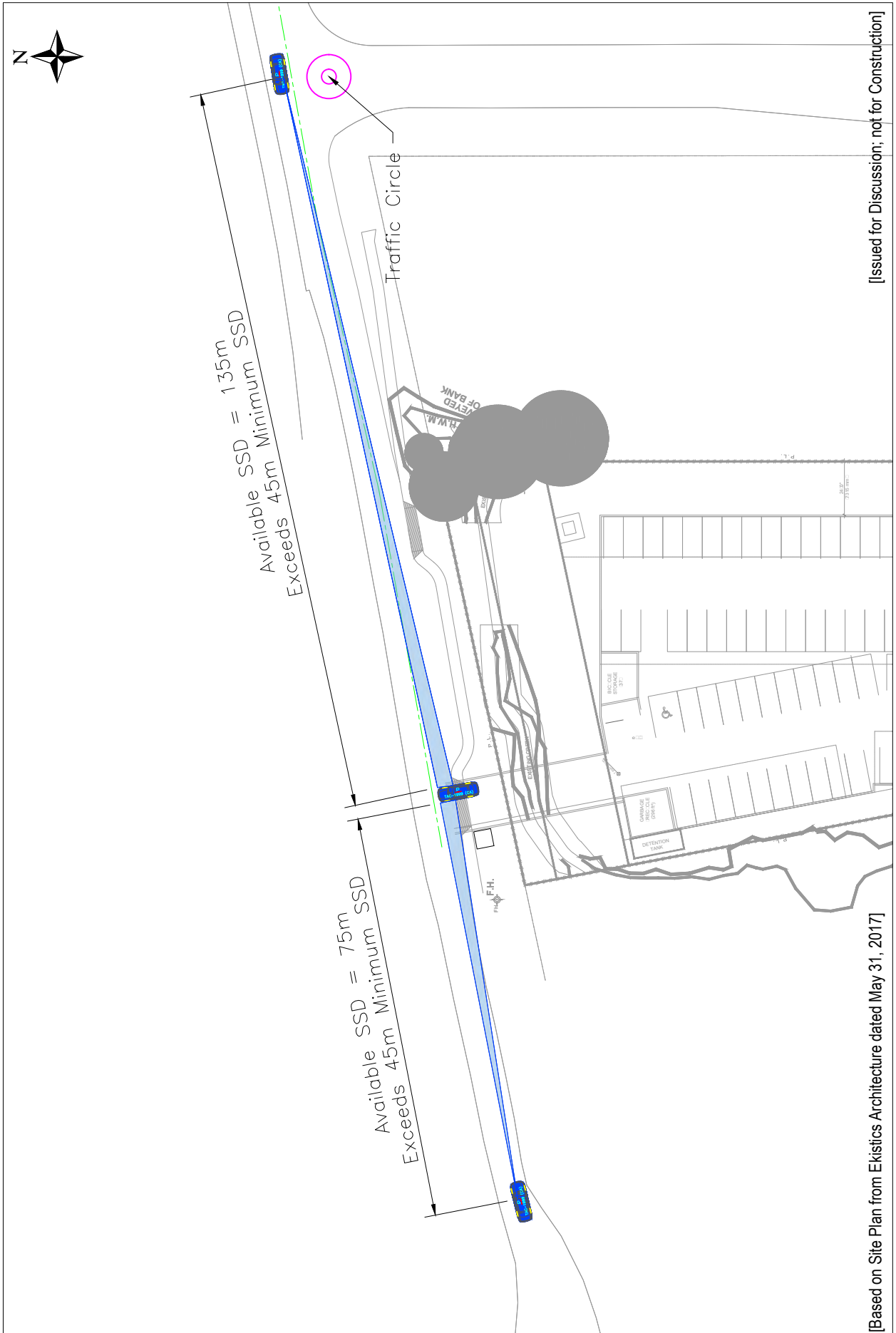


S:\PROJECTS\TT\4410-40 Maplewood West Traffic Study\4.0 Analysis & Design\CAD, Plotted by Tyler Thomson

Exhibit 3.3 Garbage/Moving Truck Access



4410.40 June 2017
Maplewood West Transportation Study
Scale Custom on Letter Prepared by NH



[Issued for Discussion; not for Construction]



Exhibit 3.5 Stopping Sight Distance

4410.40 June 2017
Maplewood West Transportation Study
Scale Custom on Letter Prepared by NH

4. FUTURE OPERATIONAL CONDITIONS

In order to assess the potential influence of the proposed development on Seymour River Place, it is important to understand the number of new vehicle movements generated by the development in the context of the existing vehicle movement observations.

New vehicle trips generated by the development and the percentage change over existing conditions will indicate the overall level of impact of the development on Seymour River Place.

Table 4.1 outlines the existing and future traffic conditions reviewed for the nearby key intersection of Seymour River Place and Old Dollarton Road which is the sole means of access to Heritage Park Lane.

Table 4.1: Scenario Description

SCENARIO	DESCRIPTION
1. Existing	Represents the current vehicle movements as of December 2015 which includes the recently completed Loden Green development.
2. Existing + Maplewood Place	Scenario 1 plus the new vehicle trips from Maplewood Place.
3. Existing + Maplewood Place + Other Future Developments	Scenario 2 plus Maplewood Plaza, Northwoods Village and the Darwin Maplewood property (West of Riverside Drive and South of Old Dollarton Road).
4. Total Future	Scenario 3 plus the proposed Maplewood West site.

4.1 Development Site Vehicle Movements

New vehicle movements were estimated for Maplewood West, as well as the neighbouring development sites to get a sense of the traffic impact of development in the area. The weekday AM and PM peak hours are based on the ITE trip rate for Residential Condominium/Townhouse developments (ITE Code - 230) from the 9th edition of the ITE Trip Generation Manual. This trip rate was deemed appropriate given the unit mix breakdown for the development, which includes 2-bedroom and 3-bedroom units of varying sizes. These trip rates are consistent with those from the Maplewood Place Study.

The ITE trip generation rates and resulting site-generated vehicle movements are detailed in **Tables 4.2**, and **4.3**, respectively.

Table 4.2: Trip Generation Rates

LAND USE	VARIABLE	SOURCE	AM			PM		
			In	Out	Total	In	Out	Total
Multi-Family Townhouse	Per Unit	ITE (230) Residential Condominium/Townhouse	0.07	0.37	0.44	0.35	0.17	0.52

Table 4.3: Trip Generation Rates

DEVELOPMENT	# OF UNITS	AM			PM		
		In	Out	Total	In	Out	Total
Maplewood West	43	3	15	18	15	7	22
Maplewood Place	62	5	23	27	21	11	32
	105	8	38	46	36	18	54

Maplewood West is anticipated to generate 18 and 22 new vehicle trips in the AM and PM peak hours, respectively. Maplewood Place (now fully occupied) is estimated to generate 27 and 32 vehicle trips in during the AM and PM peak hours. Both of these developments combined will add less than 1 new vehicle trip every minute on Seymour River Place during the peak hours in the future when fully occupied. Therefore, they are not expected to have a noticeable impact on existing conditions.

Additionally, the existing Maplewood West site with 5 single-family residential units likely generates about approximately 5 trips during both the AM and PM peak periods (as per single family residential trip rates), but to be conservative these trips have not been removed from the network in the following analysis. With the development in place these trips will in fact be removed from the network and result in a further decrease in the net trip generation from the site compared with those reported in Table 4.3.

4.2 Change in Vehicle Movements with Development

Seymour River Place currently experiences approximately 180 vehicle movements (AM peak hour) and 150 vehicle movements (PM peak hour) near KGMS, and 300 vehicle movements (AM peak hour) and 285 vehicle movements (PM peak hour) at Old Dollarton Road.

Table 4.4 displays total two-way vehicle movements and the percentage increase over Scenario 1 (existing) for each development scenario.

Table 4.4: Change in Vehicle Movements on Seymour River Place with Developments – AM

LOCATION	TWO-WAY VEHICLE MOVEMENTS (% CHANGE OVER SCENARIO 1)			
	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Seymour River Place at KGMS	182	209 (15%)	209 (15%)	288 (25%)
Seymour River Place at Old Dollarton Road	299	326 (9%)	326 (9%)	345 (15%)

The total AM vehicle movements along Seymour River place will increase with the addition of nearby developments and Maplewood West site. The total two-way vehicle volumes at Seymour River Place in front of KGMS will increase by 25%, while the volumes at the intersection of Old Dollarton Road and Seymour River place will increase by 15%.

Table 4.5 shows the anticipated percentage increase in two-way vehicle traffic along Seymour River Place during the PM peak period.

Table 4.5: Change in Vehicle Movements on Seymour River Place with Developments – PM

LOCATION	TWO-WAY VEHICLE MOVEMENTS (% CHANGE OVER SCENARIO 1)			
	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Seymour River Place at KGMS	152	184 (21%)	184 (21%)	206 (36%)
Seymour River Place at Old Dollarton Road	285	317 (11%)	317 (11%)	339 (19%)

The PM peak hour volumes along Seymour River Place are anticipated to increase 36% in front of KGMS and 19% at the intersection with Old Dollarton Road. These may appear to be substantial increases at first glance; however the total vehicle traffic on the street will still be consistent with similar local residential streets. Seymour River Place is local residential street with low volume and cannot be used by through traffic.

New development vehicle movements represent approximately 1 additional vehicle every minute on Seymour River Place during the AM and PM peak hours (and even less outside of these hours) and therefore will not pose a material impact on its current operations. This level of increase will not be very noticeable on the surrounding street network, including existing operations at the Kenneth Gordon Maplewood School.

4.3 Future Operational Conditions

The anticipated vehicle volumes at the intersection of Seymour River Place and Old Dollarton Road were analyzed using Synchro 9 software. The results are displayed in **Tables 4.6 and 4.7** below.

Table 4.6: Future Traffic Operations at Seymour River Place and Old Dollarton Road – AM

APPROACH	SCENARIO 1		SCENARIO 2		SCENARIO 3		SCENARIO 4	
	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)
EB	A	4.8	A	4.9	A	4.9	A	5.1
WB	B	0.1	A	0.1	A	0.1	A	0.2
SB	C	15.8	C	16.6	C	16.9	C	18.2
NB	B	12.7	B	13.1	B	10.3	B	10.4
OVERALL	A	4.8	A	5.3	A	5.4	A	6.1

The overall Level of Service (LOS) at the intersection is currently an A, and even with the increase in vehicle movements from the proposed development and the nearby future developments the LOS remains an A during the AM peak period. The southbound movement is the worst movement for the entire intersection, however the delay only worsens by less than 3 seconds and the LOS remains a C.

Table 4.7: Future Traffic Operations at Seymour River Place and Old Dollarton Road - PM

APPROACH	SCENARIO 1		SCENARIO 2		SCENARIO 3		SCENARIO 4	
	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)
EB	A	3.4	A	3.9	A	3.5	A	4.0
WB	A	0.4	A	0.3	A	0.9	A	0.9
SB	B	13.0	B	13.7	B	14.0	B	14.6
NB	B	10.1	B	10.4	A	9.9	B	10.0
OVERALL	A	5.0	A	5.5	A	5.8	A	5.9

The overall LOS during the PM peak period remains at an A, with the total intersection delay increasing by only 0.9 seconds. Some of the individual movements have an LOS B, but in general the intersection is expected to operate adequately.

From the LOS and delay performance figures above, it is clear that the additional traffic generated from the proposed development and the neighbouring developments have a very small impact on the operation of the intersection of Seymour River Place and Old Dollarton Road. This is likely because Seymour River Place is a dead end and only new developments along Seymour River place will put direct pressure on the intersection. It should be noted that the effects of the southern developments on the intersection may change depending on access locations for each site.

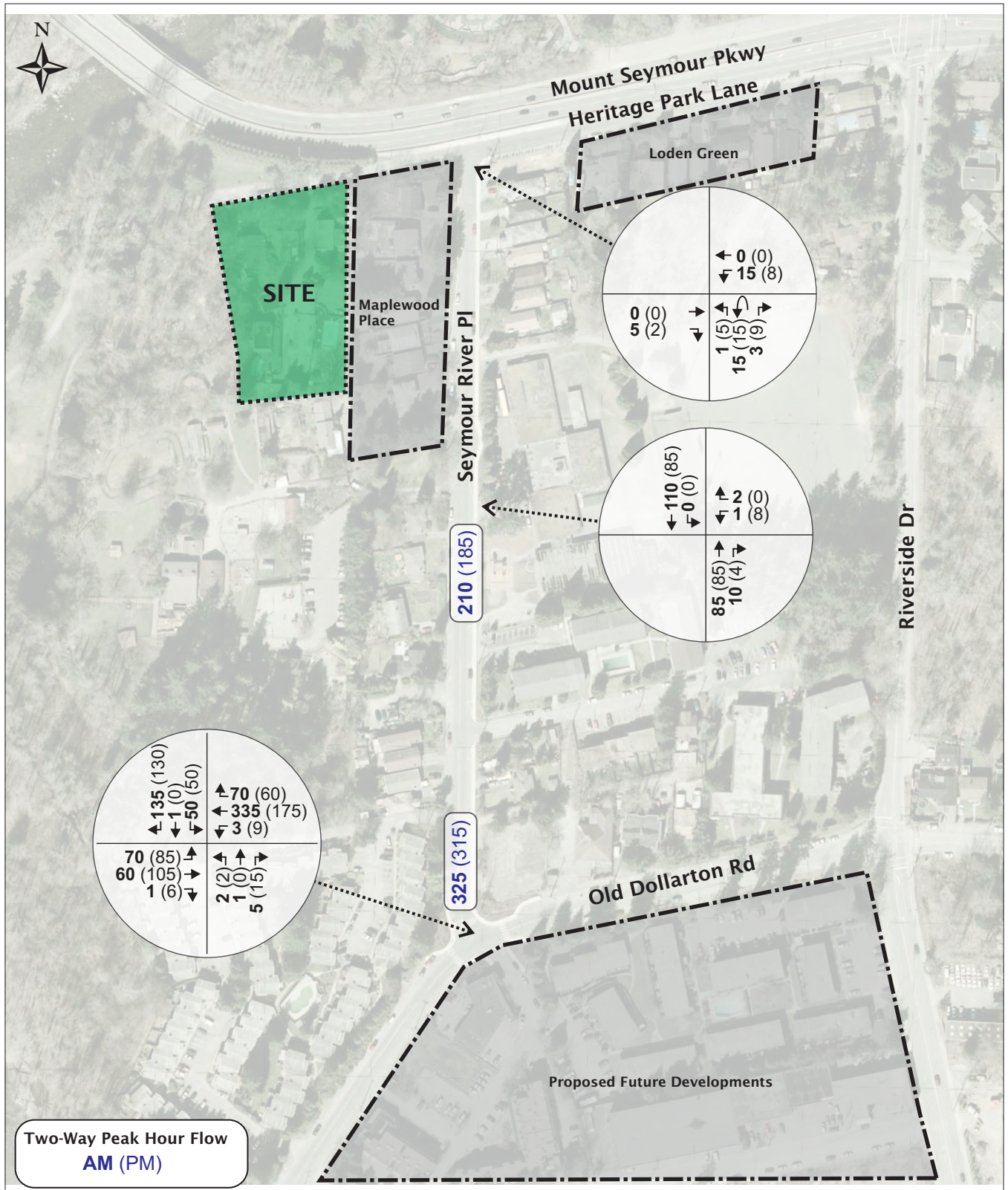


Exhibit 4.1

Scenario 2: Existing + Maplewood Place Peak Hour Vehicle Volumes

Maplewood West Transportation Assessment
 4410.40 June 2017 Scale NTS

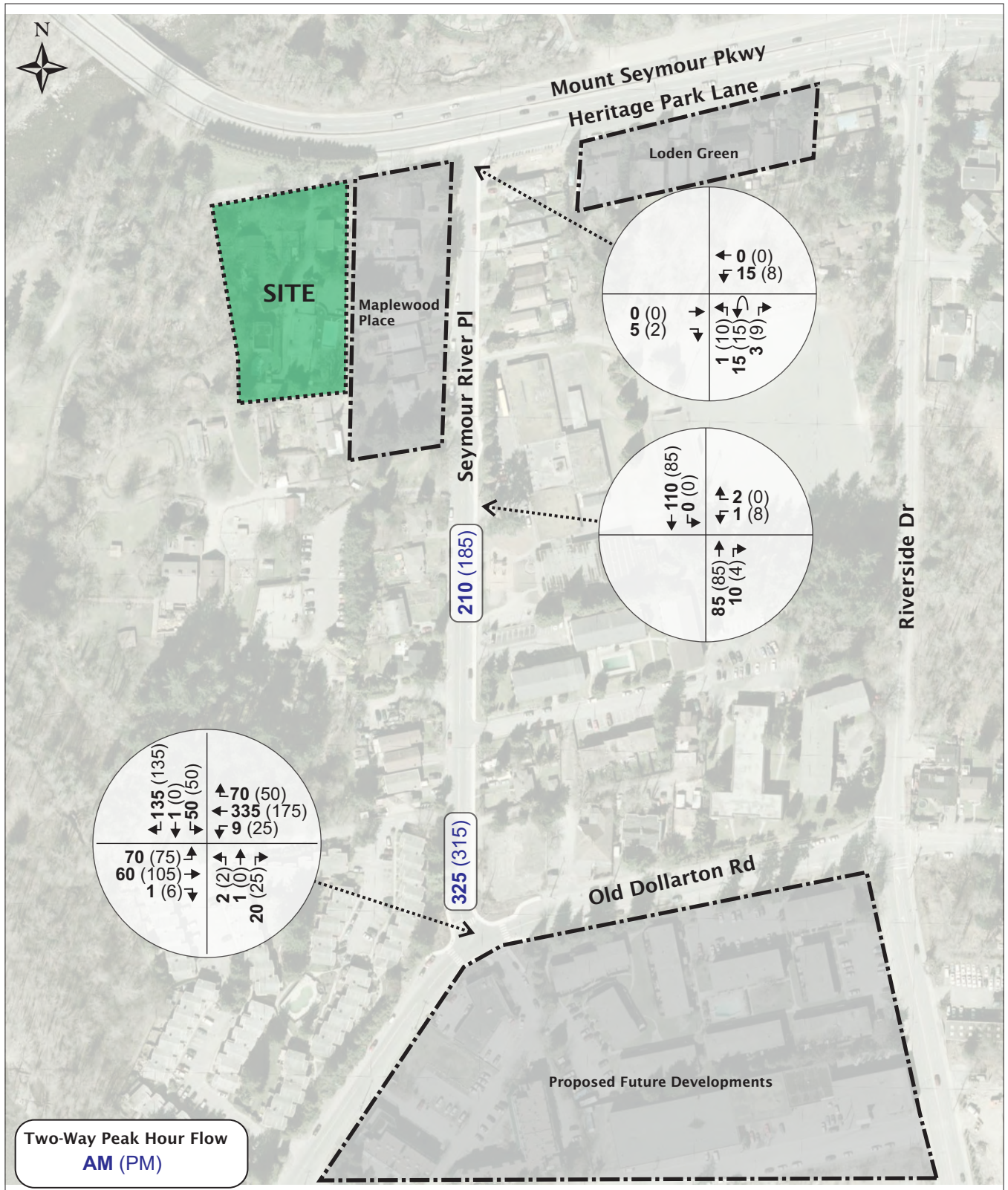


Exhibit 4.2

Scenario 3: Existing + Maplewood Place + Southern Developments Peak Hour Vehicle Volumes

Maplewood West Transportation Assessment
 4410.40 June 2017 Scale NTS

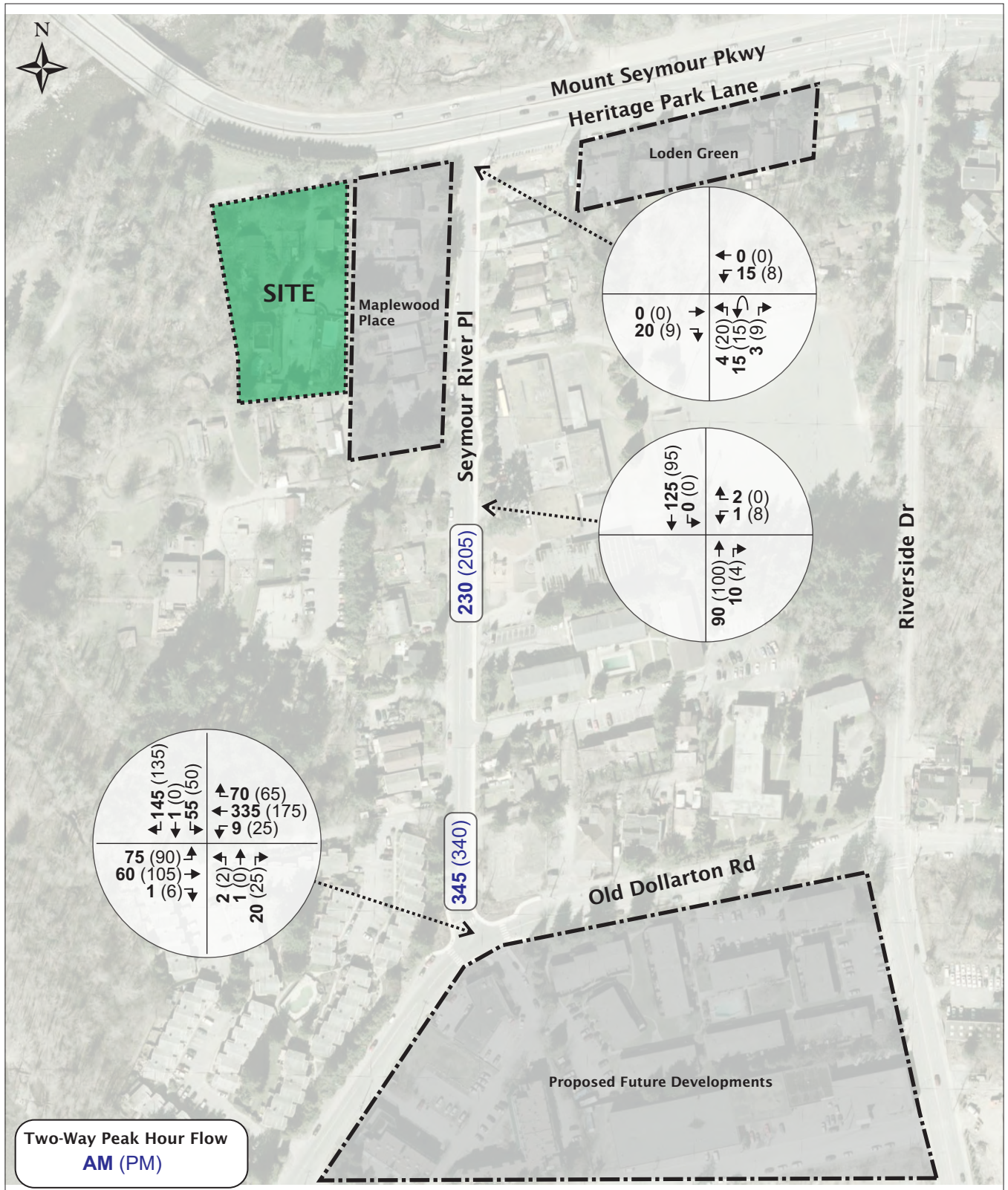


Exhibit 4.3
Scenario 4: Total Peak Hour Vehicle Volumes

5. TRANSPORTATION DEMAND MANAGEMENT STRATEGY

5.1 District of North Vancouver Goals for TDM

A TDM Plan is required by the District as the site developer is proposing a reduced parking supply ratio (as allowed in the Maplewood Village Centre), which is also consistent with the District's policy for Reduced Parking Rates for Multi-family Residential Developments.

The aim of the plan is to help influence a reduced level of auto ownership for new developments in Village centre areas. The following outlines some proposed TDM measures to help achieve these goals.

5.2 Proposed Transportation Demand Management Plan

The following TDM measures are proposed to help influence a reduced level of auto ownership at Maplewood West.

- **Transit**
 - Consistent with the District's parking reduction policy, provide one two-zone transit pass per unit to new residents upon move-in for a period of 6 months for the proposed number of reduced parking spaces. The proposed reduction of 16 parking spaces would mean 16 two zone 6 month transit passes would be provided on a first come first served basis. This would cost in the order of \$12,096 based on current fare rates.
- **Cycling**
 - 48 Class I secure bicycle storage and provision for Level 1 (110v) electric outlets for electric bicycle charge. The total number of electrical outlets for bicycle charging is yet to be determined.
 - 8 Class II bicycle parking spaces at convenient, accessible, and covered areas near building entrance.
 - Bicycle maps and way-finding signage near the site.
 - Note the above provision of Class 1 and Class 2 bicycle parking spaces/storage are subject to change should the number of dwelling units be updated.
- **Walking**
 - A new sidewalk will be built along the site frontage on Heritage Park Lane.
- **TDM Marketing and Promotion**

- Resident Travel Planning Information – a “welcome” brochure with an information package on sustainable transportation choices to be provided to residents before move in and also posted in common areas.

It is expected that with the improved cycling routes in the area and supporting infrastructure with the development, upgraded sidewalks in the area, the close proximity of the future frequent transit network to Maplewood Village, and the provision of committed TDM actions / measures, the proposed parking supply rates will be more than adequate to support the site.

6. CONCLUSIONS

Anthem Properties is proposing to build the Maplewood West townhouse development at 2049 – 2059 Heritage Park Lane immediately west of their recently constructed Maplewood Place project in North Vancouver, BC. The development plan calls for the consolidation of 5 single-family residential lots into a 43-unit townhouse complex with a mix of 2 and 3-bedroom unit types.

Vehicle access is proposed to be located off of Heritage Park Lane into an underground parkade. An internal walkway will provide pedestrian access to the residential units which will connect to the front of the development site on Heritage Park Lane with a new sidewalk on this frontage.

Observed peak-hour vehicle movements at Seymour River Place are around 180 /150 vehicles per hour (AM / PM) near the Kenneth Gordon Maplewood School and around 300 / 285 vehicles per hour (AM / PM) near the Old Dollarton Road intersection. These are considered to be low and characteristic of a local street generally.

Parking for the development plan is based on an agreement with the District with a total of 70 spaces (63 resident spaces, and 6 visitor spaces) provided in the underground parkade. This supply will exceed the expected parking demands for the development based on information for comparable developments in the District.

Secure “Class 1” bicycle parking spaces will be provided in 48 combined bicycle/storage lockers in the underground parkade, and 8 Class 2 temporary bicycle parking spaces will be provided in a visible and easily accessible space on site.

Expected new vehicle movements with the development are projected at 18 in the weekday AM peak-hour and 22 in the PM peak-hour. These volumes equate to less than 1 additional vehicle every 2 minutes on Seymour River Place, representing a 15% increase on Seymour River Place near KGMS and a 10% increase near Old Dollarton Road. While this is a reasonably high increase in proportion to the existing low volumes on the street it is not considered to be material on the local street network and is in keeping of what would be expected for a local residential street. Further, it should not have a material impact with the existing operations at KGMS or Maplewood Farm.

Recently implemented transportation improvements and travel management measures have made significant improvements with the pick-up / drop-off operations at KGMS. The Maplewood Farm site has benefited from these improvements which now do not experience parents picking up at KGMS using their driveway to wait, and the proposed Maplewood West development is not expected to have a noticeable impact on either of these operations.

The intersection of Old Dollarton Road and Seymour River Place is expected to experience modest increases in total traffic with the addition of the proposed development and with the ongoing redevelopments in the Maplewood Village area. The addition of these future developments and the Maplewood West site are shown to have minimal impacts on the delay and overall performance of the intersection.

Overall, the development plan is expected to have a modest effect on the local street environment and will fit within the District's vision of a more urban and sustainable Maplewood Village Centre.



August 11, 2017

Mr. Brennan Finley
Anthem Maplewoods Developments LP
Suite 300 – Bentall 5
550 Burrard Street
Vancouver, BC V6C 2B5

Dear Mr. Finley:

**Re: Preliminary Maplewood Creek Relocation Plan
Maplewood Farm, 399-405 Seymour River Place
North Vancouver, BC
Project No. 13615**

We have prepared the report titled *Preliminary Maplewood Creek Relocation Plan, Maplewood Farm, 399-405 Seymour River Place, North Vancouver, BC*. We are pleased to submit this report to Anthem Maplewoods Developments LP. If you have any questions, please do not hesitate to contact us.

Sincerely,

Keystone Environmental Ltd.

Craig S. Patterson, R.P.Bio.
Project Manager

I:\13600-13699\13615\Report\13615 170811 Preliminary Maplewood Creek Relocation Plan.docx



**Keystone
Environmental**
Knowledge-Driven Results



Preliminary Maplewood Creek Relocation Plan

Maplewood Farm
399–405 Seymour River Place
North Vancouver, BC

Prepared for: Anthem Maplewoods Developments LP

Project No. 13615
August 2017

Environmental Consulting • Engineering Solutions • Environmental Planning

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EXECUTIVE SUMMARY

Keystone Environmental Ltd. has been retained by Anthem Maplewoods West Developments LP. to prepare a Creek Relocation Plan for a reach of Maplewood Creek located on the Maplewood Farm property in North Vancouver, BC. The existing reach of the creek between the upstream Maplewoods West townhouse development and the Maplewood Farm pond will be realigned to accommodate construction of flood protection diking.

This realignment provides an opportunity to enhance the aquatic and riparian habitat in Maplewood Creek, and support the objectives of the District of North Vancouver Official Community Plan. It is proposed that an approximately 95 m long meandering creek reach with a 90 m² off-channel rearing pond be constructed and that the existing reach in Maplewood Farm be infilled to enable construction of the dike. The proposed aquatic habitat will be designed to support spawning and rearing of chum salmon (*Oncorhynchus keta*) and coho salmon (*Oncorhynchus kisutch*), and is considered to be beneficial to other fish and wildlife species that may be present within the creek and riparian area.

Habitat attributes from the existing creek will be replicated in the new creek reach along with beneficial habitat features currently not present in the existing creek. These proposed habitat features include large woody debris, undercut banks, and suitable substrate for salmonid spawning. Based on preliminary designs, the proposed creek relocation will result in a net benefit of 109 m² of aquatic fish habitat and 815 m² of riparian fish habitat, for a total net benefit of 924 m² of fish habitat.

An Environmental Management Plan will be prepared to guide environmental protection practices and mitigation measures during creek works. Instream works will be conducted within the least-risk timing window of August 1 – September 15, and will occur under the guidance of an environmental monitor. Permits and approvals required to complete the proposed creek works may include a Fisheries and Oceans Canada Request for Review (and Authorization if necessary), a BC *Water Sustainability Act* Approval, and provincial and federal fish salvage permits. Habitat effectiveness monitoring will be implemented following completion of works to confirm that habitat objectives are being met, and to guide implementation of adaptive management if required.

This Executive Summary is subject to the same general limitations as contained in the report and must be read in conjunction with the entire report.

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LIST OF ACRONYMS

BC	British Columbia
BCWQG	British Columbia Water Quality Guidelines
BMP	Best Management Practice
CWD	Coarse Woody Debris
DFO	Fisheries and Oceans Canada
DNV	District of North Vancouver
EMP	Environmental Management Plan
ESC	Erosion and Sediment Control
HWM	High Water Mark
MFLNRO	British Columbia Ministry of Forests, Lands, and Natural Resources Operations
MOE	British Columbia Ministry of Environment
OCP	Official Community Plan
RAR	Riparian Area Regulation
R.P.Bio	Registered Professional Biologist
SPEA	Streamside Protection And Environment Area
TOB	Top of Bank
TSS	Total Suspended Solids
QEP	Qualified Environmental Professional

1. INTRODUCTION

Keystone Environmental Ltd. (Keystone Environmental) was retained by Anthem Maplewoods Developments LP (Anthem) to prepare a Creek Relocation Plan for a reach of Maplewood Creek. The reach is located on Maplewood Farm, between a proposed Anthem townhome development (2049-2059 Heritage Park Lane) and the Maplewood Farm pond, in North Vancouver, BC (the Site). The existing reach of the creek will be realigned to accommodate construction of flood protection diking near its current location.

The diking will be incorporated into the design of the proposed Maplewoods West multi-unit townhouse development property adjacent to the east side of the Site. The District of North Vancouver (DNV) has requested that Anthem undertake the creek realignment between the proposed development and Maplewood Pond as a condition of their Development Permit. Relocating this section of the creek provides an opportunity to enhance instream and riparian salmonid habitat, resulting in a net benefit to fish habitat.

This Creek Relocation Plan provides the ecological rationale and detailed recommendations to guide design and construction of the new proposed alignment of Maplewood Creek. Detailed designs will be developed by CREUS Engineering Ltd. (CREUS).

1.1 Site Description

Site Identification

Civic Address:	399-405 Seymour River Place
Lot:	1
Parcel Identifier:	007-471-483
Current Zoning:	SP – Special Purpose Park Zone
Parcel Area:	40,100 m ² (approximate)
Latitude:	49° 18' 31.8" N
Longitude:	123° 1' 11.0" W
Legal:	Lot 1 Blocks 2 and 3 District Lot 791 Plan 16486

The Site is located at Maplewood Farm, managed by the District of North Vancouver (DNV) and located in the Maplewood neighbourhood in North Vancouver, BC (Figure 1). The Site is bound by the proposed multi-family development site to the east (for which a separate creek restoration plan has been developed); Heritage Park Lane to the north; residential properties to the south, and the Seymour River and Seymour River Heritage Park to the west. The topography at the Site is relatively flat (grade of <1%). A section of Maplewood Creek flows through the Site, running south from the Site's northeast corner for approximately 45 m, before flowing southwest for approximately 40 m into the Maplewood Farm pond. Maplewood Creek emerges from the south portion of the pond and flows southwest into the Seymour River.

1.2 Project Description

Significant floods have occurred on the Seymour River in the last 30 years, and climate change is expected to increase sea level and peak flow rates in the future (KWL 2014). DNV is pursuing construction of a dike alignment between the Seymour River and the Maplewood neighbourhood to protect residences during a potential flood event. The proposed dike will be connected to the proposed Anthem Maplewood West townhome development, located adjacent to the east of the Site at 2049-2059 Heritage Park Lane.

The reach of Maplewood Creek between the Anthem development property and Maplewood Farm will need to be realigned to the northwest in order to accommodate construction of the flood protection dike system. This realignment provides an opportunity to enhance the aquatic and riparian habitat in Maplewood Creek, and support the objectives of the DNV Official Community Plan (OCP). It is proposed that an approximately 95 m long meandering creek reach with a 90 m² off-channel rearing pond be constructed at the north end of Maplewood Farm and Seymour River Heritage Park, and that the existing reach in Maplewood Farm be infilled to enable construction of the dike. The proposed aquatic habitat will be designed to support spawning and rearing of chum salmon (*Oncorhynchus keta*) and coho salmon (*Oncorhynchus kisutch*), which have previously been documented in Maplewood Creek.

1.3 Scope

This Creek Relocation Plan considers riparian and instream habitat for the portion of Maplewood Creek between the proposed Maplewoods West development and Maplewood Pond. The plan incorporates the following:

- Results of previous Keystone Environmental studies on Maplewood Creek, which were previously used to determine suitable development setbacks for upstream reaches of the creek
- Results of a desktop review and field survey of environmental and stream conditions, to confirm the condition and characteristics of the creek and riparian area, and to identify the proposed creek location, potential wildlife trees for retention, and presence of invasive species
- A Habitat Balance prepared to demonstrate a net gain of aquatic and riparian fish habitat resulting from the proposed creek realignment
- A review of the habitat and life-cycle requirements of chum and coho salmon
- Creek design specifications and habitat features to be implemented during construction, including instream, riparian, and off-channel characteristics
- Habitat effectiveness monitoring procedures, to be conducted annually, following project completion to assess the efficacy of constructed habitat
- Environmental mitigation and management strategies to protect environmental values, manage invasive species, and avoid serious harm to fish during construction

1.4 Regulatory Framework

Based on our understanding of the Site conditions and proposed development to be located outside of the applicable setback, we have considered the following regulations as potentially applicable to the Site.

- **Federal Fisheries Act, 2013:** Sections 35–37 prohibit the polluting of watercourses with substances deleterious to fish and fish habitat, and of works that result in ‘serious harm to fish’ unless authorized by Fisheries and Oceans Canada (DFO), in exchange for the development or enhancement of similar habitat to ‘off-set’ harm. Serious harm to fish is defined as mortality or permanent habitat loss to fish that form part of a commercial, recreational, or aboriginal fishery.
- **Federal Migratory Birds Convention Act, 1994:** ensures the conservation of migratory bird populations by regulating all activities that are harmful to migratory birds, their eggs or their nests.
- **Federal Species at Risk Act, 2002:** establishes Schedule 1 of the Act which classifies those species as extirpated, endangered, threatened, or of special concern. Once listed, the measures to protect and recover a listed wildlife species are implemented.
- **BC Riparian Areas Protection Act, 1997:** provides Provincial directive to protect streams and riparian habitat, and establishes the Riparian Areas Regulation (RAR).
- **BC Riparian Areas Regulation, 2004:** calls on local governments to protect riparian areas during residential, commercial, and industrial development by ensuring that proposed activities are subject to a science-based assessment by a Qualified Environmental Professional (QEP).
- **BC Water Sustainability Act, 2016:** requires that an Approval be obtained from the Ministry of Forests, Lands, and Natural Resource Operations (MFLNRO) before a person may make ‘changes in and about a stream’.
- **BC Wildlife Act, 1996:** Section 34 prohibits possessing, taking or destroying: (i) a bird or its egg, (ii) the nest of an eagle, peregrine falcon, gyrfalcon, osprey, heron or burrowing owl, or (iii) the nest of a bird not in (ii), when the nest is occupied by a bird or its egg unless authorized under permit.
- **BC Heritage Conservation Act:** Protects heritage and cultural resources in BC, including archaeological sites.
- **District of North Vancouver Official Community Plan Bylaw 7900:** The OCP sets the direction for future growth within DNV, and establishes Development Permit Areas and guidelines.
- **District of North Vancouver Streamside Protection Development Permit Area:** established to protect the natural environment along streams from development or alteration of land associated with residential, commercial, industrial, institutional and ancillary uses. Established 15 m setbacks where development should not occur from the top-of-bank of watercourses. This 15 m setback constitutes the Streamside Protection and Enhancement Area (SPEA).

- **District of North Vancouver Environmental Protection And Preservation Bylaw 6515:** established to protect, preserve and conserve natural settings and ecological systems of watercourses, trees, soils, lands and visual assets.
- **District of North Vancouver Tree Protection Bylaw 7671:** requires that permits be obtained to cut, damage, or remove trees that are protected including trees on private property and development sites. Protected trees include:
 - trees on land owned by or in the possession of the District including parks, boulevards, roads or lane allowances
 - trees within a protected area
 - trees on sloping terrain
 - heritage trees
 - wildlife trees
 - trees located on wetland or waterfront
 - trees of the following species: *Arbutus* (*Arbutus menziesii*); Garry Oak (*Quercus garryana*); Oregon Ash (*Fraxinus* spp); Pacific Yew (*Taxus brevifolia*); Western White Pine (*Pinus monticola*); or Yellow-cedar (*Chamaecyparis nootkatensis*).

The Maplewood Creek relocation project will directly impact fish habitat through isolation and infilling of the existing reach of the creek, following construction of the proposed reach of the creek. The following permits and approvals may be required:

- Federal *Fisheries Act* – DFO Project Review (and Authorization if necessary)
- BC *Water Sustainability Act* Approval for Changes in and About a Stream. Approval applications are typically processed within 140 days of receipt, but may take longer depending on the complexity of circumstances.
- BC *Wildlife Act* Permit to Collect Fish for Scientific Purposes (for fish salvaging during restoration works)
- DFO Permit to Collect Salmonids for Scientific Purposes (for fish salvaging during restoration works)
- DNV Tree Removal Permit, required by the Tree Protection Bylaw 7671

Additional environmental permits or approvals that may be required will be discussed with Anthem as necessary, and a copy of all applicable permits will be kept on Site during creek relocation works.

2. ENVIRONMENTAL CONDITIONS

The following sections describe the environmental conditions of the Site and surrounding areas, based on the results of a desktop information review and field surveys.

2.1 Desktop Review

A search of online databases, reference manuals, mapping tools and available environmental reports was completed to document the aquatic and terrestrial habitat values and ecological sensitivities of the Site and surrounding area. The following available on-line resources were utilized:

- BC Biogeoclimatic Ecosystem Classification Program BECweb
- BC Ministry of Environment's (MOE) Fisheries Information Summary System (FISS)
- DFO MAPSTER Geographic Information System (GIS) application
- Pacific Streamkeepers Federation Watershed Profiles
- DNV GEOWeb GIS application
- BC iMap GIS application
- Community Mapping Network of BC Atlas Gallery
- BC Conservation Data Centre (CDC) Species List and Ecosystem Explorer, and Element Occurrence Reports
- Environment Canada *Species at Risk Act* public species registry
- BC MFLNRO Archaeology Site Records

The following subsections describe pertinent environmental information collected during the background review.

2.1.1 Climate and Vegetation

The project area lies within the Coastal Western Hemlock Dry Maritime (CWHdm) Biogeoclimatic Subzone, which is characterized by cool summers and mild winters with mean annual temperatures of approximately 8°C (Pojar 1991). Elevational limits for this zone range from sea level to approximately 900 m. Characteristic flora include the prominence of western hemlock (*Tsuga heterophylla*), a sparse herb layer and the predominance of several moss species: primarily step moss (*Hylocomium splendens*) and lanky moss (*Rhytidiadelphus loreus*).

2.1.2 Fish Habitat Values

Maplewood Creek originates from groundwater springs and seepages on upslope terraces approximately 1 km to the northeast of the Site, and is known to contain chum and coho salmon (PSKF 2017). Maplewood Creek has been classified as Endangered by DFO's Fraser River Action Plan, due to loss of riparian vegetation along more than 50% of the riparian length, channelization of more than 50% of the stream, significant water quality problems, and urbanization in the stream basin (Precision 1998).

The Seymour River is the receiving waterbody for Maplewood Creek. It is known to contain the following fish species: steelhead and rainbow trout (*Oncorhynchus mykiss*), coastal cutthroat trout (*Oncorhynchus clarkii clarkii*), lamprey (*Lampetra* spp.), dolly varden (*Salvelinus malma*), prickly sculpin (*Cottus asper*), Chinook (*Oncorhynchus tshawytscha*), chum, coho, and pink (*Oncorhynchus gorbuscha*) salmon (FISS 2017).

2.1.3 Rare and Endangered Species

A query of the CDC online mapping database was conducted to identify occurrence records of rare and endangered species previously observed within 5 km of the Site. The query returned four records of known rare wildlife occurrences and two records of known rare plant occurrences. The results of the query are presented in Table 2-1 below.

Table 2-1 Observations of Species at Risk within a Five Kilometre Radius of the Site (CDC 2017a)

Common Name	Scientific Name	Provincial List Status	SARA Status	Location Relative to Site	Most Recent Observation (Year)
Animal					
Great Blue Heron	Ardea herodias fannini	Blue	Special Concern	5.0 km SE	2003
Northern red-legged frog	Rana aurora	Blue	Special Concern	4.4 km N	2005
Pacific water shrew	Sorex bendirii	Red	Endangered	3.0 km E	1977
				3.7 km NW	1955
Plant					
chaffweed	Anagalis minima	Blue	-	0.4 km W	2006
poor pocket moss	Fissidens pauperculus	Red	Endangered	3.7 km N	2005

Species listed under Schedule 1 of the federal *Species At Risk Act* are designated as being Extirpated, Endangered, Threatened, or Special Concern. An Extirpated species has become extinct in a region it once occupied naturally. An Endangered species is facing imminent extinction or extirpation. A Threatened species is likely to become endangered if limiting factors are not reversed and a species of Special Concern may become threatened or endangered because of a combination of biological characteristics and identified threats. Schedule 1 species and their critical habitats are protected under federal law.

The CDC tracking system includes provincially Red- and Blue-Listed species or ecosystems. The Red-List includes any indigenous elements considered to be Extirpated, Endangered or Threatened in BC. Species on the Blue-List are considered to be vulnerable or particularly sensitive to human activities or natural events

There are no documented Great Blue Heron colonies located within 1 km of the Site (CMN 2017).

2.1.4 Archaeology

A request for archaeological study area records was submitted to the Archaeology Branch of the Ministry of Forests, Lands, and Natural Resource Operations (MFLNRO) on June 27, 2017 to determine whether archaeological values are present on or in the vicinity of the Site. A response was received on June 30, 2017, and according to Provincial records, there are no known archaeological sites recorded on the Site or adjacent properties. However, stakeholders and operators should be notified that if an archaeological artifact is encountered during construction, activities must be halted and the BC MFLNRO Archaeology Branch immediately contacted for direction before construction works resume.

2.1.5 Previous Studies Conducted by Keystone Environmental

Keystone Environmental has previously completed studies on Maplewood Creek for properties to the east of the Site (2049-2059 Heritage Park Lane and 433 Seymour River Place). These previous studies included Environmental Impact Assessments, Restoration Management Plans, and detailed RAR setback assessments. These previous studies documented poor aquatic and riparian habitat conditions in the reach of Maplewood Creek located between the Site and Mount Seymour Parkway, including constrained concrete channel banks, silt-infilled substrate, and extensive impermeable surfaces and invasive species in the riparian area.

Recommendations were provided for restoring and enhancing this upstream reach of Maplewood Creek. The proposed on-Site habitat improvements are intended to tie-in to the upstream restoration area, to achieve a contiguous corridor of high-value habitat between Mount Seymour Parkway and Maplewood Pond. Restoration and enhancement works have been completed for the segment of the creek at 433 Seymour River Place, where the stream emerges from the culvert below Mount Seymour Parkway. Keystone Environmental is currently conducting post-construction compliance monitoring at this segment of the creek, to confirm habitat improvements are functioning as intended.

2.2 Field Assessment

2.2.1 Methods

Keystone Environmental conducted a survey of the Site and surrounding area on June 22, 2017, to ground-truth information gathered during the desktop review, assess aquatic and riparian habitat values, and identify a preliminary alignment for the proposed creek relocation. The survey was conducted by a Registered Professional Biologist (R.P.Bio) and two environmental technicians. The survey focused on two areas:

1. The existing reach of Maplewood Creek and its associated 15 m SPEA between the Anthem property upstream and the inlet to Maplewood Pond, as well as the portion of the creek immediately downstream of the pond; and

2. The area near the north end of the Maplewood Farm property where the new creek alignment is proposed.

Aquatic habitat in Maplewood Creek was assessed using the methods and recording procedures outlined in the Resource Inventory Committee's *Reconnaissance Fish and Fish Habitat Inventory: Standards and Procedures Manual*. In-situ water quality measurements for temperature, dissolved oxygen, conductivity, and pH were collected at the upstream end of the stream on the farm property and downstream of the creek outlet from Maplewood Pond. Surface water samples were also collected at the same locations, and were submitted for laboratory analysis of Total Suspended Solids (TSS). Riparian and terrestrial habitat was assessed using methods based on the Ministry of Environment's *Field Manual for Describing Terrestrial Ecosystems*. Representative photographs from the field survey are provided in Appendix A.

2.2.2 Maplewood Creek

The on-Site reach of Maplewood Creek that was assessed was approximately 85 m in length, generally flowing in a southern direction for approximately 45 m before curving west to Maplewood Pond (Photograph 1 and 2). The reach had an average bankfull width of 3.8 m, an average wetted width of 3.1 m, an average bankfull channel depth of 0.4 m, an average residual pool depth of 8 cm, and exhibited a riffle-pool morphology with an average channel gradient of 3.5%. The watercourse was in a stage of moderate flow (i.e., 81% of bankfull) during the survey, and average flow velocity was estimated to be 0.11 m/s.

Although significant gravel and cobbles were present in portions of the reach, the dominant substrate was observed to be sand (Photograph 3 and 4). Small woody debris was abundant throughout the reach (Photograph 5). Large Woody Debris (LWD) (i.e., >10 cm in diameter), however, was limited to three embedded logs located beneath a pedestrian bridge (Photograph 6). The left bank (when facing downstream) was sloping in shape, and the right bank exhibited a slight undercut. Significant overhanging vegetation was observed, which consisted of mature mixed conifer and deciduous forest with crown closure of approximately 80% (Photograph 7). Instream vegetation was limited to mosses and algae.

The canopy vegetation layer in the riparian area was dominated by bigleaf maple (*Acer macrophyllum*), with lesser components of western hemlock, western redcedar (*Thuja plicata*), and red alder (*Alnus rubra*). The shrub layer included vine maple (*Acer circinatum*), Indian plum (*Oemleria cerasiformis*), salmonberry (*Rubus spectabilis*), red huckleberry (*Vaccinium parvifolium*), red elderberry (*Sambucus racemosa*), snowberry (*Symphoricarpos albus*), Sitka mountain ash (*Sorbus sitchensis*), beaked hazelnut (*Corylus cornuta*), and sword fern (*Polystichum munitum*).

Invasive plant species documented on-Site in the riparian area of Maplewood Creek include isolated occurrences of Himalayan blackberry (*Rubus armeniacus*) and English holly (*Ilex aquifolium*), and significant patches of English ivy (*Hedera helix*) on some sections of the creek banks (Photograph 8). Significant Japanese knotweed (*Fallopia japonica*) was observed in the riparian area off-Site, downstream of the creek outlet from Maplewood Pond (Photograph 9).

A rock and concrete sill was located at the creek outlet from Maplewood Pond (Photograph 10). This structure is considered to present a partial barrier to upstream fish passage. After emerging from the pond, Maplewood Creek flows for approximately 325 m, meandering through Seymour River Heritage Park, before reaching the Seymour River.

The following Table 2-2 presents the results of water quality measurements collected during the field survey.

Table 2-2 Maplewood Creek Water Quality

Sample Location	Temp. (°C)	Dissolved Oxygen (mg/L)	Conductivity (µS/cm)	pH	TSS (mg/L)
Upstream end of Maplewood Creek on farm property	13.0	8.65	155.4	7.53	13.5
Downstream of outlet from Maplewood Pond	15.0	8.25	1.56×10^{-6}	7.30	8.0

2.2.3 Terrestrial Habitat in Proposed Creek Alignment

In order to accommodate the required flood-protection diking it has been proposed that the new alignment of Maplewood Creek be constructed northwest of its current location, tying into the northwest corner of Maplewood Pond (Photograph 11). This area includes the northern section of Maplewood Farm and a portion of the DNV park land northwest of the existing fence (Photographs 12 & 13). This area is relatively flat, with the exception of two depression landforms located outside the farm fence. The vegetation community was generally similar to that surrounding Maplewood Creek and described in Section 2.2.1. The extent of invasive Himalayan blackberry and English ivy was greater outside of the farm property, and numerous ivy-covered trees were observed north of the fence (Photograph 14). A network of paved and unpaved footpaths was present in this area within the farm property (Photographs 15 and 16).

Wildlife observed during the field survey was limited to Mallards (*Anas platyrhynchos*), Northwestern Crows (*Corvus caurinus*), and American Robins (*Turdus migratorius*). Several Wood Duck (*Aix sponsa*) nesting boxes were present on trees adjacent to Maplewood Creek within the farm property (Photograph 17). Although nests were not observed during the field survey, numerous large-diameter trees were present. These trees have the potential to provide habitat for primary cavity nesting birds (e.g., chickadees, nuthatches, creepers, woodpeckers), secondary cavity nesters (e.g., owls, flycatchers, swallows, wrens), and small animals such as bats and squirrels. Several large-diameter maple trees were observed, with large branches that could potentially support raptor nests (Photograph 18). The forested area on-Site has the potential to provide foraging habitat, predatory cover, and thermal cover for a variety of urban-adapted mammal species, including squirrels (*Sciuridae* sp.) and raccoons (*Procyon lotor*), as well as black-tailed deer (*Odocoileus hemionus*) in the area outside of the fence.

3. PROPOSED RESTORATION AND ENHANCEMENT WORKS

3.1 Habitat Objectives

The primary objective of the proposed habitat enhancement in the new reach of Maplewood Creek is to create spawning and rearing habitat for chum and coho salmon. Both species have been previously documented in the creek. Adult chum and chum carcasses have been observed in the creek by Keystone Environmental during previous visits. While chum fry migrate directly to the sea soon after emergence (WDFW, 2017), coho fry spend at least one winter in freshwater before moving to the ocean. In many coastal systems, it is the amount of suitable winter habitat that limits coho production (DFO, 2017). DFO has identified creation of overwintering coho habitat as a key habitat objective.

A secondary objective of the proposed habitat is to support other native wildlife present in the Seymour River watershed. This includes fish species documented in the Seymour River that may be able to access Maplewood Creek following future improvements to fish passage (e.g., coastal cutthroat trout), birds and pollinating insects that will benefit from riparian habitat enhancement, and Species at Risk such as Pacific water shrew and northern red-legged frog, which have previously been documented within 5 km of the Site.

The existing on-Site reach of Maplewood Creek exhibits relatively high aquatic habitat value, based on the naturalized channel conditions, riffle-pool sequence, and abundant overhanging native vegetation. The new proposed creek reach will replicate the existing conditions that are well-suited to salmonid spawning and rearing, while also incorporating design elements to maximize productivity of salmon habitat, such as (LWD), boulder clusters, and off-channel habitat.

It is understood that aquatic habitat enhancement and restoration has been completed for the reach of Maplewood Creek located upstream of Mount Seymour Parkway and downstream of Riverside Drive, including installation of box culverts, substrate improvements, and construction of an off-channel pond in Maplewood Park. It is also understood that future habitat improvements may be conducted in Maplewood Pond and/or the stream reach downstream of the pond (e.g., pond removal, Japanese knotweed treatment). The proposed on-Site restoration and enhancement works are intended to complement the upstream improvements and potential future improvements downstream.

3.1.1 Chum and Coho Habitat Requirements

Designs for the proposed segment of Maplewood Creek will incorporate the physical conditions and attributes of productive habitat for the target species of chum and coho, based on research conducted in coastal systems. These conditions include water quality levels, flow velocity, substrate size, and water depth. Table 3-1 below describes the habitat requirements for chum and coho salmon, and salmonids in general.

Table 3-1 Salmonid Habitat Requirements

Species	Coho	Chum	General Salmonid Species
Total Suspended Solids (mg/L)	-	-	<25 ¹
Dissolved Oxygen (mg/L)	-	-	≥5 ¹
pH	6.1–8.2 ²	-	6.5–8.5 ³
Spawning Water Temperature (°C)	4–9 ¹	8 - 13 ¹	-
Spawning Water velocity (cm/s)	30–50 ²	21.3 - 83.8 ⁴	-
Spawning Habitat	Areas between pools and riffles ²	Immediately above turbulent areas, or where there is upwelling from groundwater channels ⁴	-
Spawning substrate size (cm)	Small to medium gravel ⁵	Small to large gravel, sometimes containing small proportions of silt or sand ⁵	1.3–10.2 ¹
Spawning Water Depth (cm)	10–54 ²	13.4 - 49.7 ⁴	15–35 ¹
Redd gravel depth (cm)	-	30 - 50 ⁴	-
Incubation Temperature (°C)	4.5–11 ²	-	4.5–12 ¹
Rearing Habitat	Areas with low water velocities such as side channels, back waters, beaver ponds, deep river pools, and pools formed by large woody debris and root wads ⁶	Predominantly migrate directly to marine water for rearing ⁷	-

- Information not available

¹ Bjornn, T.C. and Reiser, D.W., 1991. Habitat Requirements of Salmonids in Streams. Chapter 4.

² Mills, T.J., 2004. Matrix of Life History and Habitat Requirements for Feather River Fish Species, Coho Salmon.

³ MacDonald Environmental Sciences Ltd., 1998. Water Quality Assessment and Recommended Objectives for the Salmon River. Available at:

<http://www.env.gov.bc.ca/wat/wq/objectives/salmon/salmon.html#objectives>. Accessed on July 5, 2017.

⁴ Groot, C. and Margolis, L., 1991. Pacific Salmon Life Histories. Pages 232-243.

⁵ Roberge, M. et al., 2002. Life History Characteristics of Freshwater Fishes Occurring in British Columbia and the Yukon, with Major Emphasis on Stream Habitat Characteristics.

⁶ DFO, 2017. Habitat Requirements for Coastal Coho Salmon Populations. Accessed July 5, 2017.

⁷ Washington Department of Fish and Wildlife, 2017. Available at: <http://wdfw.wa.gov/fishing/salmon/chum/ecosystems.html>. Accessed July 6, 2017.

To achieve the habitat objectives for the re-aligned reach of Maplewood Creek, it is proposed that a meandering channel be constructed with a riffle-pool sequence and substrate suitable for spawning. In addition, an off-channel rearing pond will be constructed to support overwintering coho fry.

3.1.2 Habitat Objectives for Species at Risk

Habitat requisites of the Pacific water shrew include aquatic areas to support foraging and provide a moist microclimate, coniferous or deciduous forest or dense marsh/wetland vegetation to provide cover and moisture, and woody debris to provide cover, nesting habitat, and foraging substrate (Environment Canada, 2014). The majority of Pacific water shrew occurrences have been documented within 50 m of water, therefore, a forest or dense vegetation buffer width is recommended on each side of the watercourse (Environment Canada, 2014).

Northern red-legged frogs require both aquatic and terrestrial breeding habitats in a suitable spatial configuration to complete the various phases of their life cycle (Environment Canada, 2016). This species can reside in a variety of permanent and temporary freshwater bodies, including ponds, ditches, marshes, and slow moving portions of rivers (Environment Canada, 2016). Aquatic habitat requisites of this species include shallow slopes, emergent vegetation, and forest cover within the surrounding area (Environment Canada, 2016). Egg masses are typically anchored to emergent or submergent vegetation in semi-exposed areas within shallow water (Environment Canada, 2016). Important habitat features for tadpoles include herbaceous and emergent vegetation, and submerged woody debris (Environment Canada, 2016). Terrestrial habitat requisites for the frog include the presence of a closed canopy to provide a cool and moist microclimate, non-compacted soil, large woody debris, and undisturbed leaf litter (Environment Canada, 2016). Juveniles typically occupy moist, densely vegetated riparian habitats (Environment Canada, 2016).

3.2 Proposed Creek and Off-channel Habitat Design

The document “Fish Habitat Rehabilitation Procedures” (Slaney, P.A. and Zaldokas, D, 1997) was reviewed as guidance for the design of the proposed creek and off-channel habitat. This document contains a literature review of various stream restoration practices, in numerous locations across BC. Diagrams from the aforementioned document illustrating design specifications for in-stream habitat features are provided in Appendix B. The following design criteria for salmonid habitat will be implemented during construction of the new reach of Maplewood Creek, based habitat requisites of the target species and the existing physical conditions at the Site.

3.2.1 Instream Requirements

3.2.1.1 Stream Morphology

The existing creek exhibits a riffle-pool morphology. The proposed creek will also be constructed in a riffle-pool sequence, as the natural topography of the Site supports this type of morphology. Most salmon spawn in transitional areas between pools and riffles, which result in favourable percolation of water through the incubation gravel and enhanced water flow to the developing eggs (Levy, 1993).

It is proposed that a 95 m long meandering reach will be constructed from the northeast corner of the Site (from the realigned creek on the Anthem development property) to the tie-in point at the northwest corner of Maplewood Pond. Water depth is an essential variable for salmon spawning habitat. Salmon prefer depths of 10–54 cm for spawning (Table 3-1). Creek dimensions will be designed by the project engineer to accommodate this water depth.

For the purposes of the preliminary design, it is proposed that the bankfull width of the new creek reach will be 2.8 m to match the width of the upstream reach on the Anthem property. It is understood, however, that the new reach may be designed to be wider during the detailed design stage to match the surrounding topography.

The riffle-pool morphology of the creek will be designed to contain the following features:

- The average wave length of the meanders will be between 22.4 m and 33.6 m (i.e., 8 to 12 times the bankfull width of 2.8 m; as per Appendix B, Diagram A).
- Average radius of curvature of the meander bends will be approximately 6.44 m (i.e., 2.3 times the bankfull width of 2.8 m, as per design guidance). At this curvature, the energy lost as the flow changes direction is uniformly distributed around the curve (Newbury, 1997).
- Undercut banks will be engineered into the meander bends to provide shelter from predators for salmonids.
- Repeating riffle-pool sequences, constructed with an average spacing between 11.2 m and 16.8 m (i.e., 4 to 6 times the bankfull width of 2.8 m; as per Appendix B, Diagram A).
- Riffles will be constructed of boulders and embedded woody debris arranged in diverse sizes and shapes.
- Riffles will be constructed so that their maximum height above the streambed is below the bankfull height.
- The creek alignment will be designed so as to retain existing large-diameter trees where possible.

3.2.1.2 Bank Construction

Suitable bank construction may enhance fish habitat by providing protective cover, maintaining channel depth and temperature, and preventing instream sediment accumulation. Bank construction will be conducted as per the following guidelines:

- Proposed creek banks will be constructed with 450 mm thickness 25 kg rip rap.
- Filter materials will be placed beneath the rip rap to prevent leaching of fine sediment into the creek.
- Salmonid habitat features (i.e., LWD, boulders, vegetation) will be incorporated during bank construction. Native riparian species will be planted within interstitial spaces between rip rap, to provide cover and shade for fish.

3.2.1.3 Substrate

Suitable substrate for chum and coho spawning will be placed in the bed of the new channel. For most species of salmonids, the general guideline is approximately 80% of 10 mm to 50 mm gravel, with the remaining 20% consisting of 100 mm gravel, and a small portion of coarse sand (2 to 5 mm). This is consistent with the chum and coho spawning requirements in Table 3-1 above. As chum salmon construct redds at a depth of approximately 30–50 cm within the gravel streambed, it is important that suitable volumes of gravel be placed on the streambed to accommodate this.

3.2.1.4 Large Woody Debris

LWD provides various benefits to Pacific salmon habitat. It contributes to channel stabilization, energy dissipation, and sediment storage. Small channels such as Maplewood Creek are highly dependent on instream LWD for stability. LWD creates storage sites of biological activity, trapping salmon carcasses and other organic matter, which contributes to aquatic biomass productivity. LWD may also be utilized as a component of integrated bank protection, while enhancing habitat by providing cover and drop-in nutrients. The LWD within the proposed creek will be designed in accordance with the following guidelines:

- Functional LWD measures at least 6–9 m in length and 60 cm in diameter.
- Rootwads, sections of tree trunks, or other pieces of woody debris will be anchored or embedded into the creek banks so as to remain stable in the stream during the expected flow regime.
- These structures will be placed in areas of lowest streamflow (channel margins, back eddies, etc.) that exist during the high flow period of winter and spring.
- LWD will be oriented across the channel in varying orientations, to promote diversity within the channel.
- LWD will also be placed in the off-channel rearing pool.
- Partial spanning structures will be used to create spawning habitat. This includes wing deflectors (single, or paired on opposing banks), or groynes. These structures can be constructed with large rocks or logs, extending outwards from the stream bank in an upstream direction, and located at a shallow profile relative to the streambed (Appendix B, Diagram B).
- LWD frequency in small unmanaged streams ranges from 18–61 pieces per 100 m of stream length (Cederholm 1997). 18 pieces of LWD (rootwads and log deflectors) will be installed into the channel banks for the proposed creek reach.
- Where possible, LWD from trees on-Site and the neighbouring development site that are required to be cleared will be used.
- For maximum longevity, resistant coniferous species such as Douglas-fir or western red cedar are recommended for LWD placement within aquatic environments.
- The stability of woody debris will be maximized if its orientation to the flow is less than 30 degrees.

3.2.1.5 Boulder Placement

Placement of boulders within a stream environment typically contributes diversity in substrate conditions, water depth, velocity, cover, and rest areas for fish inhabiting the creek. During peak flow events, the boulder cluster acts to stabilize the riffle crest and transfer the scouring forces to the pool downstream. Boulder placement within the proposed creek will be designed to follow these guidelines:

- Boulders are considered to be greater than 0.3 m in diameter.
- Boulders will be placed on the downstream face of the riffles to build the riffle base and discourage excessive erosion in that area.
- Boulder clusters in groups of 5 to 7 boulders are durable and well-inhabited by fish when placed at the bottom half of riffle habitats (Ward 1997). Due to the low flow velocity in Maplewood Creek, clusters of 3 boulders are anticipated to be stable, and are recommended for the proposed creek reach. Boulder clusters will be concentrated on the downstream portion of each riffle sequence, as clusters placed at or near the riffle crest will cause aggradation and diversion.
- Diagram C in Appendix B illustrates the general recommended placement of boulder clusters. This design will be adapted for the smaller width and lower flow regime of Maplewood Creek.
- Spacing within boulder clusters should be 0.5 to 1 m, increasing with stream size, and clusters staggered with about a 3 m separation, as an operational guide.
- Boulder clusters should span the channel and be placed in an arrangement that guides the flow in its natural bend.

3.2.2 Off-channel Habitat Requirements

Of the salmonid species, chum and coho are most commonly associated with off-channel habitats (Lister 1997). Off-channel pond environments are significant in juvenile salmonid rearing and overwintering, specifically for coho salmon. Coho juveniles often utilize small stream and pond environments that are either inaccessible to adult coho or are unsuitable for spawning.

In an effort to promote coho in Maplewood Creek, construction of an off-channel rearing pond is proposed on the Site. The pond will be constructed using the following design criteria to maximize the potential for coho rearing and overwintering:

- The pond will be constructed on the northwest side of the proposed creek, approximately 15 m north of the existing Maplewood Pond
- The pond will be approximately 90 m² in area. Larger ponds typically do not support as many fish per unit area as smaller ponds (Lister 1997).
- The pond will be constructed at depths ranging between 0.75 m and 3.5 m, containing both shallow and deep areas. Shallow areas will provide benthic insect production, and deep areas will provide overwinter security.

- Placement of wood debris will be incorporated into construction of the ponds, which will improve rearing and overwintering capability.

Invasive American bullfrogs (*Lithobates catesbeianus*) present a problem for off-channel rearing ponds, and have been known to inhabit man-made ponds on the north shore. Bullfrogs eat aquatic insects, amphibians, and juvenile fish, and can inhibit the productivity of salmonid rearing ponds. They require permanent waterbodies for breeding sites, as breeding occurs mainly between May and July, and larvae overwinter at least once before metamorphosing (CDC 2017b).

To prevent bullfrogs from occupying the pond and undermining its salmonid habitat capacity, the off-channel pond will be designed to dry out during the summer. This will inhibit establishment of bullfrogs, while still preserving the rearing habitat during the critical winter period. Drying-out of the pond during summer can be achieved by engineering the pond invert elevation to allow inundation from upstream flow when water levels are sufficient, but result in draining during the driest seasonal period.

3.2.3 Existing Creek Channel Infilling

The section of the existing creek channel upstream of the footbridge will be infilled and revegetated once the new creek reach has been constructed and connected to the creek and pond. It is proposed that the segment of the existing creek channel downstream of the bridge be retained, as it has potential to function as aquatic habitat as a “back eddy” feature of Maplewood Pond. This area may also provide opportunities for future habitat enhancement. The full extent of infilling of the existing creek channel, and potential habitat utilization for the remaining creek channel, will be determined in consultation with DNV during the detailed design process.

3.2.4 Riparian Area Revegetation

Riparian vegetation provides various benefits to fish habitat, including stream temperature regulation, providing bank stability, filtration of sediment, cover from predation, and nutrient inputs from leaf-litter and insect drop. Riparian vegetation for the proposed creek will be selected based on native riparian vegetation species observed in the riparian area of the existing reach, as well as the DNV document “Planting Criteria and Recommended Native Tree and Shrub Species for Restoration and Enhancement of Fish and Wildlife Habitat”.

A planting plan for installation of native vegetation will be designed prior to the creek relocation works. Plants will be installed in areas disturbed during restoration works and invasive species removal, as well as areas within the 15 m SPEA of the new creek segment. In addition to revegetation in the riparian area of the new reach of Maplewood Creek, the existing reach will be restored through revegetation following infilling.

Table 3-2 presents a breakdown of the plant species to be included in a final planting plan along with their ecological attributes. Plants on this list have been selected based on their ability to contribute to bank stability and wildlife habitat/forage values, as well as competing with invasive plant species.

Table 3-2 Riparian Planting Plan Species list

Common Name	Scientific Name	Pot Size	Ecological Value
Trees			
Bigleaf maple	<i>Acer macrophyllum</i>	5 Gallon	Litter inputs, shade value, nesting habitat
Red alder	<i>Alnus rubra</i>	5 Gallon	Litter inputs, shade value, slope stability
Western redcedar	<i>Thuja plicata</i>	5 Gallon	Shade value, nesting habitat
Shrubs			
Beaked hazelnut	<i>Corylus cornuta</i>	2 Gallon	Fruit bearing
Indian plum	<i>Oemleria cerasiformis</i>	2 Gallon	Early flowering for pollinators, fruit bearing
Red elderberry	<i>Sambucus racemosa</i>	2 Gallon	Fast-growing, fruit bearing, attracts hummingbirds
Red huckleberry	<i>Vaccinium parvifolium</i>	2 Gallon	Fruit bearing, litter inputs
Salmonberry	<i>Rubus spectabilis</i>	2 Gallon	Fruit bearing, litter inputs, shade
Snowberry	<i>Symphoricarpos albus</i>	2 Gallon	Fruit bearing, slope stability
Sword fern	<i>Polystichum munitum</i>	1 Gallon	Fast-growing, slope stability, ground cover
Vine maple	<i>Acer circinatum</i>	2 Gallon	Shade, litter inputs

The following criteria will be adhered to during design and implementation of the detailed planting plan:

- All plant material used in the project will be inspected by a representative of the DNV parks department before installation. DNV has the right to refuse any or all of the selected plant material if it does not meet current BC Landscape and Nursery Association Standards.
- All riparian plantings should be based on 1 tree or shrub per 1 square metre density.
- Coniferous trees should comprise not less than 10% nor more than 25% of the tree stock planted.
- All tree/shrub species should be of guaranteed nursery stock.
- The botanical name should be used when ordering stock to ensure that the desired native species is being purchased. Each specimen should be tagged with the botanical name and the tag should be left attached after planting.
- Tree stock should be a minimum of 1.2 metres (4 feet) in height when purchased and planted 1.5 to 2 metres apart.
- Stock planted during the fall (Sept–Oct) and spring (Mar–Apr) has the greatest likelihood of surviving. Regular watering may be required until the plants are established.
- Planting on a given area being enhanced must be successful to an 80% take. If more than 20% die over one year, replanting is necessary
- A minimum of 50% of trees and shrubs planted should be fruit-bearing species

Annual monitoring of restoration planting survivorship will be conducted for a period of five years, as required by DNV (unless a three year review indicates that requirements have been met). Riparian planting must exhibit a minimum of 80% survivorship over the monitoring period, or additional planting will be conducted.

3.3 Habitat Effectiveness Monitoring

Habitat effectiveness monitoring will be conducted once the new creek reach has been connected to the Maplewood Creek system, to evaluate whether the habitat objectives (i.e., chum and coho spawning and coho overwintering) are being met. Baseline conditions will be established prior to the start of the project, using the existing reach of Maplewood Creek. Both structural indicators (measure of physical attributes), and functional indicators (measure of functions provided by the ecosystem) will be assessed.

Depending on when the creek relocation work occurs, more detailed baseline assessments can be conducted to assist in evaluating efficacy of the constructed habitat. These baseline assessments may include fish and benthic organism sampling, which were not conducted during the June 2017 field assessment. Minnow trapping surveys or electrofishing during appropriate least-risk conditions are recommended to determine fish abundance and diversity. Baseline fish surveys will provide a benchmark to help measure the success of the new aquatic habitat.

Once creek relocation works are complete, and the new reach is a functioning component of Maplewood Creek, physical attributes can be measured to determine if they are consistent with the target habitat requirements. The qualities assessed will include water quality values for the following parameters:

- Temperature
- pH
- Dissolved oxygen
- TSS

In addition to water quality measurements, the following physical attributes will be assessed to confirm they meet the requisite habitat criteria:

- Flow velocity
- Water depth
- Substrate size
- Substrate depth
- LWD volume
- Bank stability
- Riparian plant survivorship

The constructed habitat will be assessed over multiple years to confirm it is physically stable and is effectively supporting environmental values (i.e., healthy benthic community, in-stream rootwads and rocks in place, water quality parameters comparable to existing creek). The invert level of the rearing pond will also be assessed to confirm that it effectively drains during summer months to prevent bullfrog establishment. Adaptive management will be implemented to correct deficiencies if required.

Although species at risk (i.e., Pacific water shrew and northern red-legged frog) were not observed during the field survey, and have not been documented on the Site, the proposed creek and off-channel habitat design described in Section 3.2 was developed to include habitat requisites for these species. If these species are observed on the Site during habitat effectiveness monitoring surveys, care should be taken to maintain the habitat features with which they are associated.

A weir and wildlife exclusion grates located at the Maplewood Farms pond outlet, downstream of the creek relocation works, are considered to represent an obstruction to upstream fish migration during certain flow conditions. The potential fish biomass improvements that would be anticipated under optimal fish passage conditions, are unlikely to result following these relocation and enhancement works, based on the existing obstructions present. These downstream features are considered a limitation to on-site enhancement works.

4. EFFECTS ASSESSMENT

The proposed creek relocation works will result in temporary impacts to aquatic and riparian habitat during construction. Effects of the project alignment include infilling of the existing portion of Maplewood Creek, excavation and vegetation removal in the areas of the proposed reach and off-channel habitat, and creation of access paths for equipment and workers during construction. The Site will be accessed primarily from Heritage Park Lane, to minimize disturbance to vegetated areas. An access path may be constructed through the grass-covered area north of the Site, if necessary. An Arborist Survey was conducted for the Site by Diamond Head Consulting Ltd., and indicated that approximately 15 trees will be removed to accommodate the creek and off-channel habitat alignment. The alignment of the creek meanders was designed to minimize removal of trees, where possible. In addition to temporary disturbance impacts resulting from the proposed work, accidental environmental impacts may occur during construction if appropriate mitigation measures are not implemented correctly.

Potential impacts to fish and fish habitat include accidental release of deleterious substances into the aquatic environment, degrading water quality through erosion and sedimentation, and causing physical harm to fish during decommissioning of the existing creek. There is also potential for works to result in impacts to habitat downstream of the Site, including Maplewood Pond, the reach of Maplewood Creek located south of the pond, and the Seymour River.

Potential impacts to vegetation include loss of vegetation within the proposed creek and pond footprint (which will be offset through riparian planting and restoration of the former creek channel) and temporary disturbance to plant communities present in construction access and laydown areas. The proposed creek and off-channel habitat was designed to minimize removal of vegetation, where possible. The proposed works will involve removal of invasive English holly, English ivy, and Himalayan blackberry. There is potential for works to accidentally spread these invasive species if procedures for proper handling and disposal are not implemented.

Potential impacts to wildlife include bird nest disturbance and loss of habitat during vegetation clearing and behavioural disturbance to other wildlife that may be present on-Site during works. Wildlife potentially present at the Site is primarily urban-adapted species, which are less likely to be disturbed by human activity.

As indicated in Table 4-1 below, the proposed creek and off-channel habitat will result in a net gain of both aquatic and riparian habitat. The aquatic habitat area was determined using the approximate length of the creek and the average bankfull width. Measurements for the riparian area were based on the 15 m DNV SPEA, in addition to an approximately 1 m area between the high-water-mark and top-of-bank of the creek.

Significant impacts to fish and fish habitat are not expected to occur as a result of the project, as there will be a net gain in both aquatic and riparian habitat. The project will provide improved habitat complexity, due to the addition of spawning habitat along the new reach, and the off-channel pond for salmonid refuge and rearing. Vegetation designated for removal will also be re-used where possible (i.e., removed trees will be repurposed and used as in-stream rootwads).

4.1 Habitat Balance

A habitat balance sheet that compares existing and proposed habitat areas is presented below in Table 4-1. Aquatic habitat was evaluated in terms of “existing” and “post-construction” conditions, based on results of the field assessment and the preliminary creek design. The resulting calculated areas are shown as either a gain or a loss of habitat.

Table 4-1 Habitat Balance Sheet Based on Conceptual Creek Designs

Habitat	Existing Conditions	Post-Construction Condition	Net Area of Improvement to Fish Habitat
Aquatic Habitat (m²)			
Maplewood Creek (Average length x Average Bankfull Width)	323	342	(+) 19
Off-channel Habitat	0	90	(+) 90
Riparian Habitat (m²)			
Within 15 m DNV SPEA	1,750	2,565	(+) 815
Total			(+) 924

The proposed creek reach and off-channel rearing pond will result in a net benefit of 109 m² of aquatic fish habitat and 815 m² of riparian fish habitat, for a total net benefit of 924 m² of fish habitat. It is understood that the new creek may be constructed wider than the 3.6 m bankfull width proposed in the preliminary design, which would result in a greater net benefit than that presented in Table 4-1.

The proposed creek alignment has been designed to minimize the area of impermeable surfaces, which have no riparian function, present within the 15 m SPEA setback. The proposed creek relocation works are anticipated to result in a net benefit of aquatic habitat, due to the extent of existing buildings and impermeable surfaces currently present in the SPEA on the east bank of the existing creek. A detailed habitat balance will be prepared once the proposed creek alignment is finalized to demonstrate the net benefit to riparian habitat.

5. ENVIRONMENTAL MANAGEMENT

A Site- and project-specific Environmental Management Plan (EMP) will be prepared to guide environmental protection practices during creek relocation works. The EMP will be submitted to DNV for approval prior to commencement of work, and will include detailed prescriptions and specific Best Management Practices (BMPs) related to environmental values that may potentially be impacted during works. The EMP will include an Erosion and Sediment Control Plan and Spill Prevention and Response Plan, in addition to detailed protocols for the protection of fish during instream works. The following subsections describe general environmental management strategies to be implemented during works, which will be expanded upon in the EMP.

5.1 Fish and Fish Habitat Protection

Instream works will be conducted during the least risk timing window for Pacific salmon and trout (August 1 – September 15). The proposed new reach of the creek will be constructed prior to dewatering and decommissioning the existing reach, to maintain downstream flow. A permitted fish salvage will be conducted prior to dewatering to remove fish from the isolated work area within the existing reach.

Environmental monitoring and water quality testing will be conducted for the duration of instream works. Water quality results will be compared with background values collected upstream of the work area and with the applicable criteria for the protection of freshwater aquatic life from the BC Water Quality Guidelines. If exceedances of the acceptable water quality guidelines are recorded, instream works will be ceased, until levels of water quality parameters are within the water quality guidelines.

5.2 Vegetation and Wildlife

Construction of the new creek will require clearing of vegetation within the proposed alignment. Detailed mitigation measures and strategies for the protection of vegetation and wildlife will be included in the EMP. The required extent of vegetation clearing will be clearly delineated in the field prior to commencement of work to prevent accidental clearing beyond the required extent. Clearing will be conducted during the least-risk window for songbird nesting (September 1 to February 28), or a pre-clearing nesting survey will be conducted. If an active nest is identified during the survey, an appropriate buffer will be established and clearing within that area will not occur until it is confirmed by a QEP that the nest is no longer active.

The proposed creek relocation works will require removal of invasive species including Himalayan blackberry, English ivy, and English holly. Japanese knotweed was not observed in the proposed creek relocation work area during the field assessment, and knotweed removal and treatment is not expected to be required to facilitate the proposed works. An Invasive Species Management Plan will be prepared as a component of the EMP, outlining specific procedures for removal, handling, and disposal of invasive plants present within the SPEA, including Himalayan blackberry, English holly, and patches of English ivy. Measures for monitoring and management to suppress the regrowth of invasive plants will be included in the riparian revegetation plan.

5.3 Environmental Monitoring

Environmental monitoring will be conducted under the supervision of a QEP for the duration of construction works. Details on monitoring frequency will be included in the EMP, and responsibilities of the Environmental Monitor will include the following:

- Full-time monitoring during in-stream works to confirm that temporary creek flow diversion and fish protection measures are functioning as intended
- Monitoring during clearing to confirm that vegetation removal is limited to the extent required by the project objectives
- Regular testing of downstream water quality in Maplewood Creek to confirm that project activities are not adversely impacting water quality
- Preparation of monitoring reports summarizing site conditions, restoration activities, and environmental data for submission to DNV and the project team.

The Environmental Monitor will have the authority to suspend works if non-compliance with the EMP or applicable environmental regulations. The Environmental Monitor will work with the contractor to promptly implement corrective measures before work resumes.

6. CONCLUSION

Aquatic habitat value in Maplewood Creek has historically been adversely impacted by loss of riparian vegetation, channelization, and water quality issues. Realignment of the reach of the creek located on-Site is required in order to accommodate construction of flood-protection diking, which will be incorporated into the proposed Anthem development located east of the Site. It is proposed that an approximately 95 m long meandering creek reach with a 90 m² off-channel rearing pond be constructed at the north end of Maplewood Farm and Seymour River Heritage Park, and that the existing reach in Maplewood Farm be infilled to enable construction of the dike.

The proposed aquatic habitat will be designed to support spawning and rearing of chum and coho salmon, which have previously been documented in Maplewood Creek, and is intended to complement habitat improvements completed upstream and potential future downstream improvements. Based on preliminary designs, the proposed creek relocation will result in a net benefit of 109 m² of aquatic fish habitat and 815 m² of riparian fish habitat, for a total net benefit of 924 m² of fish habitat.

Habitat attributes from the existing creek will be replicated in the new creek reach along with beneficial habitat features currently not present in the existing creek. These proposed habitat features include LWD, undercut banks, and suitable substrate for salmonid spawning. Based on the results of a field assessment of the existing creek reach and a preliminary habitat balance from conceptual designs, the proposed creek realignment will result in a net benefit to aquatic and riparian habitat.

An EMP will be prepared to guide environmental protection practices and mitigation measures during creek works. This EMP will clearly define the acceptable timing windows and procedures for flow diversion and fish salvaging during creek works, and will define the role and responsibilities of the designated Environmental Monitor. Permits and approvals required to complete the proposed creek works may include a DFO Request for Review (and Authorization if necessary), a BC *Water Sustainability Act* Approval, and MFLNRO and DFO fish salvage permits. Habitat effectiveness monitoring will be implemented following completion of works to confirm that habitat objectives are being met, and to guide implementation of adaptive management if required.

7. PROFESSIONAL STATEMENT

This report has been prepared and reviewed by Keystone Environmental Ltd. approved personnel who have the credentials and knowledge of the applicable public laws, regulations and/or policies which apply to this report.

Findings presented in this report are based upon (i) reviews of available documentation and discussions with available personnel and regulatory representatives, (ii) review of available records and the terms and conditions for the planned construction, and (iii) observations of the Site and surrounding lands. Consequently, while conclusions and recommendations documented in this report have been prepared in a manner consistent with that level of care and skill normally exercised by other members of the environmental science and engineering profession, practising under similar circumstances in the area at the time of the performance of the work, this report is intended to provide information and to suggest mitigative strategies to reduce, but not necessarily eliminate, the potential for environmental impacts to occur as a result of planned construction activities at the Site. This report is meant to be a living and flexible document that can be used to provide guidance in the environmental assessment process.

This report has been prepared solely for the internal use of Anthem Maplewoods Developments LP pursuant to the agreement between Keystone Environmental Ltd. and Anthem Maplewoods Developments LP as its submittal to the District of North Vancouver. By using this report, Anthem Maplewoods Developments LP and the District of North Vancouver agree that they will review and use the report in its entirety. Any use which other parties make of this report, or any reliance on or decisions made based on it, are the responsibility of such parties. Keystone Environmental Ltd. accepts no responsibility for damages, if any, suffered by other parties as a result of decisions made or actions based on this report.

This report has been prepared by Jade Jaeggles and Barry Warren, and reviewed by Craig Patterson.

August 11, 2017
Date

for: 

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Environmental Scientist



Barry Warren, B.A., Dipl.T.
Environmental Technician



Craig S. Patterson, R.P. Bio.
Project Manager

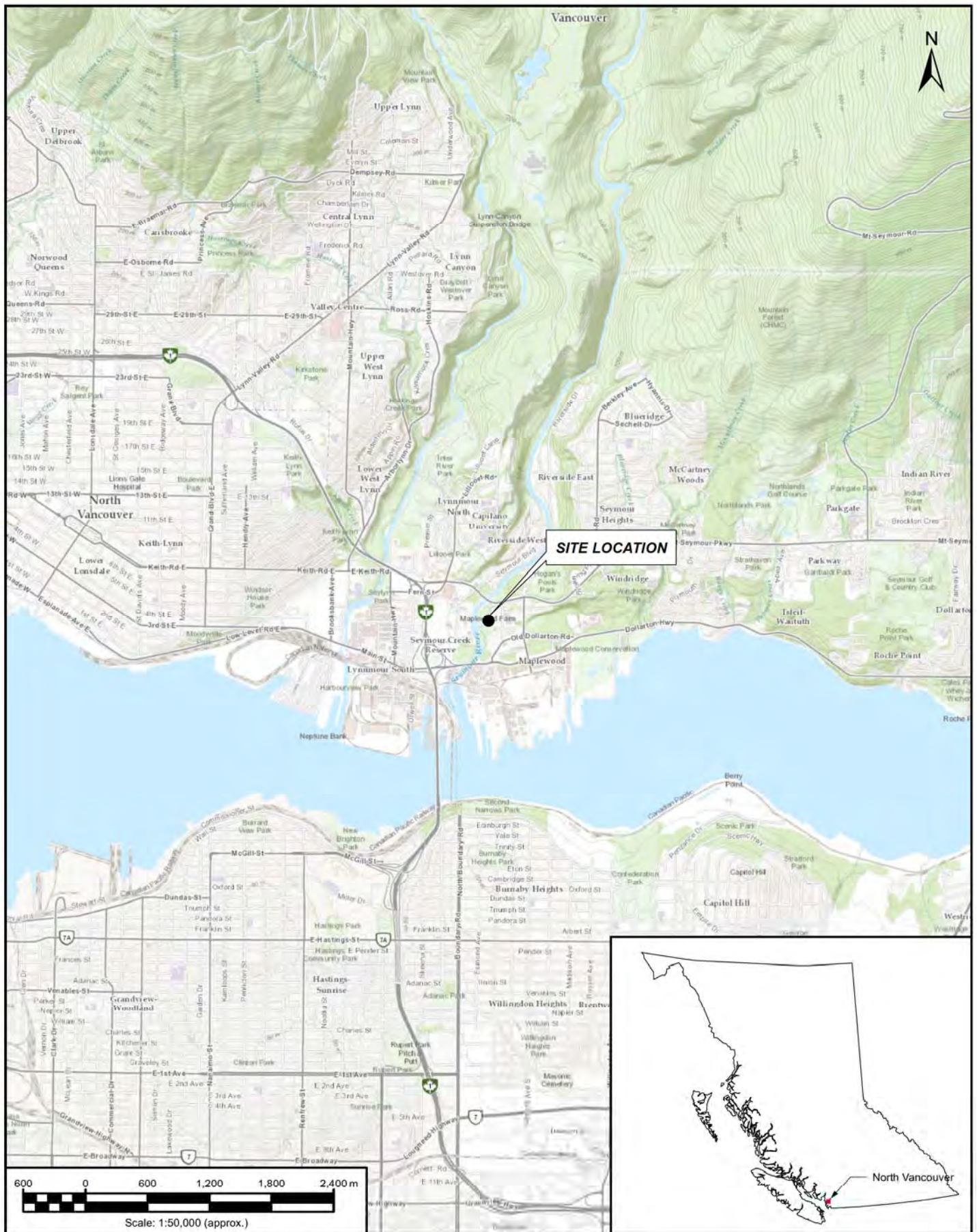


8. REFERENCES

- Bjornn, T.C. and Reiser, D.W., 1991. Habitat Requirements of Salmonids in Streams. Chapter 4.
- CDC (Conservation Data Centre). 2017a. Rare element occurrences from CDC iMap. Accessed from the website <http://maps.gov.bc.ca/ess/sv/cdc/> on June 28, 2017.
- CDC (Conservation Data Centre). 2017b. Species Summary: *Lithobates catesbeianus*. BC Ministry of Environment. Available at: <http://a100.gov.bc.ca/pub/eswp/>. Accessed July 7, 2017.
- Cederholm, C. Jeff, Larry G. Dominguez and Tom. W. Bumstead. 1997. Rehabilitating Stream Channels and Fish Habitat Using Large Woody Debris. Chapter 8 in Fish Rehabilitation Procedures. BC Ministry of Environment, Lands and Parks Watershed Restoration Technical Circular No. 9.
- DFO, 2017. Habitat Requirements for Coastal Coho Salmon Populations. Accessed July 5, 2017.
- Environment Canada. 2014. Recovery Strategy for the Pacific Water Shrew (*Sorex bendirii*) in Canada. *Species at Risk Act Recovery Strategy Series*. Environment Canada, Ottawa. 35 pp. + Appendix.
- Environment Canada. 2016. Management Plan for the Northern Red-legged Frog (*Rana aurora*) in Canada [Proposed]. *Species at Risk Act Management Plan Series*. Environment Canada, Ottawa. 4 pp.+ Annex.
- FISS (BC MOE Fisheries Information Summary System). Seymour River Waterbody Query Available at: <http://a100.gov.bc.ca/pub/fidq/welcome.do>. Accessed June 28, 2017.
- Groot, C. and Margolis, L., 1991. Pacific Salmon Life Histories. Pages 232-243.
- KWL (Kerr Wood Leidal Associates Ltd.), 2014. Creek Hydrology, Floodplain Mapping and Bridge Hydraulic Assessment. Prepared the City of North Vancouver and District of North Vancouver.
- Levy, David A. and Tim L. Slaney. Levy Research Services Ltd. 1993. A Review of Habitat Capacity for Spawning and Rearing. Prepared for BC Resources Inventory Committee. Available at: https://www.for.gov.bc.ca/hts/risc/o_docs/aquatic/036/assets/036.pdf.
- Lister, D. Brent and Rheal J. Finnigan. 1997. Rehabilitating Off-channel Habitat. Chapter 7 in Fish Rehabilitation Procedures. BC Ministry of Environment, Lands and Parks Watershed Restoration Technical Circular No. 9.
- MacDonald Environmental Sciences Ltd., 1998. Water Quality Assessment and Recommended Objectives for the Salmon River. Available at: <http://www.env.gov.bc.ca/wat/wq/objectives/salmon/salmon.html#objectives>. Accessed on July 5, 2017.

- Mills, T.J., 2004. Matrix of Life History and Habitat Requirements for Feather River Fish Species, Coho Salmon.
- Newbury, Robert, March Gaboury and Dave Bates. 1997. Restoring Habitats in Channelized or Uniform Streams Using Riffle and Pool Sequences. Chapter 12 in Fish Rehabilitation Procedures. BC Ministry of Environment, Lands and Parks Watershed Restoration Technical Circular No. 9.
- Pojar, J., K. Klinka, and D.A. Demarchi. 1991. Chapter 6: Coastal Western Hemlock Zone. Ecosystems of British Columbia. BC Ministry of Forests Research Branch.
- Precision Identification Biological Consultants. 1998. Wild, Threatened, Endangered, and Lost Streams of the Lower Fraser Valley Summary Report 1997. Fraser River Action Plan.
- PSKF (Pacific Streamkeepers Federation). Maplewood Creek Watershed Profile. Available at: <http://www.pskf.ca/ecology/watershed/northvan/maplewood02.htm>
- Roberge, M. et al., 2002. Life History Characteristics of Freshwater Fishes Occurring in British Columbia and the Yukon, with Major Emphasis on Stream Habitat Characteristics.
- Slaney, P.A. and Zaldokas, D, 1997. Fish Habitat Rehabilitation Procedures.
- Ward, Bruce R. 1997. Using Boulder Clusters to Rehabilitat Juvenile Salmonid Habitat. Chapter 10 in Fish Rehabilitation Procedures. BC Ministry of Environment, Lands and Parks Watershed Restoration Technical Circular No. 9.
- WDFW (Washington Department of Fish and Wildlife), 2017. Chum Salmon Life History. Available at: <http://wdfw.wa.gov/fishing/salmon/chum/ecosystems.html>. Accessed July 6, 2017.
- Young, R. et al., 2004. Functional Indicators of River Ecosystem Health – An Interim Guide for Use in New Zealand.

FIGURE




 Keystone Environmental	399-405 Seymour River Place North Vancouver, BC Anthem Maplewoods Developments LP		
	REVISION No.	DATE	PROJECT No.
	00	Aug. 2017	13615-101

Figure 1
Location Plan

APPENDIX A

PHOTOGRAPHS



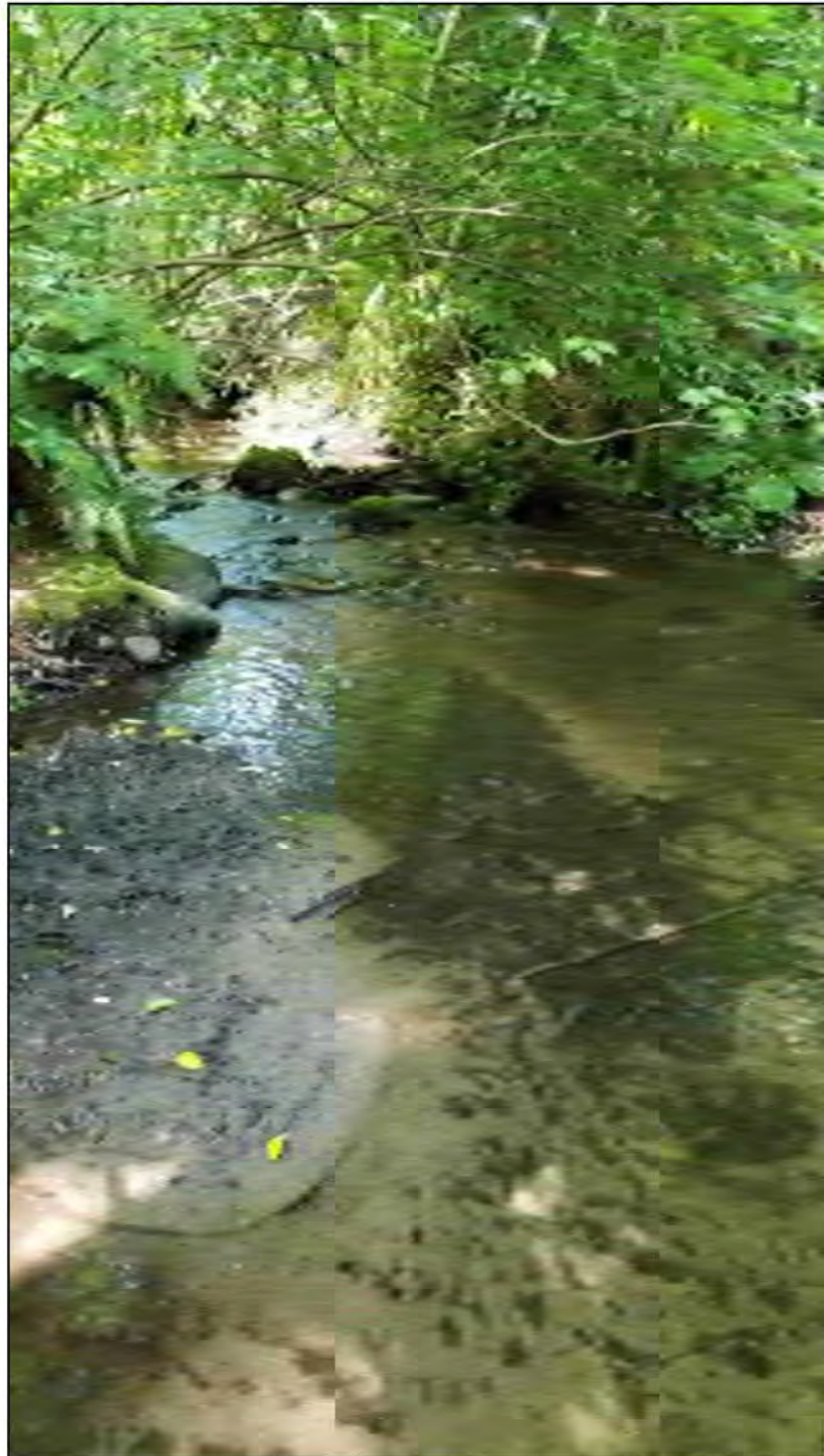
Photograph 1: Looking downstream (south) at Maplewood Creek from the northeast corner of the farm property.



Photograph 2: Looking southwest at Maplewood Creek near the inlet to the pond.



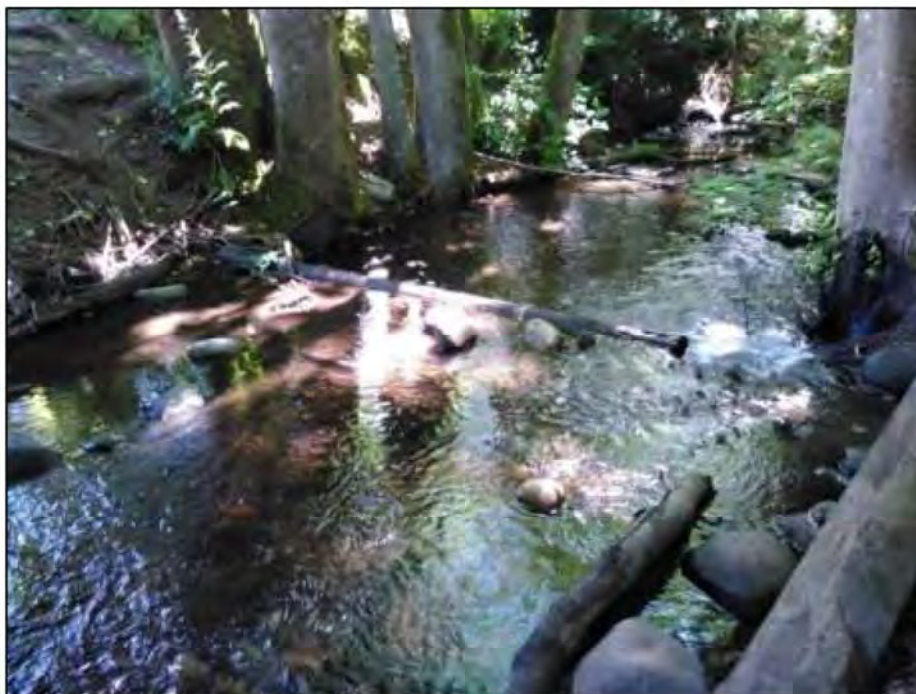
Photograph 3: Looking east at gravel and cobbles in a portion of the creek.



Photograph 4: View of dominant substrate conditions in the on-Site reach of Maplewood Creek.



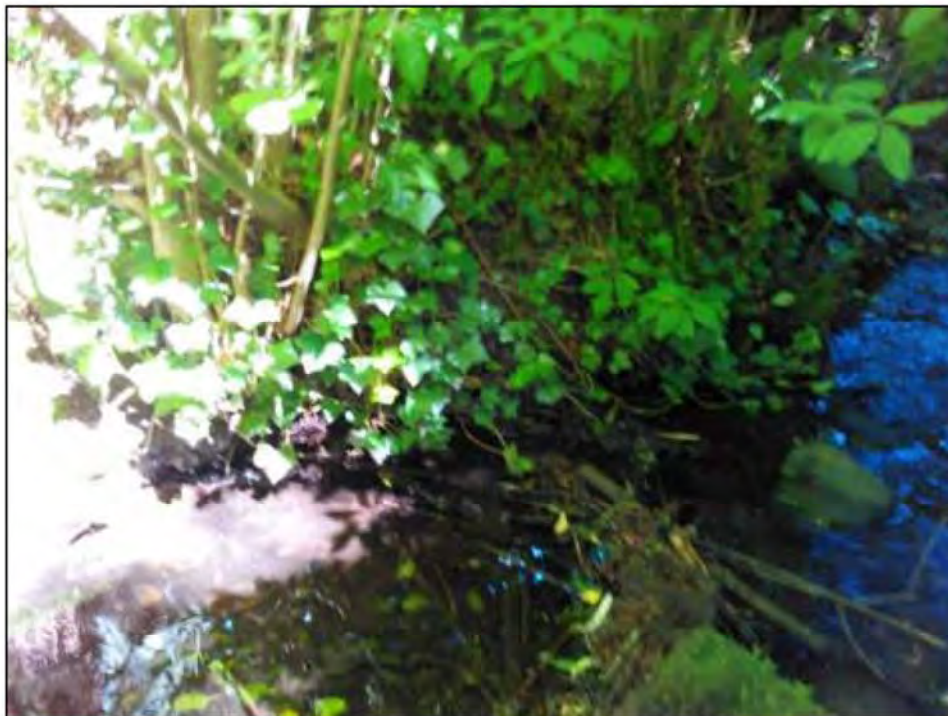
Photograph 5: Looking northeast at small woody debris.



Photograph 6: Looking southwest at large woody debris located immediately downstream to the pedestrian bridge.



Photograph 7: View of Maplewood Creek and overhanging vegetation.



Photograph 8: View of invasive English ivy covering a section of creek bank.



Photograph 9: Invasive Japanese knotweed in the riparian area downstream of Maplewood Farm.



Photograph 10: Looking northeast towards the rock and concrete sill at the Maplewood Pond outlet, which presents a partial barrier to fish passage.



Photograph 11: Looking southeast at the proposed tie-in point between the new creek segment and Maplewood Pond.



Photograph 12: Looking south at the proposed creek location, north of the farm fence.



Photograph 13: Looking northeast at the proposed creek location inside the perimeter of the farm.



Photograph 14: Looking northeast at ivy-covered trees in the proposed location of the new creek section.



Photograph 15: A paved footpath within the farm, located near the proposed creek alignment.



Photograph 16: Looking west at an unpaved footpath in the proposed new creek location, within the farm property.



Photograph 17: A wood duck nesting box adjacent to the existing creek alignment.



Photograph 18: A large-diameter maple tree with the potential to support raptor nesting, located near the proposed tie-in between the new creek and Maplewood Pond.

APPENDIX B

BC MINISTRY OF ENVIRONMENT DESIGN DIAGRAMS

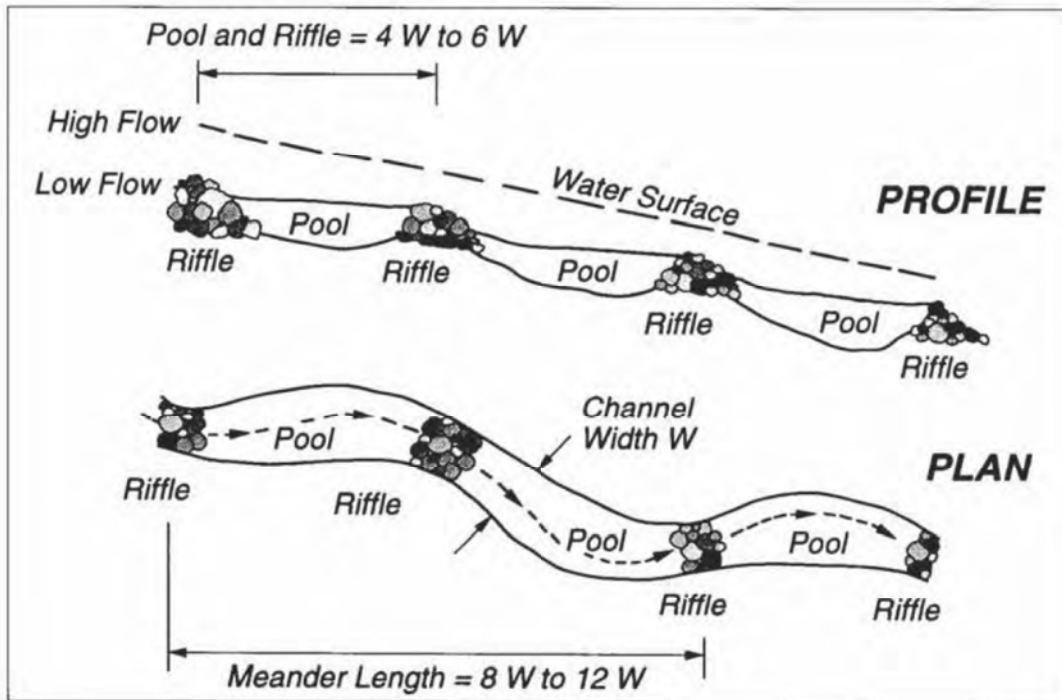


Diagram A – Typical Riffle-Pool Sequence

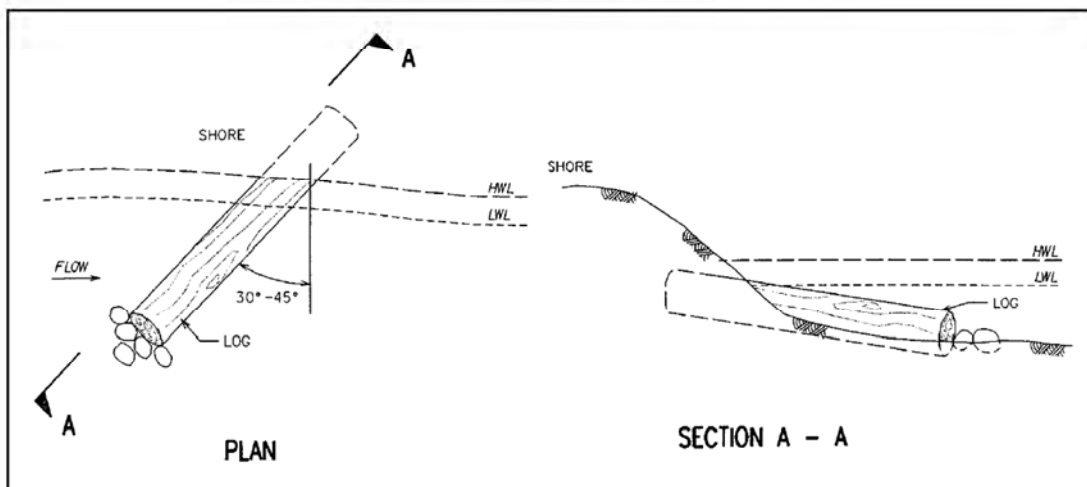


Diagram B – Design Characteristics of a Log Deflector

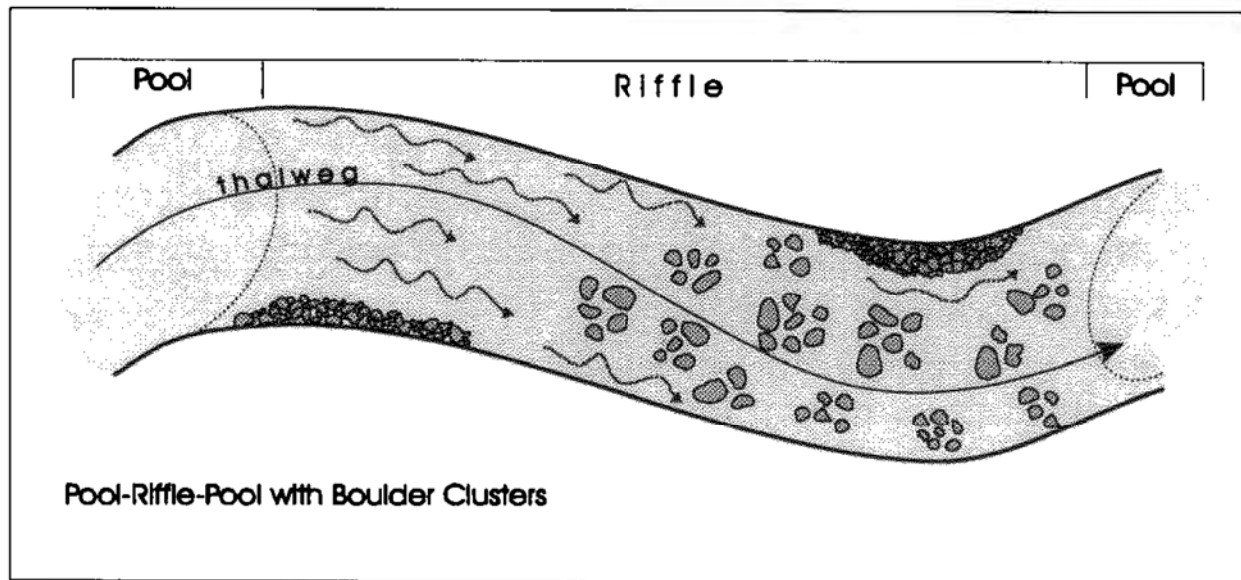


Diagram C – Recommended Placement of Boulder Clusters

APPENDIX C

CREUS ENGINEERING DESIGN DRAWINGS

July 12, 2017

RE: MAPLEWOODS WEST – Preliminary Construction Traffic Management Plan

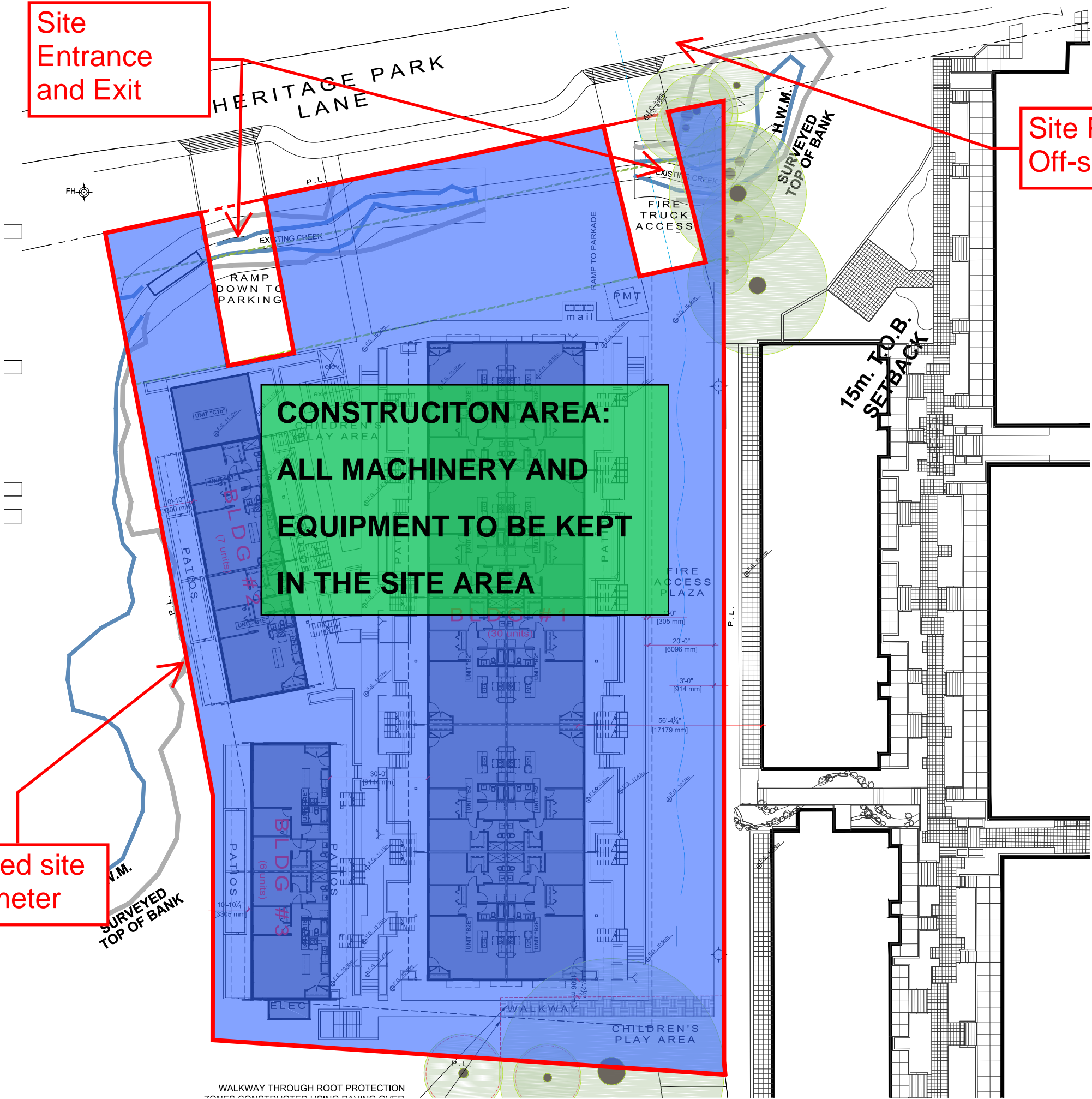
- This traffic management plan (TMP) is an overview of planned traffic management measures at the upcoming development of “Maplewood’s West”. Maplewood’s West is located near the intersection of Seymour River Place and Heritage Park Lane (2049-2059 Heritage Park Lane.) in the District of North Vancouver. The development proposal includes stacked townhomes, above a single level underground parkade.
- The project is anticipated to begin in September of 2018, with an anticipated completion of March 2020.
- Work hours will be in accordance with District of North Vancouver Bylaws:
 - Monday to Friday: 7am – 8pm
 - Saturday: 9am – 7pm
 - Sunday: Work Restricted
- Impacts to traffic in the area will be moderate. Site parking will be contained off of the project boundaries. The main entrance for deliveries and trucks will be located on Heritage Park Lane. All machinery and equipment will be stored with the project boundaries.
- See attached site plans which show site parking area, site entry/exit, fencing location, and trucking routes
- Lane closures along Heritage Park Lane may be required during civil works; applicable permits and specific traffic control plans for each case will be submitted and approved by the District of North Vancouver prior to any work taking place.
- An additional Traffic Management Plan for Construction will be produced for approval by The District of North Vancouver along with our building permit submission, and prior to any site activities.
- The proposed works has the potential to impact road users including pedestrians, cyclists, transit service, emergency vehicles, heavy vehicles (trucks) and general road traffic. In general, the following mitigation measures should be implemented to reduce the potential impacts:
 - The general public is to be protected from construction activities at all times by appropriate fencing, hoarding and communication. Site access to be controlled by qualified traffic persons at all times.
 - Existing pedestrian routes (sidewalks, trails) to remain clear and open at all times unless prior permission granted by the District of North Vancouver
 - Transit service and access to bus stops to remain available at all times unless prior permissions granted by all authorities (District of North Vancouver, Translink)
 - There are no restrictions to emergency vehicles at any time. Emergency vehicles to be given priority access at all times. Emergency service vehicles (police, fire, ambulance) to be notified in advance of any construction activities with the potential to cause delays or detours.
 - The contractor will ensure all streets and haul routes are kept clean of dust and debris

Site Entrance and Exit

Site Parking Off-site

CONSTRUCITON AREA:
ALL MACHINERY AND
EQUIPMENT TO BE KEPT
IN THE SITE AREA

Fenced site Perimeter



**MAPLEWOODS
WEST**

**TRAFFIC
MANAGEMENT
PLAN FOR
DESIGN PANEL**

July 10, 2017

MAPLEWOOD WEST TOWNHOMES

CIVIC ADDRESS

2049, 2051, 2053, 2055, 2055 HERITAGE PARK LANE, NORTH VANCOUVER DISTRICT, BC

LEGAL ADDRESS

LOTS A AND B, LOTS 2, 3 AND 5, BLOCKS 2 AND 3, DL 791, PLAN 16486

RE-ISSUED FOR Detailed DPA
MAY 23, 2018

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ISSUES	DATE
8 RE-ISSUED FOR DETAILED DPA	2018-05-23
7 ISSUED FOR DETAILED DPA	2018-04-03
6 ISSUED FOR DETAILED DPA	2018-04-03
5 RE-ISSUED FOR DETAILED DPA	2017-09-07
4 ISSUED FOR DETAILED DPA	2017-08-16
3 ISSUED FOR CODE CONSULTANT REV.	2017-03-15
2 ISSUED FOR ADP REVIEW	2016-11-08
1 ISSUED FOR PRELIMINARY DPA	2016-07-15
PROJECT NUMBER	0086
DRAWN BY	RA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

PROJECT MAPLEWOOD WEST TOWNHOMES

2049, 2051, 2053, 2055, 1059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE

COVER

DRAWING NO.

DESIGN RATIONALE

PROJECT STATS SUMMARY

Height:	Four-stories, 14.25m (bldg. #1) Three-stories, 12.15m (bldgs. #2 & #3)
FSR:	1.208
No. of Units	39 units - 7 x two-bedroom, avg. 930 ft² units - 3 x adaptable two-bedroom, 930 ft² units - 20 x three-bedroom, avg. 1,475 ft² units - 9 x four-bedroom, avg. 1,525 ft² units
Parking:	73 resident parking stalls (1.87 per unit) 5 visitor parking stalls (0.12 per unit) 8 Class-2 Bicycle stalls 39 Class-1 Bicycle stalls, in dedicated room
Site Coverage:	45.1% (net)
Building Coverage	34.2% (net)

SITING AND BOUNDARIES

The subject site is located on the south side of Heritage Park Lane, between Seymour River Place and Heritage Park, on a parcel assembled from five single-family lots. It is bound on the west by a wooded area of Heritage Park and Maplewood Farm; on the east by the rear yards of an existing ground-oriented multi-family development; and on the south by both the Maplewood Farm caretaker residence and the end of an existing paved lane. A creek meandering between Heritage Park Lane and the proposed building establishes a limit to the building's footprint at the north, by way of a 10 metre riparian setback. Existing trees at the southeast corner of the property establish a limit to the building's footprint at the south, delineated by root protection fencing proposed by the project architect.

ACCESS

All access to the building must be done by crossing the creek from the north side of the site at one of three points. Vehicular access is provided via two culverted creek crossings. The first serves as an access ramp to the below grade parking garage. The second is blocked-off by breakaway bollards, intended primarily to improve access into the site for fire-fighting and emergency services. Since the emergency access route is to be blocked-off from day-to-day traffic, it also serves as a barrier-free access ramp as well as a secondary pedestrian access to the site. With considerate landscape design, this space will also be able to function as an open outdoor space for the residents.

To limit the visual impact of these driveways crossing the riparian area, the end walls of the ramps will be reduced to as low a height as possible, treated carefully with a variety of vines and planting to help them blend into the landscape, and will have required guards provided by wood fencing to match the pedestrian bridge--please refer to the Landscape Architect's design rationale enclosed in this application.

A lower impact pedestrian bridge will also span the creek, without using a culvert, and will serve as the main public access point leading to a path that terminates at the building's

main common outdoor amenity area. The bridge is ideally located to provide a publicly available overlook into the creek and its banks, and when combined with the development's signage will be perceived as a gateway into the project.

Once within the site, residents and visitors access amenities and residential units via central courtyards. The front door to each single-level garden unit on the lower floor of Building #1 is accessed from the mews by four steps down into a private patio, landscaped along the perimeter to improve privacy. This patio serves as the garden units outdoor space. The front door to each three-level townhouse unit in Building #1 is accessed from the mews by an exterior flight of stairs up to a small private deck space. The townhouse units in Buildings #2 and #3 are accessed directly off the courtyard from a front entry stoop - private outdoor space is provided at the east side of each unit.

SUSTAINABILITY

The approach of the sustainability strategy for the project are two-fold: take care to respect the existing ecological conditions of the property, and design the building to reduce its impact upon both the micro- and macro-ecological environments.

First, the stream and riparian area has been treated as an opportunity. Replacing the three existing creek crossings with two culverted crossing will serve to enhance the stream's ecosystem by converting a portion of the site to a more natural state. In turn, the improved natural feature will serve as a valued amenity to the building residents, as a recreational platform overlooking the forested stream area. The public experience of entering Heritage Park to the west will likewise be improved, and also ties into the conservation work completed on the adjacent site to the east.

Second, the building will be designed to meet a Built-Green Silver level of construction. With emphasis being placed on reduced energy consumption and the use of environmentally preferred materials and construction methods, we will be able to reduce the negative impact the building could have on the environment.

CPTD

Visual permeability has been provided into all site areas from the street. Units overlook all landscape areas including the children's plan area and project entry points. Site lighting has been provided to allow for safe passage from the street to units.

ACCESSIBILITY

Although This unique site has posed several challenging conditions, including grading, riparian setbacks and tree protection requirements, through thoughtful landscape and grading design the District of North Vancouver's Accessible Design Policy for Multi-Family Housing can be implemented to facilitate access and usability for the widest range of residents and visitors.

Of the 39 Ground-Oriented Townhome units proposed, three units are easily accessed without the use of stairs--herein referred to as "Accessible" units in the drawings--and will be

built to include the policy's applicable "Basic Accessible Design" features, and were design to provide for specific "Enhanced Accessible Features."

The site was designed to accommodate accessibility in a building archetype that typically poses barriers. The common amenity spaces, children's play area, mail boxes and bicycle rack are accessible from these units without encountering stairs or steps, along a clear 5'-0" path of travel. As well, the new public sidewalk along Heritage Park Lane is accessed via a pathway inset into a fire access lane, with a suitable slope. Underground resident and visitor parking is also made accessible by an elevator located centrally to the project, and in immediate proximity (approximately 21 metres) to the designated "accessible" units. The garbage and recycling storage room in the underground parking has ample room for movement of people in chairs and other mobility aids, and is made accessible via the elevator.

To better understand how the design features are implemented on site and in the "Accessible Units," please refer to the drawings "A22 - Accessible Design Strategy" and- "A23 - Floor Plans, Unit Type B2U, (Accessible Units)", illustrated with notes explaining the specific items addressed, and referenced back to the Policy's "Basic and Enhanced Accessible Design Elements" list. Select accessible design elements, and how they have been addressed in the drawings, are annotated with a call-out to each item.

FORM AND CHARACTER

The proposed project consists of three buildings: Building #1, divided into North and South portions, house three-level townhomes, stacked atop a basement level of single-storey garden units; Buildings #2 and #3 house three-level townhomes situated with entries directly at the courtyard level. All three buildings sit over top a single level of underground parking.

Buildings #2 and #3 contain a total of 6 units and 3 units, respectively, with openings for daylighting and view on both the east and west sides of the units. The faces of these two buildings have been set back from the neighbouring property line at a distance matching that of the neighbouring townhome development, to create a very similar back yard condition. Units in Buildings #2 and #3, however, do not have patios or decks above the lowest floor, thus reducing the amount of overlook on the existing neighbouring development's patios and decks.

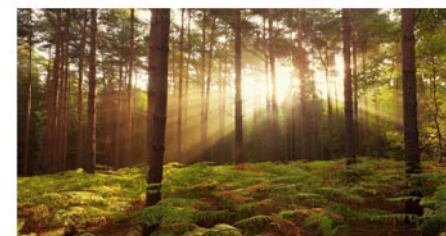
Building #1 is split into two smaller buildings (Building #1-North and Building #1-South) connected at the roof-top level by the open-air fire-egress stair, and contains 30 units. These units are configured as two rows down a central party wall, giving each unit a single side for daylighting and views. All units are accessed off of internal mews with a north-south orientation to maximize daylighting.

In discussions with both our Code Consultant and District building staff, additional fire-egress requirements have been implemented on Building #1 that also serve as a positive improvement to the massing and livability of the units in the

building. In order to accommodate for travel distance requirements from the upper level of the three-storey units in Building #1, access has been provided to rooftop patios from the main stair in each unit. In lieu of a conventional full-height doghouse/penthouse encapsulating the access stairs, Daylighter Roof Doors have been proposed in order to reduce the overall building height and visibility from the street. The main eave lines of the building maintain much of the roof character previously presented to District staff, but have a flat roof area carved out from them in order to provide space for the patios. These patios also serve as ample private outdoor space, where careful wood screening and planting will encourage a sense of privacy.

The east and west elevations of all three buildings incorporate two-level bumpouts clad in a warm shingle material, which help to articulate the façade and break up the mass of the building. The north and south elevations of the building incorporate windows, roof overhangs and bumpouts, which activate and articulate the façade, avoiding the potential of these elevations appearing as blank walls and allowing the building to better address the street. To further help the project address the Heritage Park Lane frontage, front entry doors to the two northernmost units in Building #1 directly face the street and riparian area. Additionally, the roofline has been brought down at the ends to soften the apparent mass of the building, and gable ends were added to help make these elevations be experienced from the street as the front of the building.

The overall expression takes inspiration from the west-coast contemporary look popular in the lower-mainland, using a combination of horizontal lap siding accented by bays clad in painted fibre-cement shingles. The colour palette was crafted to blend into the north-shore forested setting, as has the wood detailing at window trims and along the roofline. Finally, stone is incorporated into the lower level of the north elevation facing Heritage Park Lane, helping to connect the mass of the building to the landscape while providing a high-quality material at the haptic scale.



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ISSUES	DATE
1 RE-ISSUED FOR DETAILED DPA	2019-05-23
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3 ISSUED FOR DETAILED ADP	2019-04-03
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7 ISSUED FOR ADP REVIEW	2016-11-08
8 ISSUED FOR PRELIMINARY DPA	2016-07-15

PROJECT NUMBER	DATE
DRAWN BY	NA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

PROJECT MAPLEWOOD WEST TOWNHOMES

2048, 2051, 2053, 2055, 2059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE

DESIGN RATIONALE

DRAWING NO.

A0.01



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PROJECT NUMBER	0888
DRAWN BY	RA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

PROJECT MAPLEWOOD WEST TOWNHOMES

2040, 2051, 2053, 2055, 2059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE

PRECEDENT IMAGES

DRAWING NO.

A0.02

GREEN RATIONALE



Maplewoods West Sustainability Rationale

For this development, it is proposed all buildings will be Certified Silver using the 2018 BuiltGreen™ High Density Checklist. This requires energy performance 15% better than ASHRAE 90.1 (2010) and minimum 110 points incorporated from the Checklist.

The BuiltGreen™ Rating System prioritizes these seven major categories: Energy and Envelope, Materials and Methods, Indoor Air Quality, Ventilation, Waste Management, Water Conservation, and Business Practices.

Energy and Envelope

- The buildings will reduce their operational energy efficiency by using ENERGY STAR® appliances, high efficiency lighting, and programmable thermostats.
- High efficiency systems of appropriate sizing will be selected for domestic hot water and space heating.
- The thermal performance of the building envelopes will be enhanced by using high performance windows, insulation levels that exceed code minimum values, and by using advanced envelope sealing techniques to ensure air-tightness.

Materials and Methods

- The project will use environmentally preferable materials. All insulation used in the project is to contain minimum 25% recycled content, all gypsum wallboard is to contain minimum 40% recycled content, and interior doors will be made with minimum 15% recycled content.
- The project will use environmentally engineered products for all load bearing beams and flooring systems to reduce the use of dimensional lumber.
- Exterior cladding and balconies will use durable, low maintenance materials.
- All door hardware and faucets will have a lifetime finish warranty for durability.

Indoor Air Quality

- Creating a healthy indoor living space will be a priority of this development. Low-VOC paints and adhesives will be selected for interior applications.
- All insulation will be low or zero formaldehyde.
- All carpeting will have Carpet and Rug Institute (CRI) labels for low VOC emissions.

Ventilation

- The use of Heat Recovery Ventilators (HRV) will reduce energy consumption.

Waste Management

- During construction, a minimum of 50% of waste is to be diverted for recycling by a recognized waste management company.
- A conveniently located recycling station in kitchens will promote occupant recycling.

Water Conservation

- The project will have water efficient toilets, dishwashers, clothes washers, and low-flow faucets.
- Landscaping will be designed to reduce irrigation loads by reducing lawn/turf area by 50%, and by using water efficient irrigation technologies.

Business Practices

- The project will prefer products manufactured within 800km of the site to reduce emissions associated with transportation of materials.
- Building materials will be sourced from manufacturers and suppliers that implement sustainable practices.
- Alternative transportation is encouraged by providing bicycle storage facilities.



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E: info@e3ecogroup.com

April 24, 2018

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

Attn: To Whom This May Concern
RE: Maplewoods West to meet Sustainability Guidelines

Anthem Properties has retained E3 Eco Group as the sustainability consultant to review the energy, resource, and environmental efficiency of its Maplewoods West Townhome development at 2049-2059 Heritage Park Lane in the District of North Vancouver. This development will consist of three multi-unit residential buildings.

For this development, it is proposed all buildings will be Certified Silver using the 2018 BuiltGreen™ High Density Checklist. This requires energy performance reduction 15% better than ASHRAE 90.1 – 2010 and minimum 110 points incorporated from the BuiltGreen™ High Density Checklist.

Anthem proposes 2018 BuiltGreen™ Silver, because to meet Gold on the 2018 High Density Checklist requires 25% improvement over ASHRAE 90.1 – 2010. This is an extremely high target for energy performance that could greatly impact the affordability of the housing units. We recommend the development be built to the 2018 BuiltGreen™ High Density Silver standard as a compromise balancing energy efficiency and housing affordability.

In addition to energy performance the BuiltGreen™ Rating System prioritizes these seven major categories: Energy and Envelope, Materials and Methods, Indoor Air Quality, Ventilation, Waste Management, Water Conservation, and Business Practice.

Energy and Envelope: The project will seek to improve its energy efficiency by enhancing the thermal performance of the building envelope. For example, high performance windows and above code minimum insulation will be considered. To reduce energy consumption, high efficiency systems of appropriate sizing will be selected for domestic hot water and space heating. Appliances and lighting will be EnergyStar rated.

Materials and Methods: The buildings are to use materials that are environmentally preferable and durable. Environmentally preferable means selecting materials that are renewable or recycled. For example, the buildings are to be timber frame which is renewable, and prefer engineered wood products which reduce wood waste and timber demand. Durability means selecting items that will require minimal future maintenance and will not need frequent replacing. For example, roofing, siding, and decking that withstand the local climate conditions will be selected.

Indoor Air Quality: Creating a healthy indoor living space will be a priority of this development. Low-VOC paints and adhesives will be selected for interior applications. Insulation, subfloor sheathing, cabinets and shelving will be low or zero formaldehyde. Flooring choices will prioritize the reduction of indoor air pollutants. For example, hard

surface flooring will be preferred, or carpeting will have Carpet and Rug Institute Indoor Air Quality Labels.

Ventilation: The ventilation for this project is yet to be determined. However, Heat Recovery Ventilators will be considered during the energy modeling process. All ducting will be sealed airtight to reduce air leakage and heat loss. Bath fans will be EnergyStar and low sone.

Waste Management: During construction, a minimum of 50% of waste is to be diverted for recycling by a recognized waste management company. Post-construction, occupants will be encouraged to recycle at conveniently located sorting stations.

Water Conservation: Water conservation will be promoted through the installation of water efficient toilets, faucets, dishwashers, and clothes washers. Landscaping will be designed to reduce irrigation loads.

Business Practice: Green business practices will include selecting products manufactured within 800km, defining Bosa Properties environmental commitment in writing, and selecting manufacturers and suppliers with clearly defined environmental commitments.

To ensure the above BuiltGreen™ standards are met, E3 Eco Group will perform the following throughout design, construction, and occupancy phases:

- E3 will work with consultant design team to ensure building design meets 15% better than ASHRAE 90.1 – 2010.
- Continued consultation with Anthem and design consultants regarding the BuiltGreen™ Checklist to ensure that at least 110 points are incorporated into the design.
- Throughout construction E3 will perform site visits and gather documentation to ensure all points are verified. A final "As Built" Checklist and verification of all checklist items will be submitted to BuiltGreen™ Canada for Certification.

The completion of the above steps will allow all buildings in the development to be Certified BuiltGreen™ Silver on the 2018 High Density Checklist.

If you have any questions please contact the undersigned,

Kind Regards,

Emma Conway

Emma Conway, B.A., CEA
Project Manager
E3 Eco Group Inc
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1 ISSUED FOR PRELIMINARY DPA	2016-07-15
PROJECT NUMBER	0886
DRAWN BY	NA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

PROJECT
MAPLEWOOD WEST TOWNHOMES

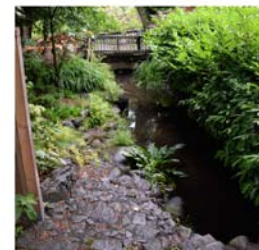
2049, 2051, 2053, 2055, 2059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

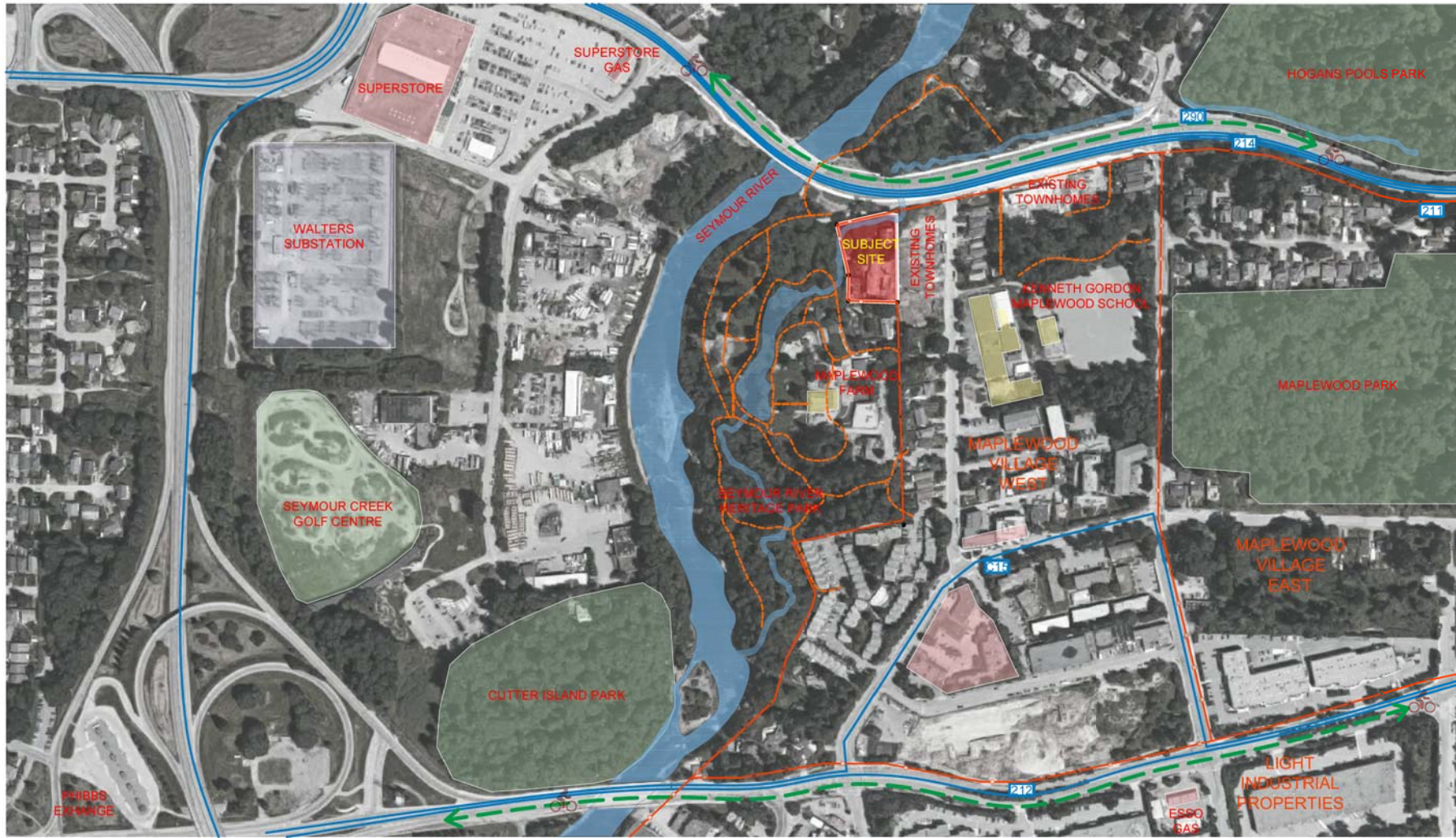
DRAWING TITLE

GREEN RATIONALE

DRAWING NO.

A0.03





MAPLEWOOD PLANNING AREAS



* Planning areas map was excerpted from the DNV website on 2017-08-15 at <http://www.dnv.org/property-and-development/maplewood-village-centre>

LEGEND

	BICYCLE ROUTES		PARKS AND RECREATION SITES
	MAPLEWOOD VILLAGE CENTRE PLANNING AREA BOUNDARIES		SCHOOLS / EDUCATIONAL
	TRANS LINK BUS ROUTES		SHOPPING & AMENITIES
	GREENWAYS (TRAILS & PEDESTRIAN PATHS)		INDUSTRIAL

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4 ISSUED FOR DETAILED DPA	2017-08-16
3 ISSUED FOR CODE CONSULTANT REV	2017-03-15
2 ISSUED FOR ADP REVIEW	2016-11-08
1 ISSUED FOR PRELIMINARY DPA	2016-07-15

PROJECT NUMBER	0086
DRAWN BY	RA
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DATE CHECKED	
CONSULTANT	

PROJECT MAPLEWOOD WEST TOWNHOMES

2049, 2051, 2053, 2055, 2059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE

CONTEXT ANALYSIS

DRAWING NO.

A0.04



1 TOWARD WEST ALONG HERITAGE PARK LANE



2 NEIGHBOURING EXISTING TOWNHOUSE DEVELOPMENT FROM SEYMOUR RIVER PLACE



3 PLAYGROUND IN FRONT OF SCHOOL



4 FROM LANE NEXT TO MAPLEWOOD FARM AND EXISTING TOWNHOMES



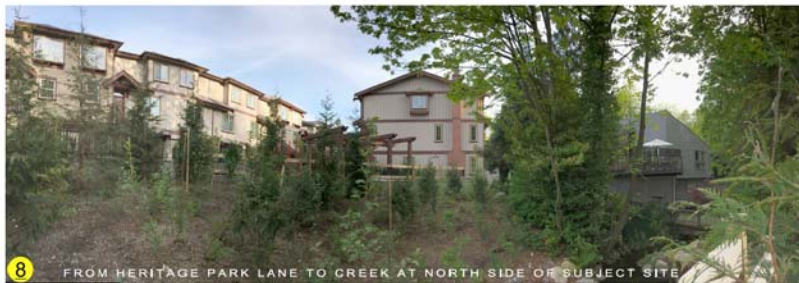
5 NEIGHBOURING SINGLE-FAMILY HOMES



6 MAPLEWOOD FARM CARETAKER BUILDING



7



8 FROM HERITAGE PARK LANE TO CREEK AT NORTH SIDE OF SUBJECT SITE



9 PRE-SCHOOL AT MAPLEWOOD FARMS



10 CULVERT AT N.E. CORNER OF PROPOSED SITE



1 CONTEXT PLAN
Scale 1/32" = 1'-0"

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MAPLEWOOD WEST TOWNHOMES

2048, 2051, 2053, 2055, 2059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE
AERIAL PHOTOGRAPH & SITE CONTEXT IMAGES

DRAWING NO.

A0.05

Existing trees in creek area omitted for image clarity. Refer to Arborist Report and Landscape Drawings

Anthem

ISSUES	DATE
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7 ISSUED FOR DETAILED DPA	2019-04-30
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PROJECT NUMBER	0888
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DATE CHECKED	
CONSULTANT	

PROJECT
MAPLEWOOD WEST TOWNHOMES
2048, 2051, 2053, 2055 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE

STREETSCAPES

DRAWING NO.

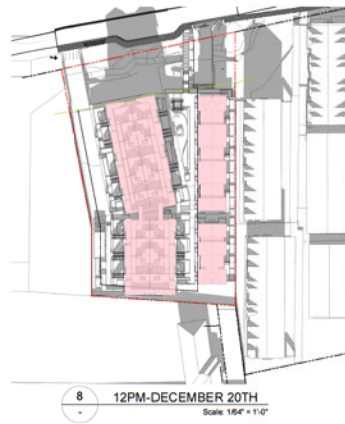
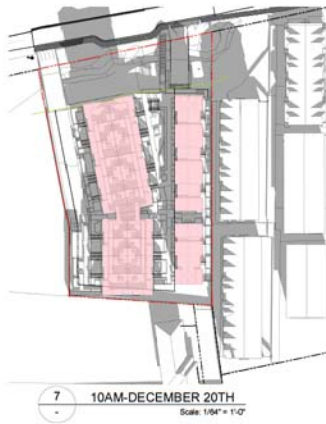
A0.06



1 STREETSCAPE FROM HERITAGE PARK LANE



2 OVERALL ELEVATION FROM MAPLEWOOD FARM



ISSUES	DATE
8 RE-ISSUED FOR DETAILED DPA	2018-05-23
7 ISSUED FOR DETAILED DPA	2018-04-09
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2 ISSUED FOR ADP REVIEW	2016-11-08
1 ISSUED FOR PRELIMINARY DPA	2016-07-15

PROJECT NUMBER	0896
DRAWN BY	RA
CHECKED BY	MB
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CONSULTANT	

PROJECT
**MAPLEWOOD WEST
TOWNHOMES**

2049, 2051, 2053, 2055 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE
**SHADOW
STUDY**

DRAWING NO.

A0.07

DEVELOPMENT DATA

LOT AREA	Square Metres	Square Feet
Gross Site Area	4,299.6 m ²	46,280.46 ft ²
Creek ROW (ToB)	-236.5 m ²	-2,545.66 ft ²
TOTAL NET SITE AREA	4,063.1 m ²	43,734.80 ft ²

BUILDING #1 North - FLOOR AREA

	Unit G.F.A.	Net Floor Area	Qty. of Units	Net Floor Area*
B2 UNIT (2-BED)	932 ft ²	= 932. ft ²	x 2 units =	1,856. ft ²
B2U UNIT (2-BED Accessibl)	932 ft ²	= 932. ft ²	x 1 units =	932. ft ²
B2E UNIT (2-BED)	925 ft ²	= 925. ft ²	x 2 units =	1,850. ft ²
B2a UNIT (2-BED)	932 ft ²	= 932. ft ²	x 1 units =	932. ft ²
C2 UNIT (4-BED)	1,507 ft ²	= 1,506.6 ft ²	x 8 units =	12,052.8 ft ²
C2a UNIT (4-BED)	1,519 ft ²	= 1,519. ft ²	x 2 units =	3,038. ft ²
C2e UNIT (4-BED)	1,621 ft ²	= 1,620.55 ft ²	x 2 units =	3,241.1 ft ²
QTY. OF UNITS = 18				23,901.9 ft ² Sub-total Building #1 North

BUILDING #1 South - FLOOR AREA

	Unit G.F.A.	Net Floor Area	Qty. of Units	Net Floor Area*
B2a UNIT (2-BED)	932 ft ²	= 932. ft ²	x 1 units =	932. ft ²
B2b UNIT (2-BED)	932 ft ²	= 932. ft ²	x 1 units =	932. ft ²
B2U UNIT (2-BED Accessibl)	932 ft ²	= 932. ft ²	x 2 units =	1,864. ft ²
C2 UNIT (4-BED)	1,507 ft ²	= 1,506.6 ft ²	x 4 units =	6,026.4 ft ²
C2a UNIT (4-BED)	1,519 ft ²	= 1,519. ft ²	x 2 units =	3,038. ft ²
C2e UNIT (4-BED)	1,621 ft ²	= 1,620.55 ft ²	x 2 units =	3,241.1 ft ²
QTY. OF UNITS = 12				16,033.5 ft ² Sub-total Building #1 South

BUILDING #2 - FLOOR AREA

	Unit G.F.A.	Net Floor Area	Qty. of Units	Net Floor Area*
C1 UNIT (4-BED)	1,496 ft ²	= 1,495.8 ft ²	x 4 units =	5,983.2 ft ²
C1a UNIT (4-BED)	1,572 ft ²	= 1,572.3 ft ²	x 1 units =	1,572.3 ft ²
C1e UNIT (4-BED)	1,509 ft ²	= 1,508.8 ft ²	x 1 units =	1,508.8 ft ²
QTY. OF UNITS = 6				9,064.3 ft ² Sub-total Building #2

BUILDING #3 - FLOOR AREA

	Unit G.F.A.	Net Floor Area	Qty. of Units	Net Floor Area*
C1 UNIT (4-BED)	1,496 ft ²	= 1,496. ft ²	x 1 units =	1,496. ft ²
C1a UNIT (4-BED)	1,572 ft ²	= 1,572.3 ft ²	x 1 units =	1,572.3 ft ²
C1e UNIT (4-BED)	1,509 ft ²	= 1,508.8 ft ²	x 1 units =	1,508.8 ft ²
QTY. OF UNITS = 3				4,577.1 ft ² Sub-total Building #3

TOTAL UNITS = 39 53,576.8 ft² TOTAL NET FLOOR AREA

DENSITY	NET (uite)	GROSS (uite)
FSR	1.225	1.16
LPA	38.8	36.7

*Floor area excludes elec. room and elec. closet

COVERAGE	NET (uite)	GROSS (uite)
BUILDING	34.2%	37.4%
SITE	45.1%	42.6%

PARKING STALLS	Required	Preliminary
Residential	68	73
Visitor	10	5
Total	78	78
Accessible stall	2	4
Small Car	26	18
Class 2 Bikes (0.2 / unit)	7.8	8
Additional bike storage	39	39

CIVIC ADDRESS

2049, 2051, 2053, 2055, 2055 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

LEGAL ADDRESS

LOTS A AND B, LOTS 2, 3 AND 5, BLOCKS 2 AND 3, DL
791, PLAN 16486

Root protection fencing

Existing tree to be retained. Refer to
Arborist Report and Landscape Drawings



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3 ISSUED FOR CODE CONSULTANT REV	2017-03-15
2 ISSUED FOR ADP REVIEW	2016-11-08
1 ISSUED FOR PRELIMINARY DPA	2016-07-15

PROJECT NUMBER	0086
DRAWN BY	RA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

PROJECT
MAPLEWOOD WEST
TOWNHOMES

2049, 2051, 2053, 2055, 2055 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE
PRELIMINARY
SITE PLAN &
PROJECT DATA

DRAWING NO.

A1.01

EMERGENCY SERVICES SITE PLAN LEGEND

F.H.
 PROPOSED FIRE HYDRANT
 DISTANCE FROM HYDRANT TO TRUCK
 DISTANCE FROM TRUCK TO UNIT DOOR
 TYPICAL FIRE TRUCK

NOTE:

- ALL SURFACES WITHIN THE REQUIRED FIRE ACCESS ROUTE SHALL BE DESIGNED TO ACCOMMODATE FIRE FIGHTING EQUIPMENT LOADS AS PER THE D.N.V. FIRE AND RESCUE SERVICES REQUIREMENTS & B.C.B.C. 2012.

MAPLEWOOD FARMS

MAPLEWOOD FARM CARETAKER BUILDING

EXISTING MAPLEWOOD PLACE TOWNHOME DEVELOPMENT

BLDG #1 South

BLDG #1 North

BLDG #3

BLDG #2

TRUCK TO HYDRANT = 44.0m

TRUCK TO UNIT = 25.0m

To 5m

TRUCK TO UNIT = 25.0m

TRUCK TO UNIT = 25.0m

TRUCK TO UNIT = 25.0m

TRUCK TO UNIT = 25.0m

TRUCK TO UNIT = 25.0m

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PROJECT

MAPLEWOOD WEST TOWNHOMES

2048, 2051, 2053, 2055, 2059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE

EMERGENCY SERVICES SITE PLAN
(Scale 1/16" = 1'-0")

DRAWING NO.

A1.02

ISSUES	DATE
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7 ISSUED FOR DETAILED DPA	2018-04-30
6 ISSUED FOR DETAILED ADP	2018-04-03
5 RE-ISSUED FOR DETAILED DPA	2017-09-07
4 ISSUED FOR DETAILED DPA	2017-08-16
3 RE-ISSUED FOR CODE CONSULTANT REV	2017-03-15
2 ISSUED FOR ADP REVIEW	2016-11-08
1 ISSUED FOR PRELIMINARY DPA	2016-07-15

PROJECT NUMBER	0386
DRAWN BY	RA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

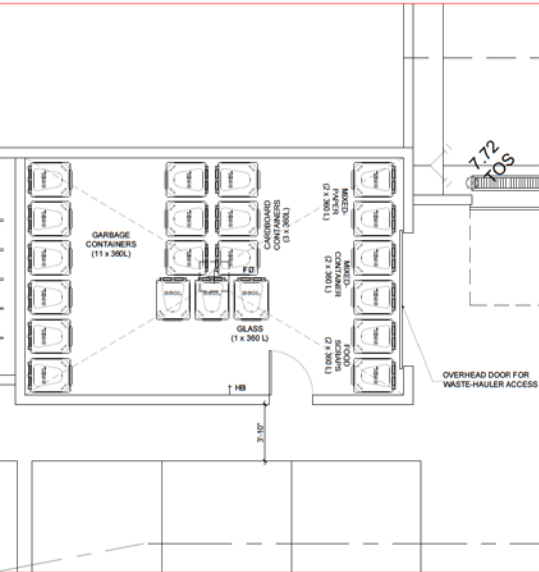
PROJECT
MAPLEWOOD WEST TOWNHOMES

2049, 2051, 2053, 2055, 2059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE
UNDERGROUND PARKING PLAN

DRAWING NO.

A1.03

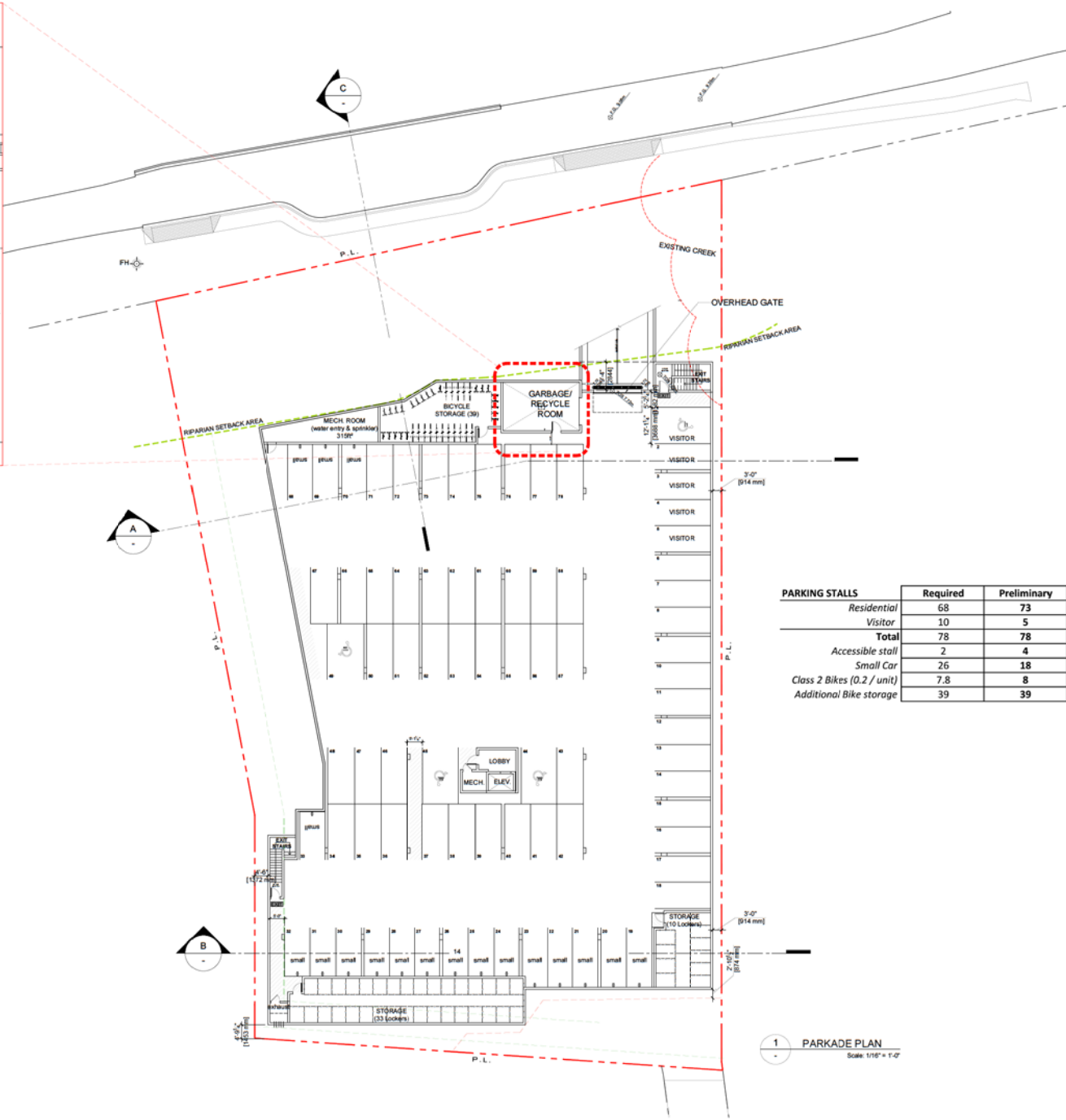


2 ENLARGED PLAN - RECYCLING AND GARBAGE STORAGE STRATEGY
Scale: 1/4" = 1'-0"

RECYCLING AND GARBAGE STORAGE STRATEGY

Given the proximity of the parkade access ramp to the creek, the recycling and garbage storage strategy herein proposes the use of 360 litre totes in lieu of 2-yard and 3-yard containers to simplify waste removal. In typical multi-family buildings with garbage and recycling storage concealed within below grade parking, the removal of 2-yard and 3-yard containers from site is done in three stages. First, a jitney would pull the larger containers to street level for temporary storage. Second, larger haul trucks would empty the contents of the 2-yard and 3-yard containers, and return the containers for storage at grade. Finally, the jitney returns to move the containers back to the garbage and recycling storage room in the below-grade parking area. It is this period of temporary storage at grade that would be in conflict with the sensitive nature of the creekside riparian area—given the unique nature of the project site, laybys for temporary storage are only available immediately over the creek. The use of a larger quantity of smaller, 360 L totes would help to avoid this environmental conflict, as the waste hauler would be able to transfer the totes to grade by hand, where they can be emptied into the haul truck and immediately returned to the storage room. Although this may be seen as an alternative to conventional waste removal, a popular waste hauling company has confirmed that not only is this possible, but is not unconventional. Please refer to the letter attached to this application from Smith's Disposal Ltd. In addition to the containers provided for waste storage and removal, the room comes equipped with a hose bib connection for periodic cleaning, as well as a floor drain.

ESTIMATED VOLUME OF RECYCLABLES, COMPOSTABLES & GARBAGE TO BE GENERATED AND STORED					
TYPE OF REFUSE STORAGE	VOLUME GENERATED PER UNIT (per week)	NUMBER OF UNITS	ESTIMATED VOLUME GENERATED TO BE STORED EACH WEEK	CAPACITY OF STORAGE PROPOSED	MEETS BC GOVT. GUIDELINES?
GARBAGE	95L	x39	3,705 L	11 x 360L totes	Yes, per Appendix A
MIXED PAPER	17L	x39	663 L	2 x 360L totes	Yes, per Appendix A
MIXED CONTAINERS	12L	x39	468 L	2 x 360L totes	Yes, per Appendix A
CARDBOARD	25L	x39	975 L	3 x 360L totes	Yes, per Appendix A
GLASS	14L	x39	546 L	2 x 360L totes	Yes, per Appendix A
GLASS	NA	x39	NA	1 x 360L totes	Yes, per Appendix A



PARKING STALLS	Required	Preliminary
Residential	68	73
Visitor	10	5
Total	78	78
Accessible stall	2	4
Small Car	26	18
Class 2 Bikes (0.2 / unit)	7.8	8
Additional Bike storage	39	39

1 PARKADE PLAN
Scale: 1/16" = 1'-0"



PROJECT NUMBER	0886
DRAWN BY	RA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

PROJECT

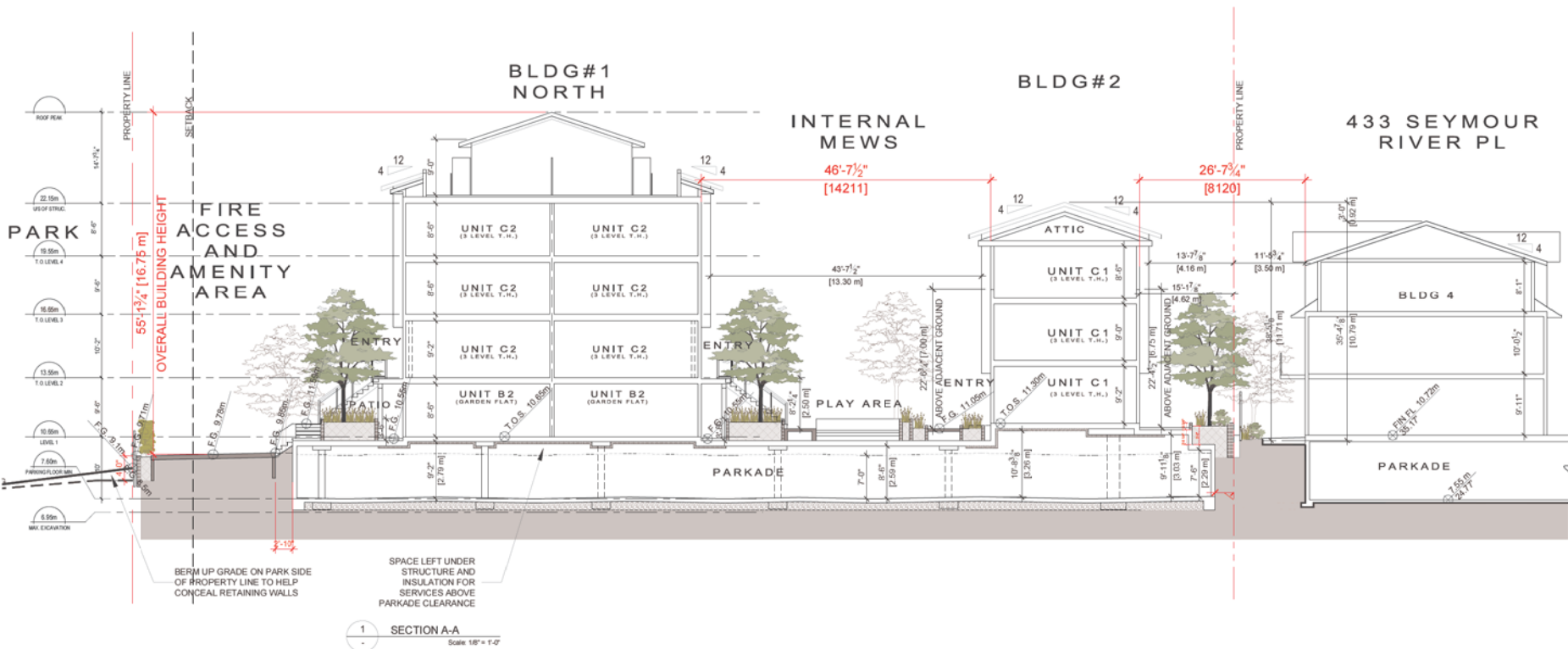
**MAPLEWOOD WEST
TOWNHOMES**

2049, 2051, 2053, 2055, 2059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

SITE SECTION

DRAINING No. _____

A1.04



ISSUES	DATE
8	RE ISSUED FOR DETAILED DPA
7	ISSUED FOR DETAILED DPA
6	ISSUED FOR DETAILED ADP
5	RE ISSUED FOR DETAILED DPA
4	ISSUED FOR DETAILED DPA
3	ISSUED FOR CODE CONSULTANT REV.
2	ISSUED FOR ADP REVIEW
1	ISSUED FOR PRELIMINARY DPA

PROJECT NUMBER	DATE
DRAWN BY	RA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

PROJECT
MAPLEWOOD WEST TOWNHOMES

2049, 2051, 2053, 2055, 2059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE
**BUILDING PLANS
LEVEL 1**

DRAWING NO.

A2.01



ISSUES	DATE
8	RE-ISSUED FOR DETAILED DPA
7	ISSUED FOR DETAILED DPA
6	ISSUED FOR DETAILED ADP
5	RE-ISSUED FOR DETAILED DPA
4	ISSUED FOR DETAILED DPA
3	ISSUED FOR CODE CONSULTANT REV.
2	ISSUED FOR ADP REVIEW
1	ISSUED FOR PRELIMINARY DPA

PROJECT NUMBER	0888
DRAWN BY	RA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

PROJECT
MAPLEWOOD WEST TOWNHOMES

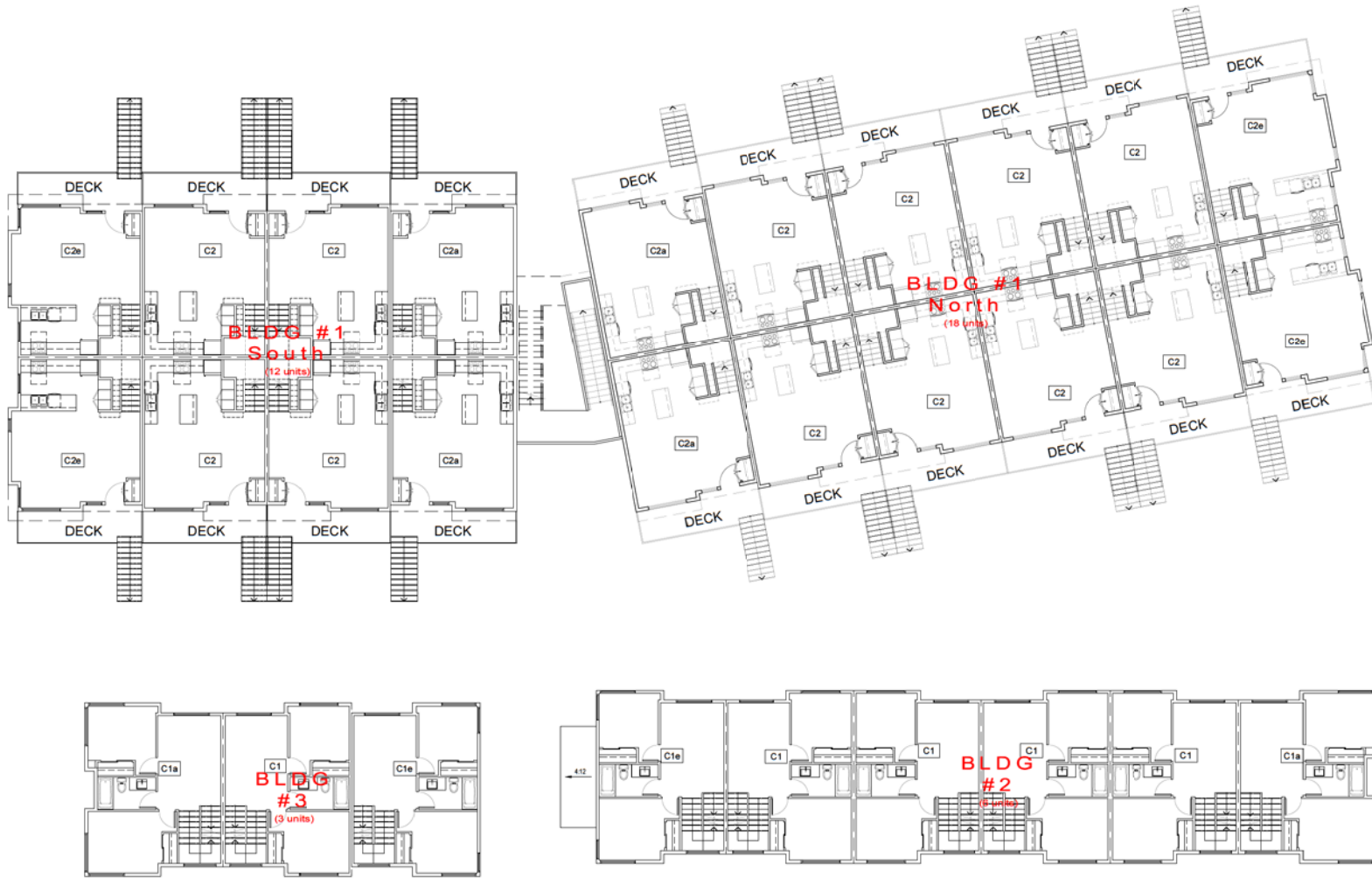
2049, 2051, 2053, 2055 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE

**BUILDING PLANS
LEVEL 2**

DRAWING NO.

A2.02



ISSUES	DATE
8	RE-ISSUED FOR DETAILED DPA
7	ISSUED FOR DETAILED DPA
6	ISSUED FOR DETAILED ADP
5	RE-ISSUED FOR DETAILED DPA
4	ISSUED FOR DETAILED DPA
3	ISSUED FOR CODE CONSULTANT REV.
2	ISSUED FOR ADP REVIEW
1	ISSUED FOR PRELIMINARY DPA

PROJECT NUMBER	DSM
DRAWN BY	RA
CHECKED BY	WB
DATE CHECKED	
CONSULTANT	

PROJECT
MAPLEWOOD WEST TOWNHOMES

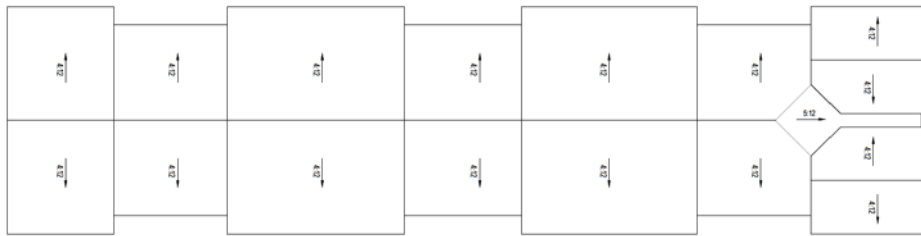
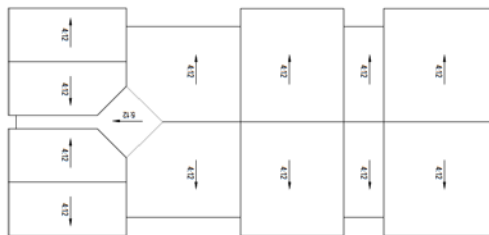
2048, 2051, 2053, 2055 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE
BUILDING PLANS LEVEL 3

DRAWING NO.

A2.03





ISSUES	DATE
8 RE-ISSUED FOR DETAILED DPA	2019-05-23
7 ISSUED FOR DETAILED DPA	2019-04-30
6 ISSUED FOR DETAILED ADP	2019-04-03
5 RE-ISSUED FOR DETAILED DPA	2017-09-07
4 ISSUED FOR DETAILED DPA	2017-08-18
3 ISSUED FOR CODE CONSULTANT REV.	2017-02-15
2 ISSUED FOR ADP REVIEW	2016-11-08
1 ISSUED FOR PRELIMINARY DPA	2016-07-15

PROJECT NUMBER	DBH
DRAWN BY	RA
CHECKED BY	WB
DATE CHECKED	
CONSULTANT	

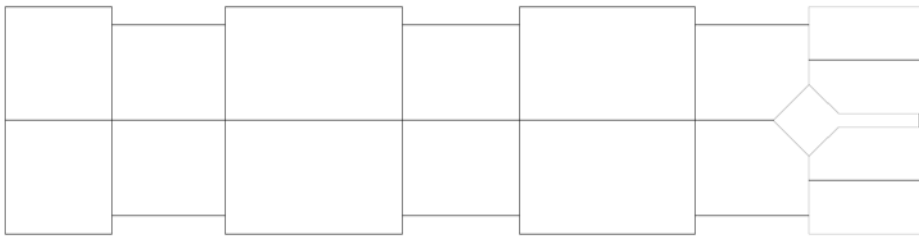
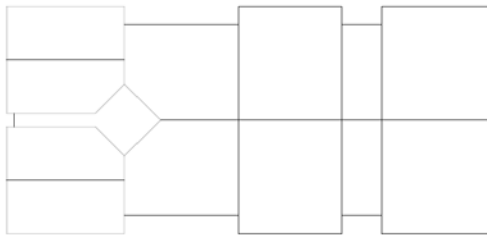
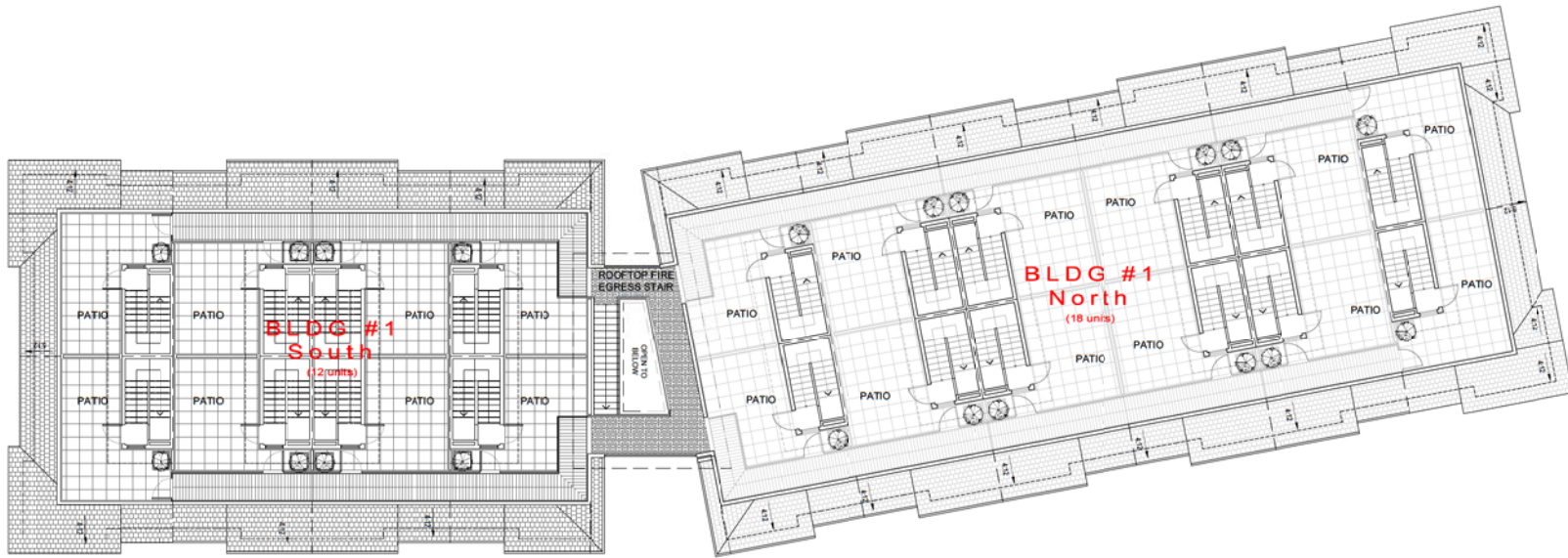
PROJECT
**MAPLEWOOD WEST
TOWNHOMES**

2049, 2051, 2053, 2055 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE
**BUILDING PLANS
LEVEL 4**

DRAWING NO.

A2.04



Anthem

ISSUES	DATE
8	RE-ISSUED FOR DETAILED DPA
7	ISSUED FOR DETAILED DPA
6	ISSUED FOR DETAILED ADP
5	RE-ISSUED FOR DETAILED DPA
4	ISSUED FOR DETAILED DPA
3	ISSUED FOR CODE CONSULTANT REV.
2	ISSUED FOR ADP REVIEW
1	ISSUED FOR PRELIMINARY DPA

PROJECT NUMBER	DATE
DRAWN BY	RA
CHECKED BY	MS
DATE CHECKED	
CONSULTANT	

PROJECT
**MAPLEWOOD WEST
TOWNHOMES**

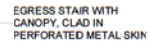
2048, 2051, 2053, 2055 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE

**ROOF PLAN
EGRESS PATIOS**

DRAWING NO.

A2.05



SCALE: 1/8" = 1'-0"



SCALE: 1/8" = 1'-0"

SCALE: 1/8" = 1'-0"

[illegible]

ISSUES	DATE
8 RE-ISSUED FOR DETAILED DPA	2018-05-23
7 ISSUED FOR DETAILED DPA	2018-04-30
6 ISSUED FOR DETAILED ADP	2018-04-04
4 RE-ISSUED FOR DETAILED DPA	2017-09-04
4 ISSUED FOR DETAILED DPA	2017-08-11
3 ISSUED FOR CODE CONSULTANT REV.	2017-02-16
2 ISSUED FOR ADP REVIEW	2016-11-04
1 ISSUED FOR PRELIMINARY DPA	2016-07-01

PROJECT NUMBER	0896
DRAWN BY	RA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

PROJECT
**MAPLEWOOD WEST
TOWNHOMES**

2049, 2051, 2053, 2055, 2059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE

ELEVATIONS BUILDING #1 NORTH

CRAWLING No.

A3.01



1 WEST ELEVATION- BLDG 1 SOUTH
SCALE: 1/8" = 1'-0"

MATERIAL KEY

016	WHITE CONCRETE HORIZONTAL LAP SIDING, IF EXPOSURE	068	DECORATIVE WALL LIGHTING SCIENCE	196	DOUBLE GLAZED FIRE-RATED WINDOW UNIT
017	PAINTED LIGHT GRAY	069	ALUMINUM UNIT EXTERIOR NUMBER ON STANDOFFS	197	STANDARD WHITE FRAME
018	PAINTED MEDIUM GRAY	070	PERFORATED CONCRETE BLOCK	198	DOUBLE GLAZED FIRE-RATED WINDOW UNIT
019	TEXTURED FIRE-RESISTANT PANEL AND WOOD TRIM SURROUND	071	ARCHITECTURAL CONCRETE	199	STANDARD BLACK FRAME AND GLASS
020	WHITE	072	ASPHALT SINGLE ROOFING	200	DOUBLE GLAZED FIRE-RATED PATIO DOOR UNIT
021	TEXTURED FIRE-RESISTANT PANEL AND WOOD TRIM SURROUND	073	WOOD SHEDDING	201	WHITE
022	MEDIUM GRAY	074	WOOD SHEDDING	202	INSULATED
023	PAINTED MEDIUM GRAY	075	WOOD SHEDDING	203	INSULATED
024	PAINTED MEDIUM GRAY	076	WOOD SHEDDING	204	INSULATED
025	PAINTED MEDIUM GRAY	077	WOOD SHEDDING	205	INSULATED
026	PAINTED MEDIUM GRAY	078	WOOD SHEDDING	206	INSULATED
027	PAINTED MEDIUM GRAY	079	WOOD SHEDDING	207	INSULATED
028	PAINTED MEDIUM GRAY	080	WOOD SHEDDING	208	INSULATED
029	PAINTED MEDIUM GRAY	081	WOOD SHEDDING	209	INSULATED
030	PAINTED MEDIUM GRAY	082	WOOD SHEDDING	210	INSULATED
031	PAINTED MEDIUM GRAY	083	WOOD SHEDDING	211	INSULATED
032	PAINTED MEDIUM GRAY	084	WOOD SHEDDING	212	INSULATED
033	PAINTED MEDIUM GRAY	085	WOOD SHEDDING	213	INSULATED
034	PAINTED MEDIUM GRAY	086	WOOD SHEDDING	214	INSULATED
035	PAINTED MEDIUM GRAY	087	WOOD SHEDDING	215	INSULATED
036	PAINTED MEDIUM GRAY	088	WOOD SHEDDING	216	INSULATED
037	PAINTED MEDIUM GRAY	089	WOOD SHEDDING	217	INSULATED
038	PAINTED MEDIUM GRAY	090	WOOD SHEDDING	218	INSULATED
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040	PAINTED MEDIUM GRAY	092	WOOD SHEDDING	220	INSULATED
041	PAINTED MEDIUM GRAY	093	WOOD SHEDDING	221	INSULATED
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064	PAINTED MEDIUM GRAY	116	WOOD SHEDDING	244	INSULATED
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066	PAINTED MEDIUM GRAY	118	WOOD SHEDDING	246	INSULATED
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073	PAINTED MEDIUM GRAY	125	WOOD SHEDDING	253	INSULATED
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095	PAINTED MEDIUM GRAY	147	WOOD SHEDDING	275	INSULATED
096	PAINTED MEDIUM GRAY	148	WOOD SHEDDING	276	INSULATED
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117	PAINTED MEDIUM GRAY	169	WOOD SHEDDING	297	INSULATED
118	PAINTED MEDIUM GRAY	170	WOOD SHEDDING	298	INSULATED
119	PAINTED MEDIUM GRAY	171	WOOD SHEDDING	299	INSULATED
120	PAINTED MEDIUM GRAY	172	WOOD SHEDDING	300	INSULATED

ELECTRICAL ROOM



2 WEST ELEVATION- BLDG 1 SOUTH
SCALE: 1/8" = 1'-0"



3 EAST ELEVATION- BLDG 1 SOUTH
SCALE: 1/8" = 1'-0"



4 NORTH ELEVATION- BLDG 1 SOUTH
SCALE: 1/8" = 1'-0"

ISSUES	DATE
8	RE-ISSUED FOR DETAILED DPA
7	ISSUED FOR DETAILED DPA
6	ISSUED FOR DETAILED ADP
5	RE-ISSUED FOR DETAILED DPA
4	ISSUED FOR DETAILED DPA
3	ISSUED FOR CODE CONSULTANT REV.
2	ISSUED FOR ADP REVIEW
1	ISSUED FOR PRELIMINARY DPA
PROJECT NUMBER	0888
DRAWN BY	RA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

ISSUES	DATE
8 RE-ISSUED FOR DETAILED DPA	2019-05-23
7 ISSUED FOR DETAILED DPA	2019-04-30
6 ISSUED FOR DETAILED ADP	2019-04-03
5 RE-ISSUED FOR DETAILED DPA	2017-09-07
4 ISSUED FOR DETAILED DPA	2017-08-18
3 ISSUED FOR CODE CONSULTANT REV.	2017-02-15
2 ISSUED FOR ADP REVIEW	2016-11-08
1 ISSUED FOR PRELIMINARY DPA	2016-07-15
PROJECT NUMBER	DB88
DRAWN BY	RA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

PROJECT
MAPLEWOOD WEST TOWNHOMES
2048, 2051, 2053, 2055, 2059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE

**ELEVATIONS
BUILDING #2**

DRAWING NO.

A3.03



1 WEST ELEVATION- BLDG 2
SCALE: 1/8" = 1'-0"



2 NORTH ELEVATION- BLDG 2
SCALE: 1/8" = 1'-0"



3 EAST ELEVATION- BLDG 2
SCALE: 1/8" = 1'-0"

PLANTERS

<p>MATERIAL KEY</p> <p>017A FINE CEMENT HORIZONTAL LAP SENG, IF EXPOSURE PAINTED LIGHT GRAY</p> <p>018 FINE CEMENT HORIZONTAL LAP SENG, IF EXPOSURE PAINTED MEDIUM GRAY</p> <p>019 TEXTURED FINE CEMENT PANEL AND WOOD TRIM SURROUND MEDIUM GRAY</p> <p>020 TEXTURED FINE CEMENT PANEL AND WOOD TRIM SURROUND MEDIUM GRAY</p> <p>021 FINE CEMENT SINGLE SCOW MEDIUM BROWN</p> <p>022A STONE VENER CLADDING, LIGGETTONE PROFILE COL. BAY TITILLATED STONE TONES, BROWN, GRAY</p> <p>022B STONE VENER CLADDING MEDIUM BROWN</p> <p>023 WOOD TRIM PAINTED WHITE</p> <p>024 WOOD TRIM PAINTED GRAY</p> <p>025 WOOD TRIM PAINTED GRAY</p> <p>026 PLANTER BOX</p> <p>027 SLATED RAIL ON PERFORMED METAL WELLS PANELS PREPARED STAINLESS BLACK</p> <p>028 TUMBLE BUTTER TAIL WHITE</p> <p>029 TUMBLE BUTTER TAIL GRAY</p>	<p>024A DECORATIVE WALL LIGHTING SCIENCE</p> <p>025 ALUMINUM UNIT, ADDRESS NUMBERS ON STANCOPTS PREPARED STAINLESS BLACK</p> <p>026 ARCHITECTURAL CONCRETE</p> <p>027 ASPHALT SHINGLE ROOFING GRAY THERMAL, 1/2" TYPICAL, OR EQUIVALENT</p> <p>028 WOOD TRIM PAINTED WHITE</p> <p>029 WOOD TRIM PAINTED WHITE</p> <p>030 WOOD TRIM PAINTED GRAY</p> <p>031 WOOD TRIM PAINTED GRAY</p> <p>032 PLANTER BOX</p> <p>033 SLATED RAIL ON PERFORMED METAL WELLS PANELS PREPARED STAINLESS BLACK</p> <p>034 TUMBLE BUTTER TAIL WHITE</p> <p>035 TUMBLE BUTTER TAIL GRAY</p>	<p>036 DOUBLE GLAZED HINGE GLASS WINDOW UNIT STANDARD WELLS PANEL</p> <p>037 DOUBLE GLAZED HINGE GLASS WINDOW UNIT STANDARD GLASS FRAME, ONE EYEBROW</p> <p>038 DOUBLE GLAZED HINGE GLASS PATIO DOOR UNIT WHITE</p> <p>039 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>040 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>041 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>042 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>043 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>044 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>045 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>046 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>047 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>048 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>049 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>050 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>051 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>052 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>053 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>054 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>055 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>056 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>057 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>058 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>059 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>060 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>061 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>062 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>063 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>064 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>065 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>066 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>067 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>068 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>069 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>070 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>071 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>072 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>073 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>074 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>075 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>076 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>077 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>078 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>079 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>080 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>081 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>082 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>083 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>084 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>085 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>086 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>087 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>088 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>089 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>090 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>091 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>092 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>093 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>094 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>095 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>096 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>097 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>098 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>099 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p> <p>100 EXTERIOR ENTRY DOOR UNIT, INSULATED MEDIUM BLUE</p>
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ACCESSIBLE DESIGN STRATEGY

ACCESSIBILITY

Although This unique site has posed several challenging conditions, including grading, riparian setbacks and tree protection requirements, through thoughtful landscape and grading design the District of North Vancouver's Accessible Design Policy for Multi-Family Housing can be implemented to facilitate access and usability for the widest range of residents and visitors.

Of the 39 Ground-Oriented Townhome units proposed, three units are easily accessed without the use of stairs--herein referred to as "Accessible" units in the drawings--and will be built to include the policy's applicable "Basic Accessible Design" features, and were design to provide for specific "Enhanced Accessible Features."

The site was designed to accommodate accessibility in a building archetype that typically poses barriers. The common amenity spaces, children's play area, mail boxes and bicycle rack are accessible from these units without encountering stairs or steps, along a clear 5'-0" path of travel. As well, the new public sidewalk along Heritage Park Lane is accessed via a pathway inset into a fire access lane, with a suitable slope. Underground resident and visitor parking is also made accessible by an elevator located centrally to the project, and in immediate proximity (approximately 21 metres) to the designated "accessible" units. The garbage and recycling storage room in the underground parking has ample room for movement of people in chairs and other mobility aids, and is accessible via the elevator without encountering stairs, steps or ramps.

To better understand how the design features are implemented in the "Accessible Units," please refer to the drawing "A23 - Floor Plans, Unit Type B2U, (Accessible Units)", illustrated with notes explaining the specific items addressed, and referenced back to the Policy's "Basic and Enhanced Accessible Design Elements" list. Select accessible design elements, and how they have been addressed in the drawings, are annotated with a call-out to each item.

- 1-8 UNOBSTRUCTED ACCESS TO MAIN BUILDING ENTRANCES
 - FROM STREET TO THE MAIN ENTRANCE
 - FROM MAIN ENTRANCE ADAPTABLE UNITS
 - FROM ADAPTABLE UNITS TO COMMON AMENITY AREAS



1 SITE KEY PLAN - ACCESSIBILITY STRATEGY Scale: 1/16" = 1'-0"

ACCESSIBLE DESIGN CHECKLIST

Proposed Development: Maplewood West Townhomes
Address: 2048 - 2051, 2053, 2055 Heritage Park Lane
Building Permit No.: [redacted]

Date: APRIL 5, 2018

Type of Residential: wood-frame apartment [] concrete apartment [] mixed use building [] ground-oriented mvt [x] other []

Total number of residential units: [redacted]
Total number of parking stalls: 77 (residential component only)
Total number of accessible parking stalls: 4 (residential component only)

C. Ground-oriented Multi-Family Units

Total ground-oriented mvt units designed as basic accessible units: 3 Unit numbers (if applicable): [redacted]
Building number/address (if applicable): [redacted] Unit sizes: 925 sq.ft.
Total ground-oriented mvt units designed as enhanced accessible units: 3 Unit numbers (if applicable): [redacted]
Building number/address (if applicable): [redacted] Unit sizes: 925 sq.ft.

Building access and main entrances	Yes [x] No []
Corridors and circulation	Yes [x] No []
Residential Unit - Unit Entry	Yes [x] No []
Residential Unit - Bathroom	Yes [x] No []
Residential Unit - Bedroom	Yes [x] No []
Residential Unit - Kitchen	Yes [x] No []
Residential Unit - Electrical	Yes [x] No []
Windows and Balconies	Yes [x] No []

Explanation/comments: Please refer to accessibility strategy rationale.



2 ENLARGED SITE PLAN - "ACCESSIBLE" UNITS Scale: 3/16" = 1'-0"

- 2-8 ACCESSIBLE PATH OF TRAVEL
 - CONTINUOUS WITH NO STEPS
 - PERMANENT, FIRM, NON-SLIP FINISH
 - A CLEAR WIDTH OF 5'-0"
 - A GRADIENT OF NOT MORE THAN 1:20, EXCEPT AT RAMPS

- DENOTES "ACCESSIBLE" UNIT
- DENOTES OUTDOOR AREAS ACCESSIBLE WITHOUT ENCOUNTERING STAIRS
- DENOTES BARRIER-FREE PATH OF TRAVEL

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Architecture

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ISSUES	DATE
8 RE-ISSUED FOR DETAILED DPA	2018-05-23
7 ISSUED FOR DETAILED DPA	2018-04-30
6 ISSUED FOR DETAILED ADP	2018-04-03
5 RE-ISSUED FOR DETAILED DPA	2017-09-07
4 ISSUED FOR DETAILED DPA	2017-08-18
3 ISSUED FOR CODE CONSULTANT REV.	2017-02-15
2 ISSUED FOR ADP REVIEW	2016-11-08
1 ISSUED FOR PRELIMINARY DPA	2016-07-15

PROJECT NUMBER	0886
DRAWN BY	RA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

PROJECT

MAPLEWOOD WEST TOWNHOMES

2048, 2051, 2053, 2055, 2059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

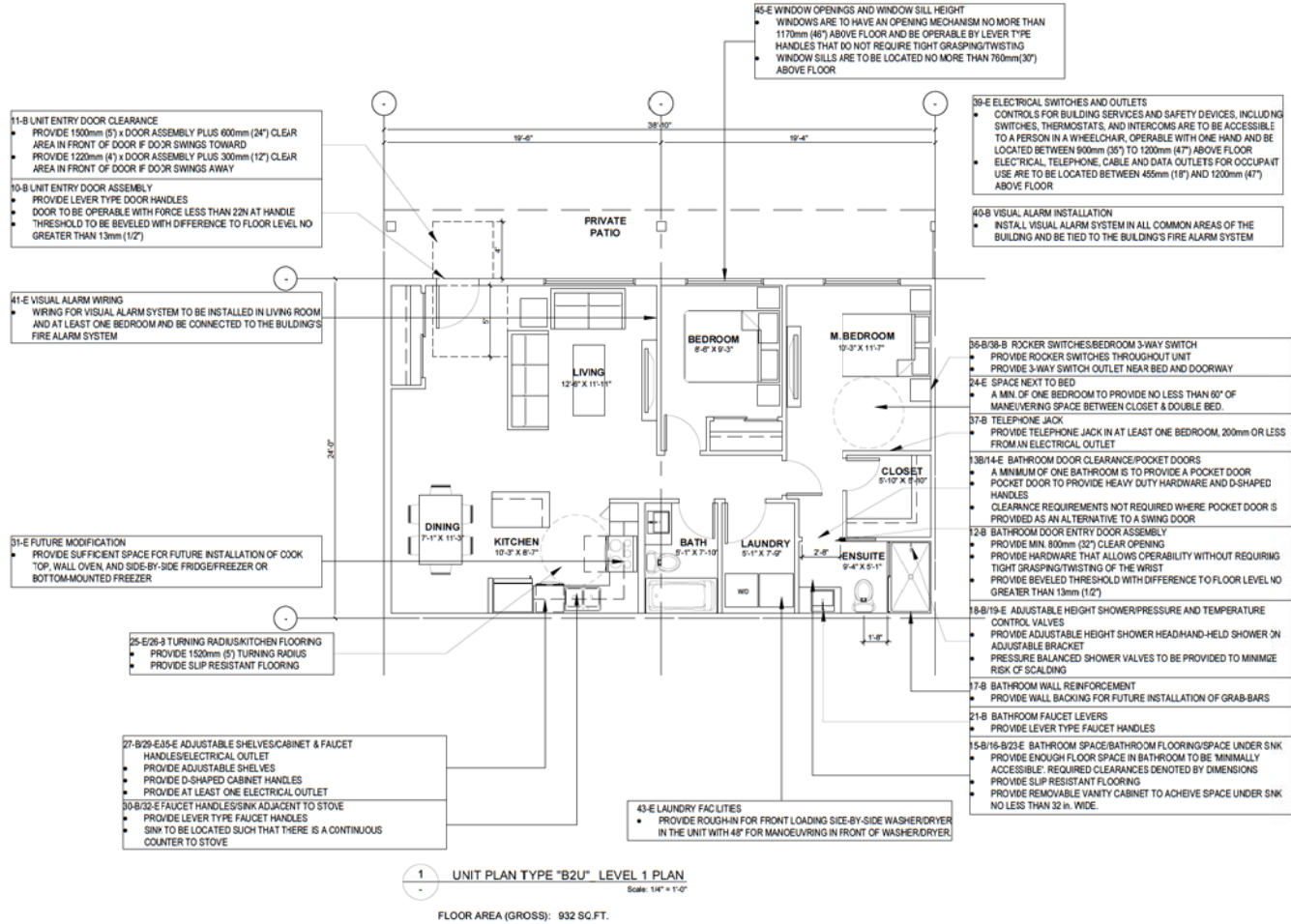
ACCESSIBLE DESIGN STRATEGY

DRAWING TITLE

DRAWING NO.

A4.00

SELECT ACCESSIBLE DESIGN ELEMENTS, AND
HOW THEY HAVE BEEN ADDRESSED IN THE
DRAWINGS, ARE ANNOTATED WITH A CALL-OUT
TO EACH ITEM.



ISSUES	DATE
8	RE-ISSUED FOR DETAILED DPA
7	ISSUED FOR DETAILED DPA
6	ISSUED FOR DETAILED ADP
5	RE-ISSUED FOR DETAILED DPA
4	ISSUED FOR DETAILED DPA
3	ISSUED FOR CODE CONSULTANT REV.
2	ISSUED FOR ADP REVIEW
1	ISSUED FOR PRELIMINARY DPA

PROJECT NUMBER	0886
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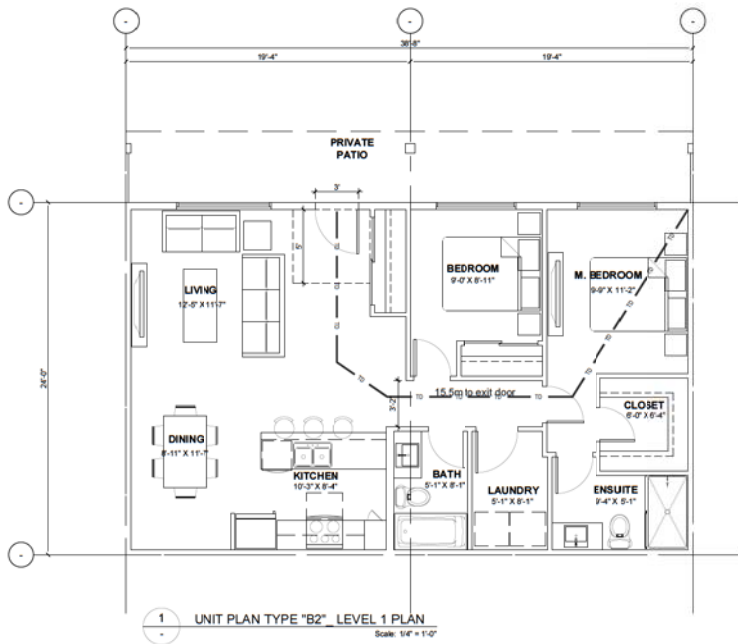
PROJECT
MAPLEWOOD WEST
TOWNHOMES

2048, 2051, 2053, 2055, 2059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

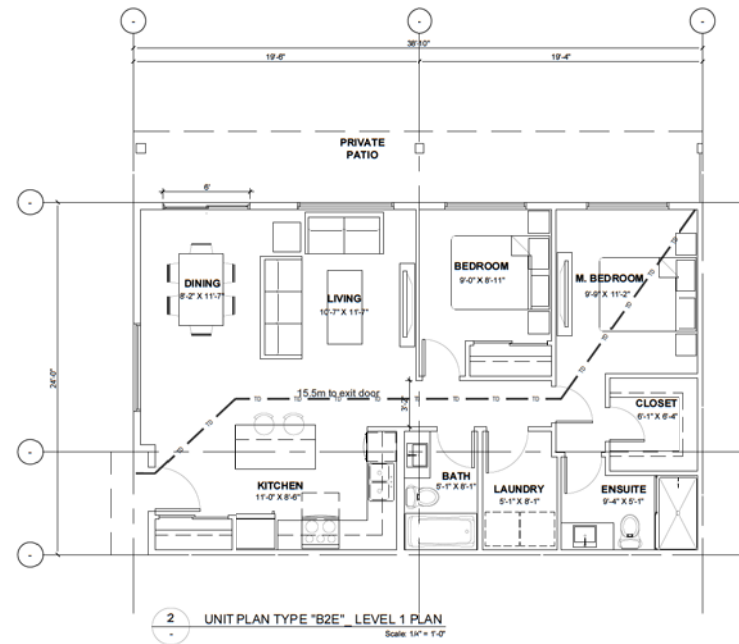
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FLOOR PLAN
UNIT TYPE "B2U"
(Accessible Unit)

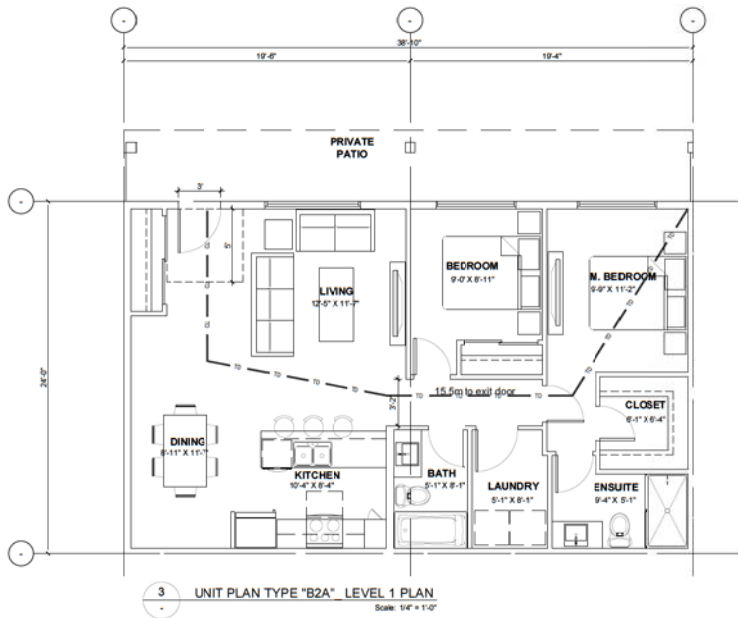
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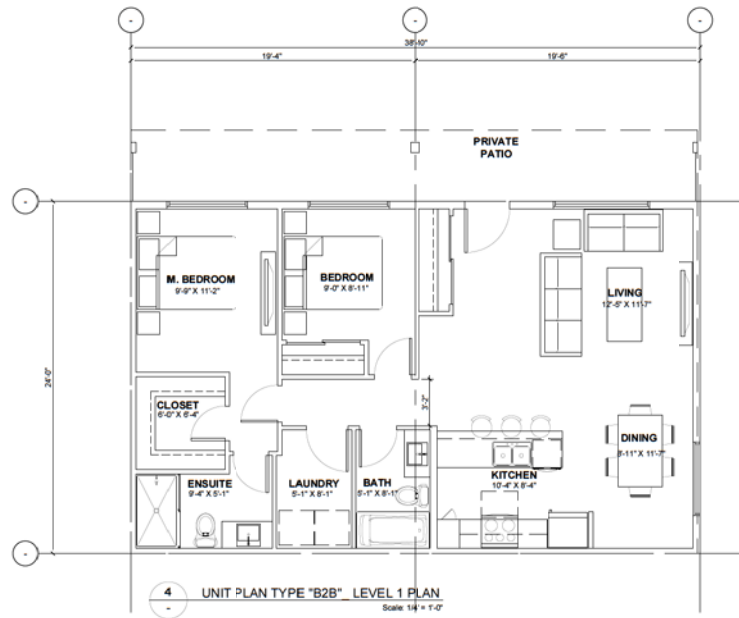
FLOOR AREA (GROSS): 928 SQ. FT.



FLOOR AREA (GROSS): 925 SQ. FT.



FLOOR AREA (GROSS): 932 SQ. FT.



FLOOR AREA (GROSS): 932 SQ. FT.

ISSUES	DATE
8 RE ISSUED FOR DETAILED DPA	2019-05-23
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6 ISSUED FOR DETAILED ADP	2019-04-03
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2 ISSUED FOR ADP REVIEW	2016-11-08
1 ISSUED FOR PRELIMINARY DPA	2016-07-15

PROJECT NUMBER	DBM
DRAWN BY	RA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

PROJECT
MAPLEWOOD WEST TOWNHOMES

2049, 2051, 2053, 2055 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE
**FLOOR PLANS
GARDEN SUITES
UNIT TYPES B2, B2e,
B2a & B2b**

DRAWING NO.



FLOOR AREA (GROSS): 1,506.6 ft²



ISSUES	DATE
8 RE-ISSUED FOR DETAILED DPA	2019-05-23
7 ISSUED FOR DETAILED DPA	2019-04-30
6 ISSUED FOR DETAILED ADP	2019-04-03
5 RE-ISSUED FOR DETAILED DPA	2017-09-07
4 ISSUED FOR DETAILED DPA	2017-08-18
3 ISSUED FOR CODE CONSULTANT REV.	2017-02-15
2 ISSUED FOR ADP REVIEW	2019-11-08
1 ISSUED FOR PRELIMINARY DPA	2018-07-15

PROJECT NUMBER	DBRR
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DATE CHECKED	
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PROJECT
MAPLEWOOD WEST TOWNHOMES

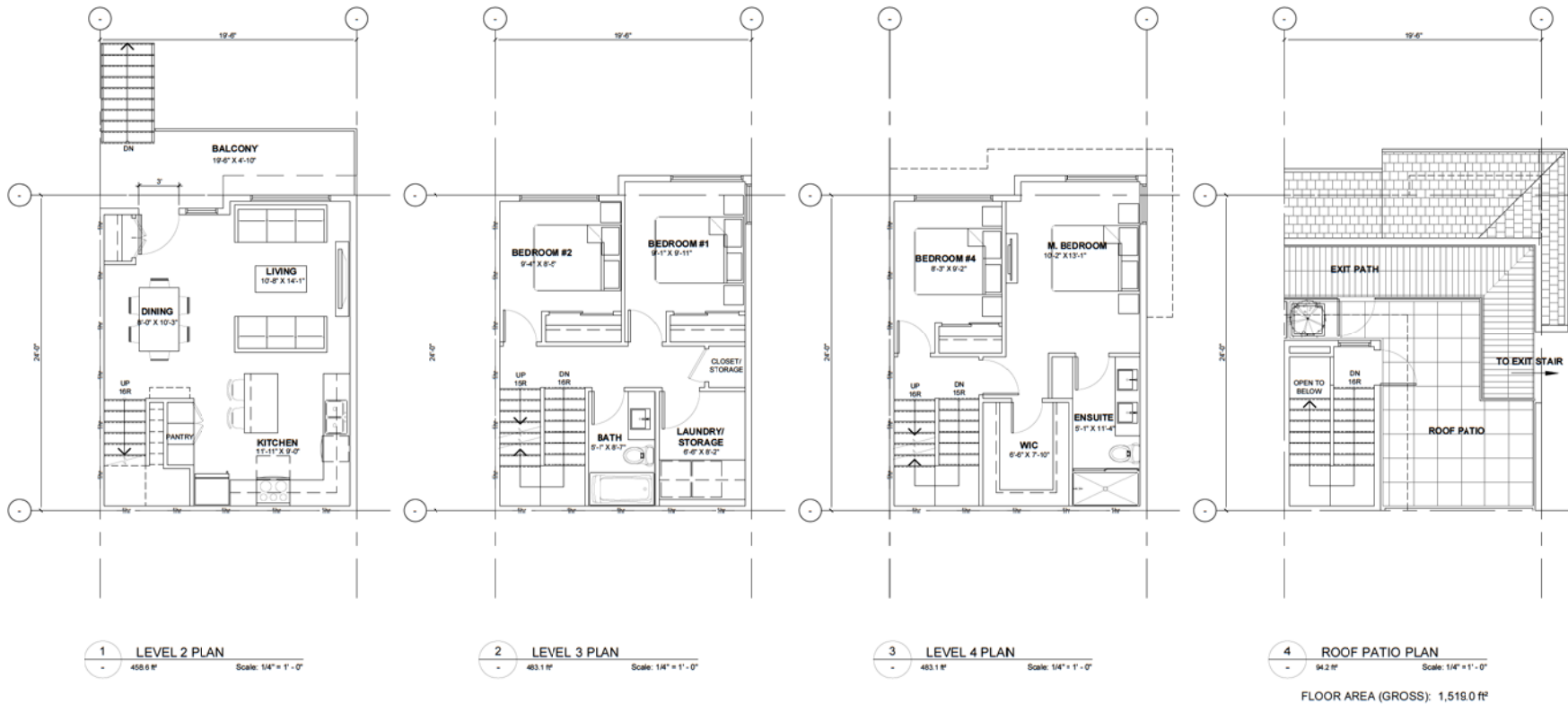
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NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE

**FLOOR PLANS
UNIT TYPE 'C2'**

DRAWING NO.

A4.03



ISSUES	DATE
8 RE-ISSUED FOR DETAILED DPA	2019-05-23
7 ISSUED FOR DETAILED DPA	2018-04-30
6 ISSUED FOR DETAILED ADP	2018-04-03
5 RE-ISSUED FOR DETAILED DPA	2017-09-07
4 ISSUED FOR DETAILED DPA	2017-08-18
3 ISSUED FOR CODE CONSULTANT REV.	2017-02-15
2 ISSUED FOR ADP REVIEW	2016-11-08
1 ISSUED FOR PRELIMINARY DPA	2016-07-15
PROJECT NUMBER	DBRR
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DATE CHECKED	
CONSULTANT	

PROJECT
MAPLEGROVE WEST TOWNHOMES

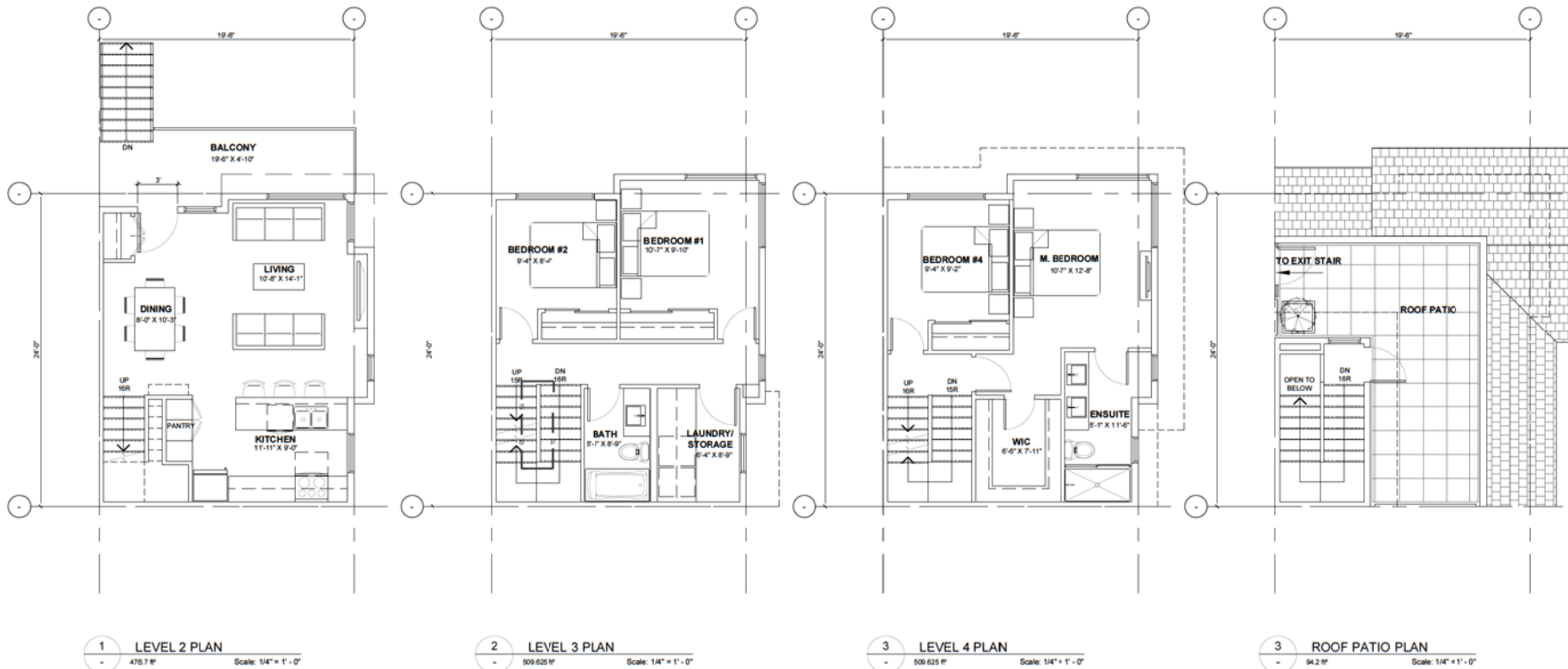
2049, 2051, 2053, 2055 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE

**FLOOR PLANS
UNIT TYPE 'C2a'**

DRAWING No.

A4.04



FLOOR AREA (GROSS): 1,620.55 SQ. FT.

Anthem

ISSUES	DATE
8 RE-ISSUED FOR DETAILED DPA	2019-05-23
7 ISSUED FOR DETAILED DPA	2019-04-30
6 ISSUED FOR DETAILED ADP	2019-04-03
5 RE-ISSUED FOR DETAILED DPA	2017-09-07
4 ISSUED FOR DETAILED DPA	2017-08-18
3 ISSUED FOR CODE CONSULTANT REV.	2017-02-15
2 ISSUED FOR ADP REVIEW	2016-11-08
1 ISSUED FOR PRELIMINARY DPA	2016-07-15

PROJECT NUMBER	DBRR
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PROJECT
**MAPLEWOOD WEST
TOWNHOMES**

2049, 2051, 2053, 2055 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE

**FLOOR PLANS
UNIT TYPE 'C2e'**

DRAWING No.

A4.05

ISSUES	DATE
8 RE ISSUED FOR DETAILED DPA	2019-05-23
7 ISSUED FOR DETAILED DPA	2019-04-30
6 ISSUED FOR DETAILED ADP	2019-04-03
5 RE ISSUED FOR DETAILED DPA	2017-09-07
4 ISSUED FOR DETAILED DPA	2017-08-18
3 ISSUED FOR CODECONSULTANT REV.	2017-02-15
2 ISSUED FOR ADP REVIEW	2016-11-08
1 ISSUED FOR PRELIMINARY DPA	2016-07-15

PROJECT NUMBER	0886
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CONSULTANT	

PROJECT
**MAPLEWOOD WEST
TOWNHOMES**

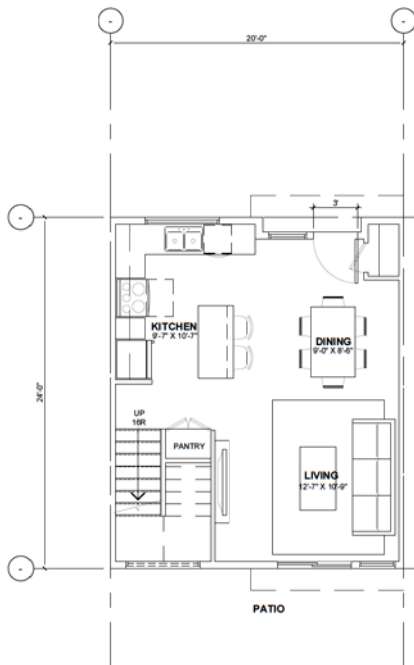
2049, 2051, 2053, 2055 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE

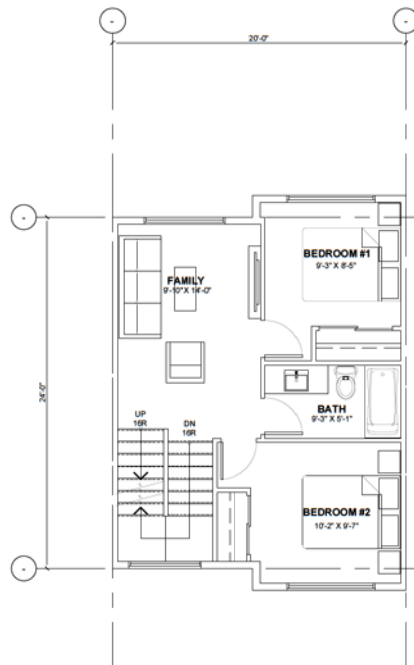
**FLOOR PLANS
UNIT TYPE 'C1'**

DRAWING NO.

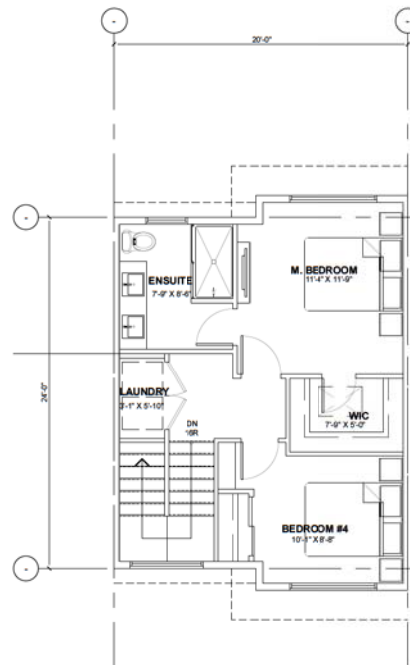
A4.06



1 LEVEL 1 PLAN
473.3 SF Scale: 1/4" = 1' - 0"



2 LEVEL 2 PLAN
511.25 SF Scale: 1/4" = 1' - 0"



3 LEVEL 3 PLAN
511.25 SF Scale: 1/4" = 1' - 0"

FLOOR AREA (GROSS): 1,495.8 SQ. FT.

ISSUES	DATE
8	RE ISSUED FOR DETAILED DPA
7	ISSUED FOR DETAILED DPA
6	ISSUED FOR DETAILED ADP
5	RE ISSUED FOR DETAILED DPA
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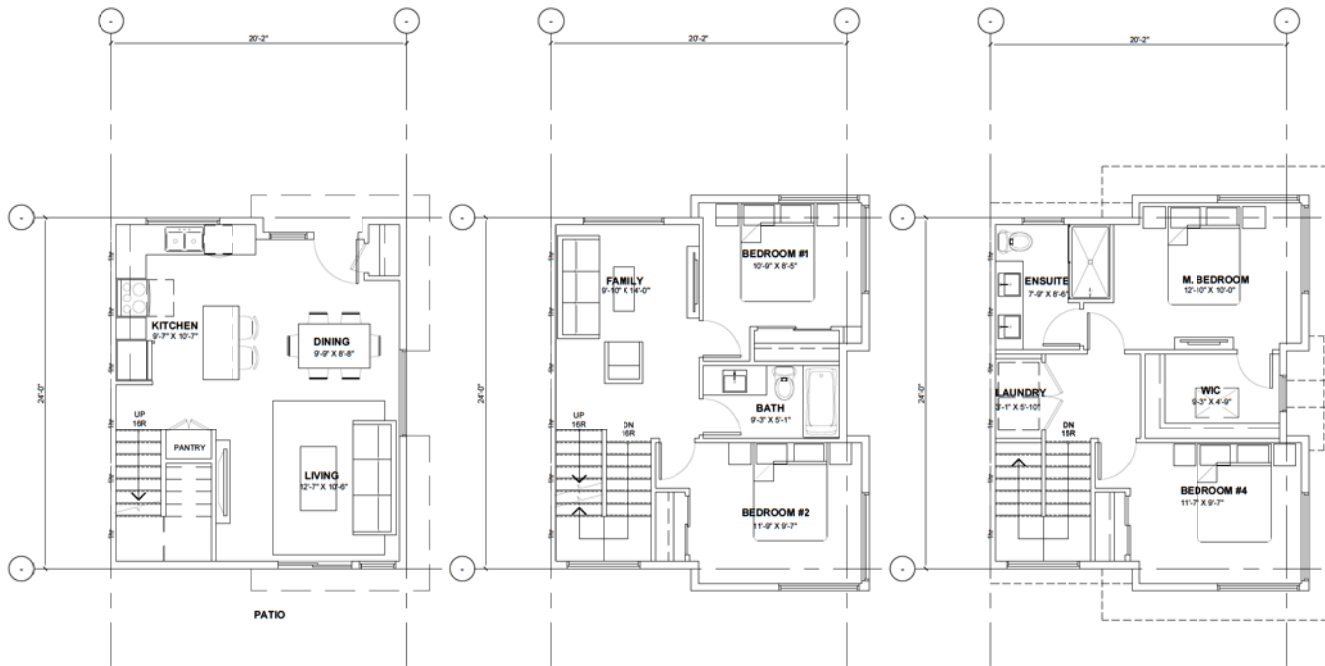
PROJECT
**MAPLEWOOD WEST
TOWNHOMES**

2049, 2051, 2053, 2055 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE
**FLOOR PLANS
UNIT TYPE 'C1a'**

DRAWING No.

A4.07



1 LEVEL 1 PLAN
= 477.3 sq' Scale: 1/4" = 1' - 0"

2 LEVEL 2 PLAN
= 547.5 sq' Scale: 1/4" = 1' - 0"

3 LEVEL 3 PLAN
= 547.5 sq' Scale: 1/4" = 1' - 0"

FLOOR AREA (GROSS): 1,572.3 SQ.FT.

ISSUES	DATE
8 RE-ISSUED FOR DETAILED DPA	2019-05-23
7 ISSUED FOR DETAILED DPA	2018-04-30
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1 ISSUED FOR PRELIMINARY DPA	2016-07-15
PROJECT NUMBER DBR#	
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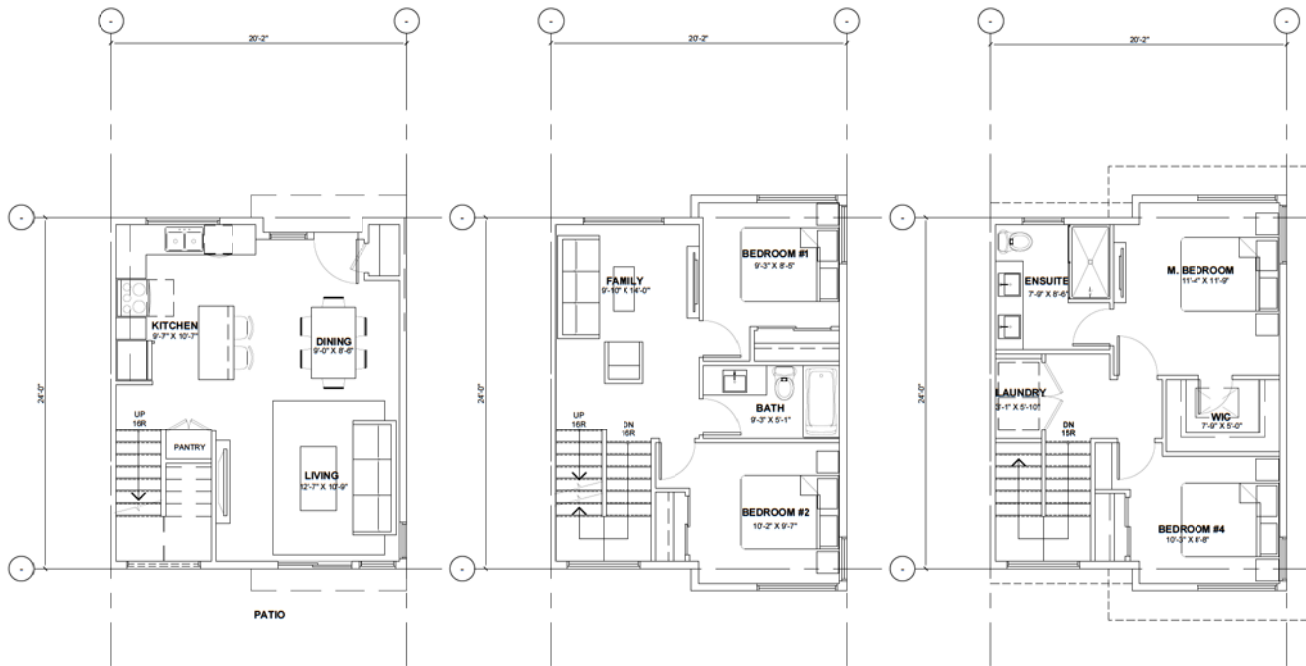
PROJECT
**MAPLEWOOD WEST
TOWNHOMES**

2049, 2051, 2053, 2055 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE
**FLOOR PLANS
UNIT TYPE 'C1e'**

DRAWING No.

A4.08



FLOOR AREA (GROSS): 1,508.8 SQ. FT.



1 VIEW FROM FIRE ACCESS LANE
NTS



2 VIEW FROM NORTHEAST @ MOUNT SEYMOUR PARKWAY
NTS

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6 ISSUED FOR DETAILED ADP	2018-04-03
5 RE-ISSUED FOR DETAILED DPA	2017-09-07
4 ISSUED FOR DETAILED DPA	2017-08-16
3 ISSUED FOR CODE CONSULTANT REV.	2017-03-15
2 ISSUED FOR ADP REVIEW	2016-11-08
1 ISSUED FOR PRELIMINARY DPA	2016-07-15

PROJECT NUMBER	0386
DRAWN BY	RA
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DATE CHECKED	
CONSULTANT	

PROJECT
**MAPLEWOOD WEST
TOWNHOMES**

2049, 2051, 2053, 2055, 1059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE
**PERSPECTIVE
VIEWS**

DRAWING NO.

A6.01



1 VIEW FROM COURTYARD TOWARD PLAY AREA
NTS



2 BIRD'S-EYE VIEW
NTS

ISSUES	DATE
8 RE-ISSUED FOR DETAILED DPA	2018-05-23
7 ISSUED FOR DETAILED DPA	2018-04-30
6 ISSUED FOR DETAILED ADP	2018-04-03
5 RE-ISSUED FOR DETAILED DPA	2017-09-07
4 ISSUED FOR DETAILED DPA	2017-08-16
3 ISSUED FOR CODE CONSULTANT REV.	2017-03-15
2 ISSUED FOR ADP REVIEW	2016-11-08
1 ISSUED FOR PRELIMINARY DPA	2016-07-15

PROJECT NUMBER	0286
DRAWN BY	RA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

PROJECT
**MAPLEWOOD WEST
TOWNHOMES**

2049, 2051, 2053, 2055, 1059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE

**PERSPECTIVE
VIEWS**

DRAWING NO.

A6.02



1 HERITAGE PARK LANE ENTRANCE NTS

ISSUES	DATE
8 RE-ISSUED FOR DETAILED DPA	2018-05-23
7 ISSUED FOR DETAILED DPA	2018-04-30
6 ISSUED FOR DETAILED ADP	2018-04-03
5 RE-ISSUED FOR DETAILED DPA	2017-09-07
4 ISSUED FOR DETAILED DPA	2017-08-16
3 ISSUED FOR CODE CONSULTANT REV.	2017-03-15
2 ISSUED FOR ADP REVIEW	2016-11-08
1 ISSUED FOR PRELIMINARY DPA	2016-07-15

PROJECT NUMBER	0286
DRAWN BY	RA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

PROJECT
**MAPLEWOOD WEST
TOWNHOMES**
2049, 2051, 2053, 2055, 1059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE
**PERSPECTIVE
VIEWS**

DRAWING NO.
A6.03



1 ZOOMED IN VIEW FROM MAPLEWOOD FARM
NTS

- GALVANIZED STAIRS
- ALUMINUM SUB-STRUCTURE
- SCREEN PORTALS
- PERFORATED ALUMINUM SCREEN

ISSUES	DATE
8 RE-ISSUED FOR DETAILED DPA	2018-05-23
7 ISSUED FOR DETAILED DPA	2018-04-30
6 ISSUED FOR DETAILED ADP	2018-04-03
5 RE-ISSUED FOR DETAILED DPA	2017-09-07
4 ISSUED FOR DETAILED DPA	2017-08-18
3 ISSUED FOR CODE CONSULTANT REV.	2017-03-15
2 ISSUED FOR ADP REVIEW	2016-11-08
1 ISSUED FOR PRELIMINARY DPA	2016-07-15

PROJECT NUMBER	0286
DRAWN BY	RA
CHECKED BY	MB
DATE CHECKED	
CONSULTANT	

PROJECT
**MAPLEWOOD WEST
TOWNHOMES**

2049, 2051, 2053, 2055, 1059 HERITAGE PARK LANE
NORTH VANCOUVER DISTRICT, BC

DRAWING TITLE
**PERSPECTIVE
VIEWS
EGRESS STAIR**

DRAWING NO.

A6.04

MAPLEWOOD WEST

for ANTHEM PROPERTIES



Civic Address: 2049, 2051, 2053, 2055, 2059 HERITAGE PARK LANE,
NORTH VANCOUVER, BRITISH COLUMBIA

Legal Address:



1690 West 2nd Avenue
Vancouver . BC . Canada . V6J 1H4

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CONSULTANT TEAM

OWNER: ANTHEM PROPERTIES
ARCHITECT: EKISTICS ARCHITECTURE INC.
LANDSCAPE: eta landscape architecture

ISSUE FOR DP 2018-04-27

DRAWING LIST

- | | |
|-------|-------------------------------------|
| L1.0 | LANDSCAPE SITE PLAN |
| L2.0 | TREE MANAGEMENT PLAN |
| L3.0 | PUBLIC REALM PLAN |
| L4.0 | SITE SERVICING PLAN |
| L5.0 | LANDSCAPE LAYOUT PLAN |
| L5.1 | LANDSCAPE GRADING AND DRAINAGE PLAN |
| L6.0 | PLANTING PLAN |
| L6.1 | PLANTING PLAN: DETAIL SOUTH |
| L6.2 | PLANTING PLAN: DETAIL NORTH |
| L7.0 | DETAIL PLAN: AMENITY AREA |
| L8.1 | LANDSCAPE SECTIONS |
| L8.2 | LANDSCAPE SECTIONS |
| L9.1 | LANDSCAPE DETAILS |
| L9.2 | LANDSCAPE DETAILS |
| L9.3 | HEADWALL AND TIMBER BRIDGE DETAIL |
| L10.0 | LANDSCAPE PRECEDENT IMAGES |

ALL PLANTS TO BE NURSERY GROWN
ALL PLANT MATERIALS AND LABOUR TO CONFORM
TO THE CURRENT EDITION OF THE CSLA STANDARDS.

ALL PLANT MATERIAL TO BE INSPECTED PRIOR TO DELIVERY ON SITE. CONTRACTOR
TO ARRANGE FOR INSPECTION AND MATERIAL TO ASSEMBLED IN ONE LOCATION
FOR REVIEW.

IMPORTED GROWING MEDIA SHALL BE A SANDY LOAM OR LOAMY
SAND TEXTURE (NO LESS THAN 50% SAND BY WEIGHT)
CONTAINING 4 AND 15% ORGANIC MATTER (DRY WEIGHT
BASIS).

GROWING MEDIA SHALL VIRTUALLY FREE FROM SUBSOIL,
WOOD INCLUDING WOODY PLANT PARTS, INVASIVE AND NOXIOUS PLANT AND THEIR
REPRODUCTIBLE PARTS, PLANT PATHOGENIC ORGANISMS, TOXINS, STONES OVER
30mm (1.2"), ANY DEBRIS AND FOREIGN OBJECTS.

IMPORTED GROWING MEDIA SHALL CONFORM TO AND BE TREATED AS PER SECTION
6.2.3 TO 6.2.7 INCLUSIVE OF THE CURRENT EDITION BCLNA STANDARDS.

GROWING MEDIUM SHALL CONFORM TO LEVEL 1 "WELL-GROOMED" AREAS; LOW
TRAFFIC LAWN AREAS, TREES AND LARGE SHRUBS (1L IN TABLE T-6.3.5.1 OF THE
CURRENT EDITION OF THE BSCLA/BCLNA STANDARDS).
IT SHALL POSSESS THE FOLLOWING QUALITIES:

TEXTURE:
*COARSE GRAVEL (LARGER THAN 19mm AND SMALLER THAN 40mm): 0-1%
*ALL GRAVEL (LARGER THAN 2mm AND SMALER THAN 40mm): 0-5%
*SAND (LARGER THAN 0.05mm AND SMALLER
THAN 2mm): 50-70%
*SILT (LARGER THAN 0.002mm AND SMALLER
THAN 0.05mm): 10-25%
*CLAY (SMALLER THAN 0.002mm): 0-20%
*CLAY AND SILT COMBINED: MAXIMUM 25%

ORGANIC CONTENT: 3-10%

Acidity (pH): 6.0-7.0

DRAINAGE: PERCOLATION SHALL BE SUCH THAT NO STANDING WATER IS VISIBLE 60
MINUTES AFTER AT LEAST 10 MINUTES OF MODERATE TO HEAVY RAIN OR IRRIGATION.

MINIMUM SOIL DEPTH TO BE AS PER TABLE T 6.3.5.5 OF THE CURRENT EDITION BCLNA
STANDARDS:

	Over prepared subgrade where the subsoil drains rapidly	Over structures or where the subsoil drains poorly
TREES (10m ² PER TREE)	24"	30"
LARGE SHRUBS	24"	24"
GROUNDCOVERS	12"	9"
LAWN-IRRIGATED	6"	6"
LAWN-NOT IRRIGATED	6"	9"

SOIL DEPTHS WILL BE CHECKED AT TIME OF SUBSTANTIAL COMPLETION REVIEW

SOIL FOR URBAN AGRICULTURE PLOTS IS TO BE URBAN GRO PROVIDED BY VERATEC,
OR APPROVED ALTERNATIVE. SOIL FOR URBAN AGRICULTURE AREAS IS TO MEET OR
EXCEED THE GUIDELINES FOR COMPOST QUALITY UNDER CANADIAN COULCIL OF
MINISTERS OF THE ENVIRONMENT (CCME).

COMPOST IS TO BE TESTED AND RESULTS SUBMITTED TO CONSULTANT PRIOR TO
DELIVERY TO SITE.

BEDS TO HAVE 2" MULCH LAYER (after settling) CONSISTING OF ORGANIC COMPOSTED
BARK APPLIED.

PLANTED AREAS TO HAVE PERMANENT HIGH EFFICIENCY IRRIGATION SYSTEM - SHOP
DRAWINGS ARE TO BE PREPARED BY AN IABC CERTIFIED DESIGNER AND APPROVED BY
LANDSCAPE ARCHITECT.

CONTRACTOR TO PROVIDE MAINTENANCE FOR 1 YEAR FOLLOWING SUBSTANTIAL
COMPLETION.

CONTRACTOR TO PROVIDE WRITTEN 1 YEAR WARRANTY ON PLANT MATERIAL

CONTRACTOR TO PROVIDE COPY OF SOIL TEST TO LANDSCAPE CONSULTANT 3 WEEKS
PRIOR TO DELIVERY ON-SITE. TEST TO BE PERFORMED BY AN INDEPENDENT LAB AND
IS TO INCLUDE RECOMMENDATIONS FOR BOTH LAWN AND PLANTING BEDS.

CONSULTANT TO APPROVE SOIL BEFORE INSTALLATION. THIS DOES NOT PRECLUDE
THE CONSULTANT FROM PERFORMING AN INDEPENDENT SOIL ANALYSIS AT TIME OF
SUBSTANTIAL COMPLETION. CONTRACTOR WILL BE RESPONSIBLE FOR REMOVAL AND
REPLACEMENT OF SOIL THAT DOES NOT MEET SPECIFICATIONS AT NO EXTRA COST TO
CLIENT.

CONTRACTOR TO PROVIDE WRITTEN 1 YEAR WARRANTY ON SOIL SPECIFICATIONS.

AN INDEPENDENT SOIL TEST TO BE PROVIDED 1 WEEK PRIOR TO END OF 1 YEAR
WARRANTY PERIOD CONTRACTOR TO PROVIDE SOIL AMMENDMENTS TO BRING SOIL UP
TO QUALITY RECOMMENDED IN
SOILS REPORT.

SITE INSPECTION
EXAMINE EXISTING SUBGRADE CONDITIONS AND SIGNIFY ACCEPTANCE IN WRITING TO
THE CONSULTANT.

ASCERTAIN THE SIZE AND LOCATION OF ALL EXISTING SERVICES AND SUBGRADES
PRIOR TO THE WORK.

IMMEDIATELY REPAIR DAMAGE RESULTING FROM FAILURE TO EXERCISE SUCH
PRECAUTIONS AT NO COST TO THE OWNER.

ALL PRUNING TO BE IN ACCORDANCE WITH THE BCLNA/BSCLA STANDARDS CURRENT
EDITION.

PLANT COUNTS
IN THE CASE OF ANY DISCREPANCY BETWEEN PLANT COUNTS ON PLANT LIST AND
PLANT SYMBOLS ON DRAWING, THE DRAWINGS TAKES PRECEDENT. THE CONTRACTOR
IS TO VERIFY ALL PLANT COUNTS AND NOTIFY CONSULTANT OF ANY DISCREPANCY.

PLANT LIST					
ID	QTY	LATIN NAME	COMMON NAME	SCHEDULED SIZE	NOTES
TREES RIPARIAN					
	0				
Tr	3	Thuja plicata	Western Red Cedar	3.5m ht/B&B	
Psi	6	Picea sitchensis	Sitka Spruce	3.5m ht/B&B	full/ bushy plants
Pmo	3	Pinus monticola	Western white pine	3m ht/B&B	
Acm	3	Acer macrophyllum	bigleaf maple	7cm cal/ B&B	full/ bushy plants
Ac	3	Acer circinatum	vine maple	6cm cal.	full, bushy plants
*Final tree species in coordination with Environmental Consultant					
TREES OFF-SITE					
Pse	3	Pseudotsuga menziesii	Douglas Fir	3.5m ht/ B&B	full/ bushy canopies
Aql	2	Acer glabrum	rocky mountain maple	7cm cal.	2 m standard
Arro	2	Acer rubrum 'Armstrong'	Red Armstrong	6cm B&B	full & bushy/ B&B
Tr	1	Thuja plicata	Western Red Cedar	3.5m ht/B&B	
Acm	1	Acer macrophyllum	bigleaf maple	7cm cal/ B&B	full/ bushy plants
TREES					
Ac	14	Acer circinatum	vine maple	6cm cal.	full, bushy plants
Aps	10	Acer palmatum 'Seiryu'	Japanese maple	5cm cal. B&B	full/bushy plants
Cbf	6	Carpinus betulus 'Frans Fontaine'	fastigiate European hornbeam	6cm cal/ B&B	full crown. 2 meter standard
Cof	4	Cornus florida 'Cherokee Princess'	cornus florida	6 cm cal.	full, bushy plants
Pa	4	Picea abies 'Cupressina'	cupressina Norway spruce	3.5m ht/B&B	full/ bushy plants
PAS	4	Pinus nigra 'Oregon Green'	Oregon Gree Austrian Black Pine	3m ht/B&B	bushy plants
Stj	2	Styrax japonica	Japanese snowbell	6cm/ B&B	full/ dense crown
Stps	10	Stewartia pseudocamellia	Japanese stewartia	4m ht/ B&B	multistemmed
SHRUBS					
Aqw	126	Azalea 'Girard's Pleasant White'	Girard's Pleasent White Azalea	#3 cont.	Full, bushy plants
Bc	33	Bergenia cordifolia Bressingham White	Heartleaf Bergenia	#1 cont.	full/ bushy plants/ heavy
Bs	45	Blechnum spicant	deer fern	#1 cont.	full, bushy plants
Cod	35	Cotoneaster dammeri	bearberry cotoneaster	#1 cont.	full/ bushy plants/ heavy
Cl	58	Choisya ternata 'Aztec Pearl'	Mexican Mock Orange	#3 cont.	full/ bushy plants
He	108	Heuchera	Coral Bells	#1 cont.	full/ bushy plants
Lq	10	Lavandula intermedia 'Grosso'	Fat Bud French Lavender	#2 cont.	staked
Lm	239	Liriope muscari 'Love Potion'	emerald goddess lilyturf	#1 cont.	full/ bushy plants
Maa	80	Mahonia aquifolium	tall Oregon grape	#3 cont.	full/ bushy plants
Mn	56	Mahonia nervosa	longleaf mahonia	#1 cont.	full/ bushy plants
Mr	7	Mahonia repens	Creeping Oregon grape	#3 cont.	full/ bushy plants
Mrs	11	Magnolia stel. Royal Star	Royal Star Magnolia	1.5m	full/bushy
Pat	39	Pachysandra terminalis	Japanese spurge	Sp4	full, bushy plants
Pm	18	Polystichum munitum	Sword Fern	#2 cont.	full bushy plants
Po	2	Physocarpus opulifolius	ninebark	#5 cont.	full/bushy
Ps	24	Polystichum setiferum	Alaska fern	#2 cont.	full/ bushy plants
R	9	Rhododendron ssp.	rhododendron	#7 cont.	full, bushy plants
Rs	19	Ribes sanguineum 'King Edward'	flowering currant	#5 cont.	full/ bushy plants
Sh	66	Sarcococca hookeriana	sweet box	#2 cont.	Full, bushy plants
Si	7	Skimmia japonica	Japanese skimmia	#2 cont.	
Sr	56	Sarcococca ruscifolia	Fragrant Sarcococca	#5 cont.	full/ bushy plants
Tmh	50	Taxus media 'Hicksii'	Anglojap Yew	1.2m/B&B	full, bushy plants
Vot	101	Vaccinium ovatum 'thunderbird'	evergreen huckleberry	#2cont.	
GROUNDCOVER					
Bc	149	Bergenia cordifolia Bressingham White	Heartleaf Bergenia	#1 cont.	full/ bushy plants/ heavy
Cod	12	Cotoneaster dammeri	bearberry cotoneaster	#1 cont.	full/ bushy plants/ heavy
Cr	2	Campsis radicans	Trumpet creeper	#2 cont/ staked	full/ bushy plants
Ews	83	Echinacea 'White Swan'	white swan echinacea	#1 cont.	full/ bushy plants
He	177	Heuchera	Coral Bells	#1 cont.	full/ bushy plants
Lq	3	Lavandula intermedia 'Grosso'	Fat Bud French Lavender	#2 cont.	staked
Lm	541	Liriope muscari 'Love Potion'	emerald goddess lilyturf	#1 cont.	full/ bushy plants
Mn	12	Mahonia nervosa	longleaf mahonia	#1 cont.	full/ bushy plants
Pah	82	Pennisetum alopecuroides 'Hamein'	dwarf fountain Grass	---	full/ bushy plants
Pat	109	Pachysandra terminalis	Japanese spurge	Sp4	full, bushy plants
Pm	354	Polystichum munitum	Sword Fern	#2 cont.	full bushy plants
Ps	140	Polystichum setiferum	Alaska fern	#2 cont.	full/ bushy plants
Rc	75	Rubus calycynoides	creeping raspberry	#1 cont.	full/ bushy plants
	0				
LAWN					
		Non-Netted, grown on sand			
NOTES:					
1 ALL LANDSCAPE TO CONFORM TO THE CURRENT EDITION OF THE CSLA LANDSCAPE STANDARDS FOR LEVEL 2 'GROOMED' LANDSCAPE TREATMEN					
IN THE EVENT OF A DISCREPANCY BETWEEN THE PLANT LIST AND THE PLANTING PLAN, THE PLANTING PLAN TAKES PRECEDENCE.					
2 SEARCH AREA TO INCLUDE BRITISH COLUMBIA, WASHINGTON, AND OREGON					
3 ALL PLANT MATERIAL USED IN THIS PROJECT MUST FIRST BE INSPECTED BY A REPRESENTATIVE OF THE DISTRICT OF NORTH VANCOUVER					
PARKS DEPARTMENT (DNV PARKS) BEFORE INSTALLATION. THE DISTRICT OF NORTH VANCOUVER RESERVES THE RIGHT TO REJECT ANY OR ALL					

DESIGN RATIONALE

Landscape Design Rationale:

Located along the northern edge of the historic Maplewood Farm in North Vancouver, the local and geographical context provides a number of valuable landscape reference points. Maplewood Farm is the first reference, and Seymour River and its tributary is the second. The third major influence on the site is the Maplewood development to the east developed by Anthem with landscape architectural design by eta landscape architecture.

The relaxed community spirit personified by the farm and the surrounding emerging neighbourhood, has been embraced throughout the project design. The building geometry provides a sequence of outdoor spaces that provide a range of program opportunities. A heavy timber pedestrian bridge has been provided across the creek at the main pedestrian entry point off Heritage Park Lane. The expanded arrival area provides a gathering, seating and secondary children's play area, while the break between west side buildings provides an outdoor look out area over the creek. Along the south side of the project the required fire lane has been developed as a significant outdoor space with seating nodes and a creative children's play zone at the south end. The paving treatment will be composed of a northern paver section extending from Heritage Park Lane to the top of the ramp, a central aggregate zone referencing the creek edge and a coloured aquatic pattern at the south end mimicking the water course. Private outdoor spaces have been provided on raised terraces to provide a balance of privacy and overlook. Many ground level units have patio areas at both front and rear.

Existing trees have been retained where possible to provide a strong sense of scale and timelessness to the project. Particular attention has been given to providing ample landscape screening between the original Maplewoods project and Maplewoods West. Landscape materials have been selected to respond to the natural setting with heavy timber arbors and tinted concrete paving.

The small tributary creek running along the North West corner of the site has been identified as a significant salmon habitat resource. The riparian area adjacent to this creek will be enhanced with the removal of non-native planting and their replacement with habitat enhancing species. This will be a seamless continuation of the creek work provided for the previous project and flow through the site into Maplewood Farms, terminating at an existing pond. The plantings throughout the site and in particular along the West side will focus on native species to reinforce the strong connections to the broader natural landscape. The amenity and children's play area has been provided adjacent to the riparian area to make a more direct connection to the natural systems. The creek is a feature to offer enhanced opportunities for resident and public viewing.



Revision		
No.	Date	Revision Notes

Issue No.	Date	Issue Notes
D	17-8-11	Issued for DP Review
E	17-8-18	Issued for Detail DP Application
F	18-3-29	Issue for Review
G	18-4-3	Issue for ADP
H	18-4-27	Issue for DP

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Anthem

Project
MAPLEWOOD WEST TOWNHOMES
2049, 2051, 2053, 2055, 2059
Heritage Park Lane, North Vancouver BC

Drawing Title
LANDSCAPE SITE PLAN

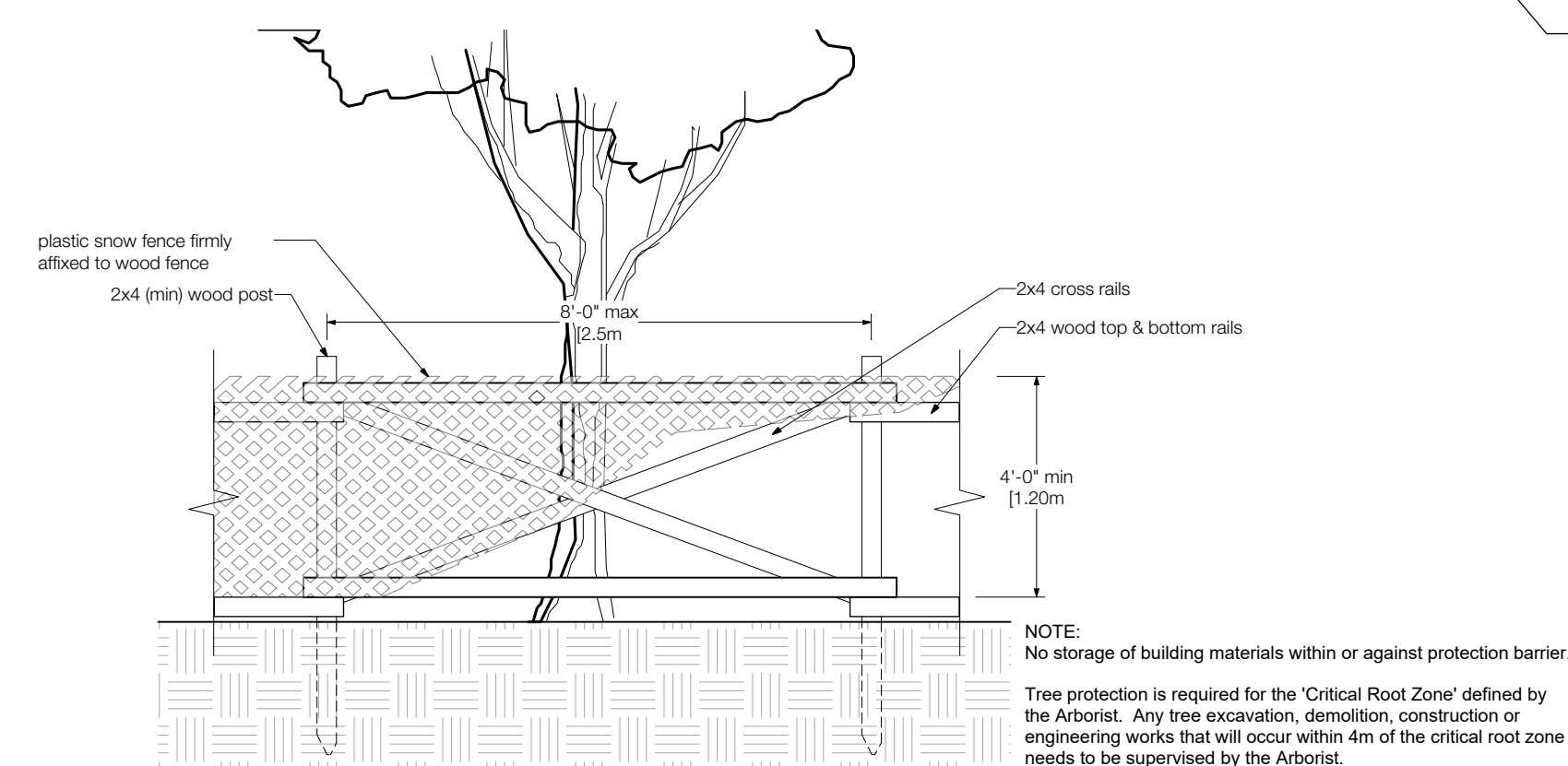
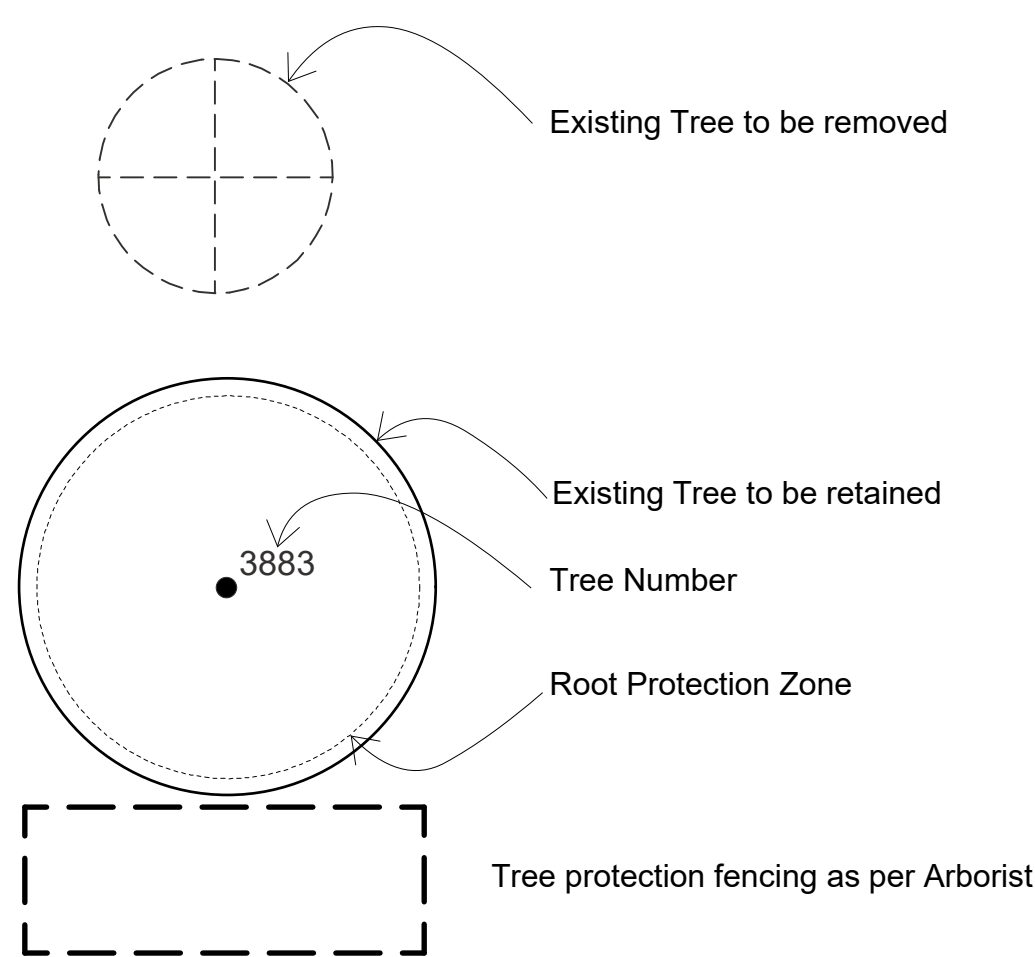
Legal Description

Project Manager GE	Project ID 21607
Drawn By JL	Scale 1:150
Reviewed By	Drawing No.
Date 16/07/13	L1.0 of 17

Plot Date:
18-4-26
21607 MaplewoodWest Master.vwx



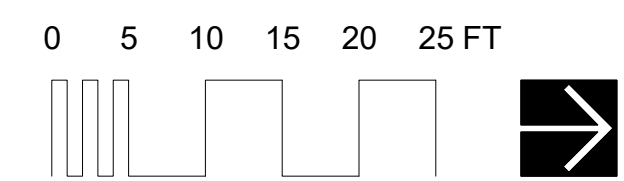
LEGEND



1 DETAIL: Tree Protection Fence, Typical
Scale: 3/8" = 1'-0"

NOTE:
TREE MANAGEMENT PLAN TO BE READ IN
CONJUNCTION WITH THE ARBORIST REPORT
CREATED BY DIAMOND HEAD CONSULTING
DATED JUNE 6TH, 2017.

PLEASE REFER TO THE ARBORIST REPORT
FOR THE ROOT PROTECTION ZONE.



Revision

No.	Date	Revision Notes
-----	------	----------------

Issue

No.	Date	Issue Notes
H	18-4-27	Issue for DP

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Anthem

Project

**MAPLEWOOD WEST
TOWNHOMES**

2049, 2051, 2053, 2055, 2059
Heritage Park Lane, North Vancouver BC

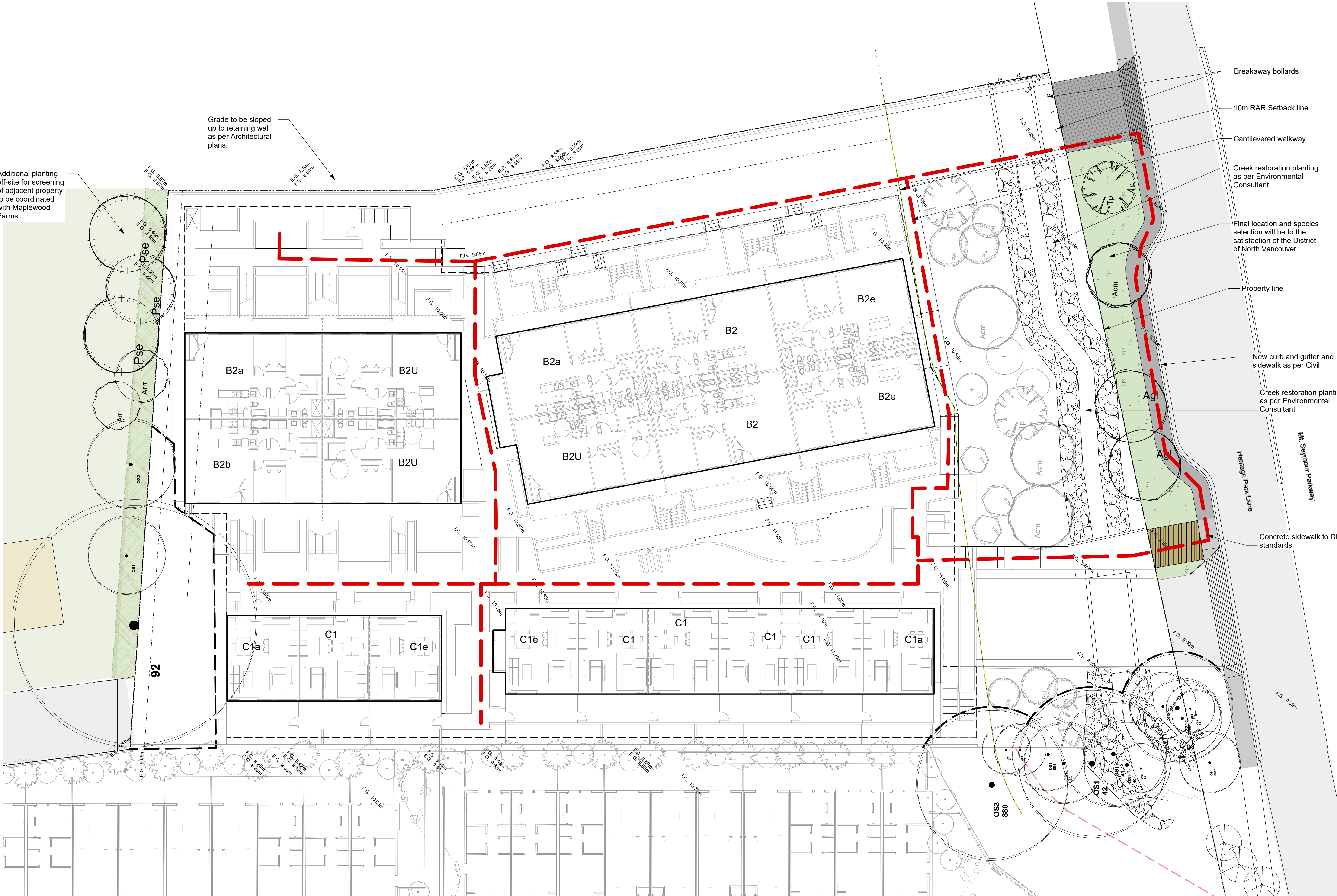
Drawing Title

TREE MANAGEMENT PLAN

Legal Description

Project Manager GE	Project ID 21607
Drawn By JL	Scale 1:150
Reviewed By	Drawing No.
Date 16/07/13	L2.0 of 17

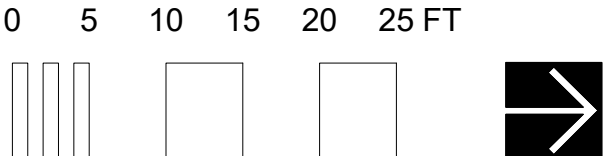
Plot Date:
18-4-26
21607 MaplewoodWest Master.vww



Note:
-Refer to plant list on L0 cover
-All plant material used in this project must first be inspected by a representative of the district of north vancouver parks department (DNV parks) before installation. the district of north vancouver reserves the right to reject any or all of the selected plant material if it does not meet current bcna standards.
-The District of North Vancouver is responsible for the on-going maintenance of street trees on off-site areas. The future property owner is responsible for on-going maintenance of shrubs/groundcover on off-site areas (ie boulevards).

LEGEND:

Pedestrian Routes



- Breakaway bollards
- 10m RAR Setback line
- Cantilevered walkway
- Creek restoration planting as per Environmental Consultant
- Final location and species selection will be to the satisfaction of the District of North Vancouver.
- Property line
- New curb and gutter and sidewalk as per Civil
- Creek restoration planting as per Environmental Consultant
- Concrete sidewalk to DNV standards

Revision		
No.	Date	Revision Notes

Issue		
No.	Date	Issue Notes
H	18-4-27	Issue for DP

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Project
MAPLEWOOD WEST TOWNHOMES
2049, 2051, 2053, 2055, 2059
Heritage Park Lane, North Vancouver BC

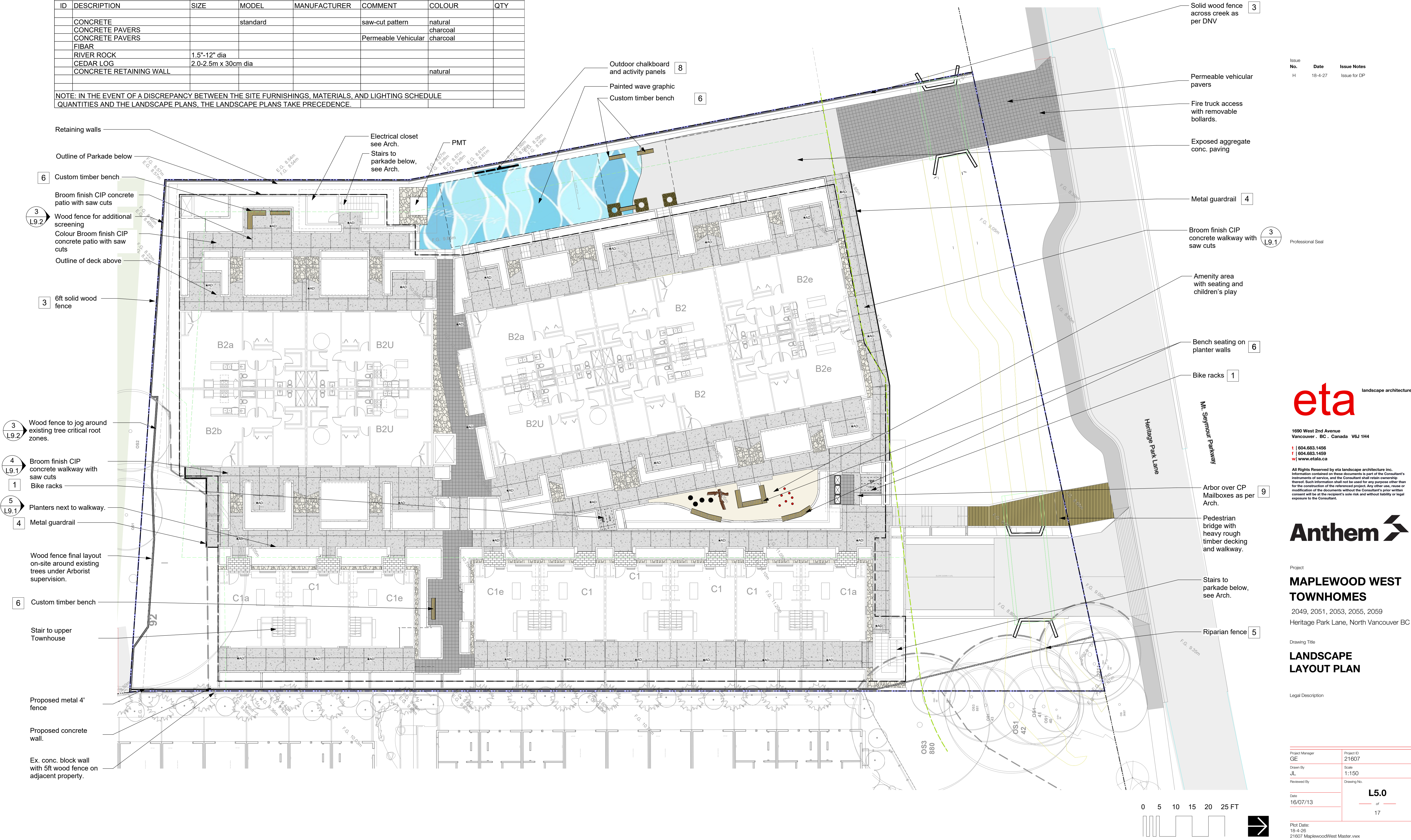
Drawing Title
PUBLIC REALM PLAN

Legal Description

Project Manager GE	Project ID 21607
Drawn By JL	Scale 1:150
Reviewed By	Drawing No. L3.0
Date 16/07/13	17

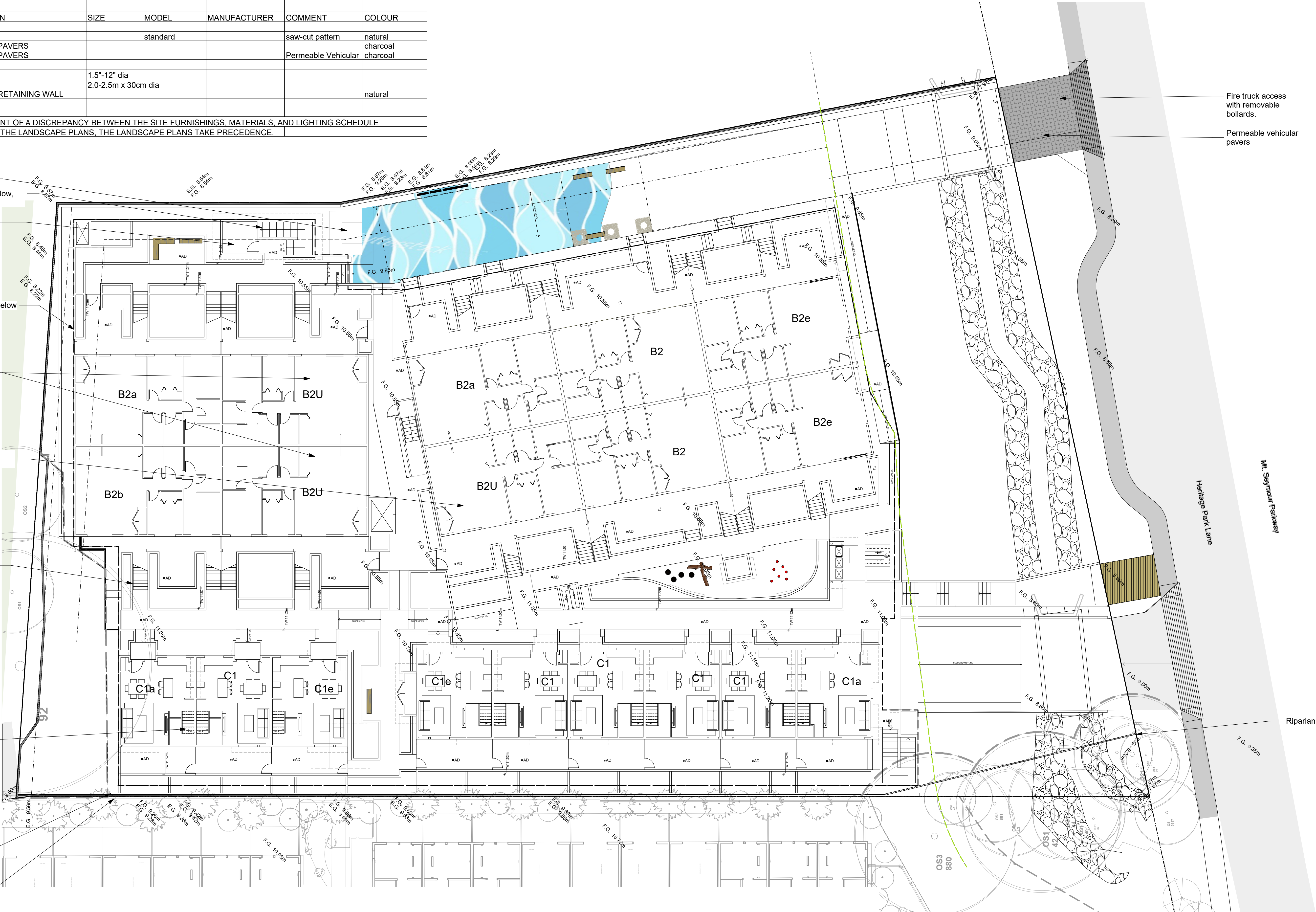
Plot Date:
18-4-28
21607 MaplewoodWest Master.vwx

SITE FURNISHINGS							
ID	DESCRIPTION	SIZE	MODEL	MANUFACTURER	COMMENT	COLOUR	QTY
1	BIKE RACKS						4
2	SITTING STUMPS	variety		custom		cedar	
3	SOLID WOOD FENCE	1828mm (6'-0"-8'-0")		custom		cedar	
4	METAL FENCE	1066mm (3'-6")		custom		black	
5	RIPARIAN FENCE	1066mm (3'-6")		custom	rough cut	cedar	
6	BENCHES	Varies		custom		cedar	
7	AGILITY POLES						
8	ACTIVITY PANELS & CHALKBOARD			Kompan		red	
9	ARBOR			custom	as per Arch	cedar	1
MATERIALS							
ID	DESCRIPTION	SIZE	MODEL	MANUFACTURER	COMMENT	COLOUR	QTY
	CONCRETE		standard		saw-cut pattern	natural	
	CONCRETE PAVERS					charcoal	
	CONCRETE PAVERS				Permeable Vehicular	charcoal	
	FIBAR						
	RIVER ROCK	1.5"-12" dia					
	CEDAR LOG	2.0-2.5m x 30cm dia					
	CONCRETE RETAINING WALL					natural	
NOTE: IN THE EVENT OF A DISCREPANCY BETWEEN THE SITE FURNISHINGS, MATERIALS, AND LIGHTING SCHEDULE QUANTITIES AND THE LANDSCAPE PLANS, THE LANDSCAPE PLANS TAKE PRECEDENCE.							



SITE FURNISHINGS						
ID	DESCRIPTION	SIZE	MODEL	MANUFACTURER	COMMENT	COLOUR
1	BIKE RACKS					
2	SITTING STUMPS	variety		custom		cedar
3	SOLID WOOD FENCE	1828mm (6'-0"-8'-0")		custom		cedar
4	METAL FENCE	1066mm (3'-6")		custom		black
5	RIPARIAN FENCE	1066mm (3'-6")		custom	rough cut	cedar
6	BENCHES	Varies		custom		cedar
7	AGILITY POLES					
8	ACTIVITY PANELS & CHALKBOARD			Kompan		red
9	ARBOR			custom	as per Arch	cedar
MATERIALS						
ID	DESCRIPTION	SIZE	MODEL	MANUFACTURER	COMMENT	COLOUR
	CONCRETE		standard		saw-cut pattern	natural
	CONCRETE PAVERS					charcoal
	CONCRETE PAVERS				Permeable Vehicular	charcoal
	FIBAR					
	RIVER ROCK	1.5"-12" dia				
	CEDAR LOG	2.0-2.5m x 30cm dia				
	CONCRETE RETAINING WALL					natural
NOTE: IN THE EVENT OF A DISCREPANCY BETWEEN THE SITE FURNISHINGS, MATERIALS, AND LIGHTING SCHEDULE QUANTITIES AND THE LANDSCAPE PLANS, THE LANDSCAPE PLANS TAKE PRECEDENCE.						

- PMT as per Elec.
- Stairs to parkade below, see Arch.
- Electrical closet see Arch.
- Outline of Parkade below
- Adaptable entry to garden suite.
- Adaptable entry to garden suite
- Gravel below stairs
- Stair to upper level
- 1
L9.2
- Proposed concrete wall with 4ft metal fence.
- Ex. conc. block wall with 5ft wood fence on adjacent property.



Fire truck access with removable bollards.

Permeable vehicular pavers

Revision		
No.	Date	Revision Notes

Issue		
No.	Date	Issue Notes
H	18-4-27	Issue for DP

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Project

MAPLEWOOD WEST TOWNHOMES

2049, 2051, 2053, 2055, 2059

Heritage Park Lane, North Vancouver BC

Drawing Title

LANDSCAPE GRADING AND DRAINAGE PLAN

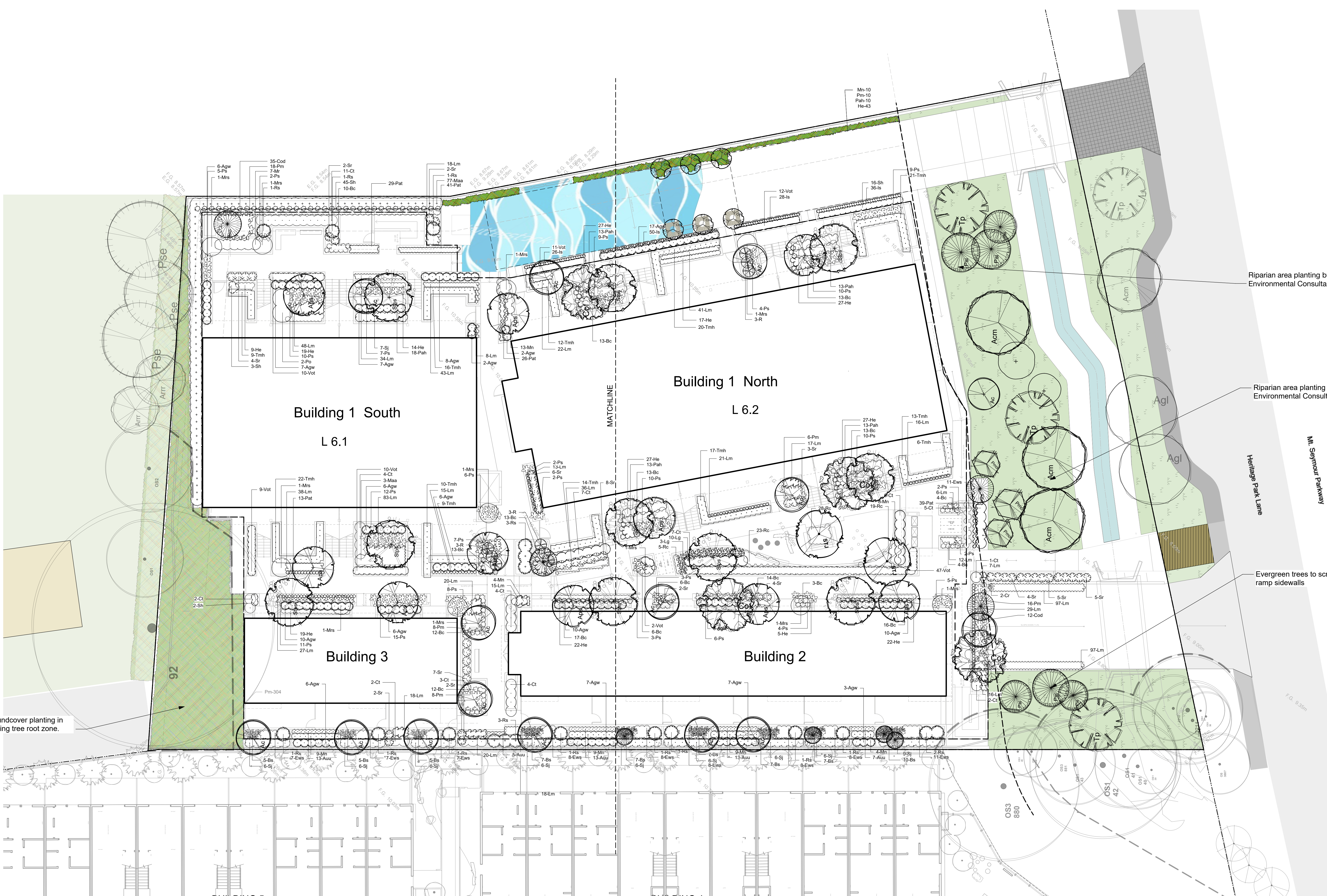
Legal Description

Project Manager GE	Project ID 21607
Drawn By JL	Scale 1:150
Reviewed By	Drawing No.
Date 16/07/13	L5.1
	17

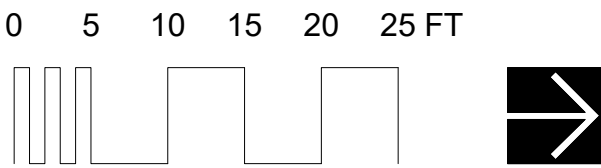
Plot Date:
18-4-26
21607 MaplewoodWest Master.vwx

0 5 10 15 20 25 FT





Note:
-Refer to plant list on L0 cover
-All plant material used in this project must first be inspected by a representative of the district of north vancouver parks department (dnv parks) before installation. the district of north vancouver reserves the right to reject any or all of the selected plant material if it does not meet current bcna standards.
-The District of North Vancouver is responsible for the on-going maintenance of street trees on off-site areas. The future property owner is responsible for on-going maintenance of shrubs/groundcover on off-site areas (ie boulevards).



Revision		
No.	Date	Revision Notes

Issue		
No.	Date	Issue Notes
H	18-4-27	Issue for DP

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f | 604.683.1459
w | www.etaia.ca

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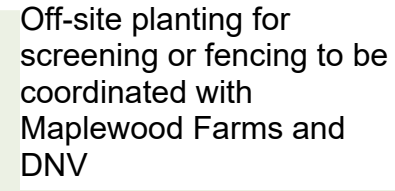
Project
MAPLEWOOD WEST TOWNHOMES
2049, 2051, 2053, 2055, 2059
Heritage Park Lane, North Vancouver BC

Drawing Title
PLANTING PLAN OVERALL

Legal Description

Project Manager GE	Project ID 21607
Drawn By JL	Scale 1:150
Reviewed By	Drawing No.
Date 16/07/13	L6.0 of 17

Plot Date:
18-4-26
21607 MaplewoodWest Master.vwx

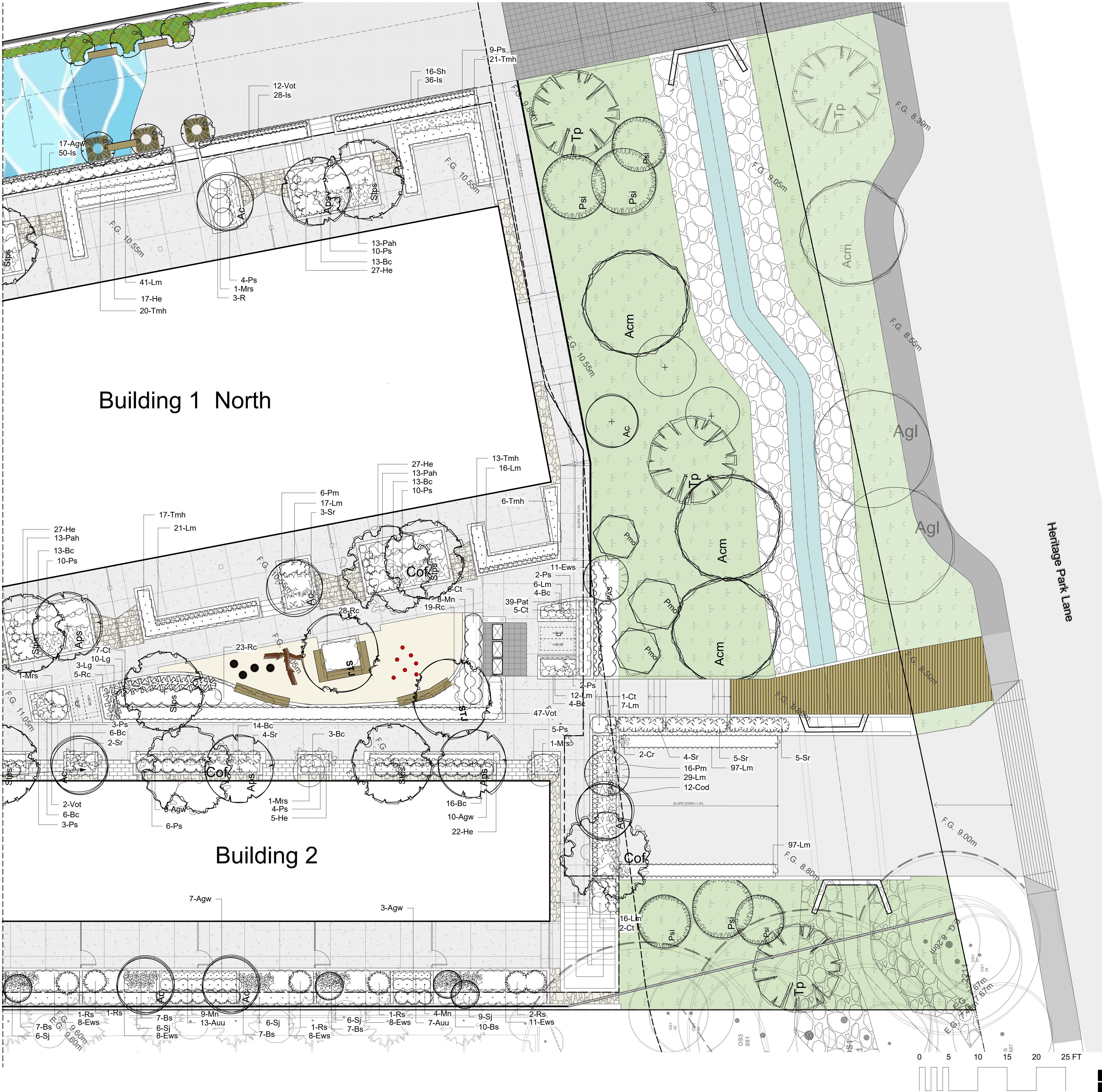


- Native and drought-tolerant planting along fire lane.

- Layered planting along central mews

Professional Sea

Plot Date:
18-4-26
21607 MaplewoodWest Master.vwx



Building 1 North

Building 2

Layered planting along central mews

Revision		
No.	Date	Revision Notes

Issue		
No.	Date	Issue Notes
H	18-4-27	Issue for DP

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Project
MAPLEWOOD WEST TOWNHOMES
2049, 2051, 2053, 2055, 2059
Heritage Park Lane, North Vancouver BC

Drawing Title
**PLANTING PLAN
DETAIL NORTH**

Legal Description

Project Manager GE	Project ID 21607
Drawn By JL	Scale 1/8"=1'-0"
Reviewed By	Drawing No. L6.2
Date 16/07/13	of 17

Plot Date:
18-4-28
21607 MaplewoodWest Master.vwx

Revision		
No.	Date	Revision Notes

Issue		
No.	Date	Issue Notes
H	18-4-27	Issue for DP

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Project
MAPLEWOOD WEST TOWNHOMES
2049, 2051, 2053, 2055, 2059
Heritage Park Lane, North Vancouver BC

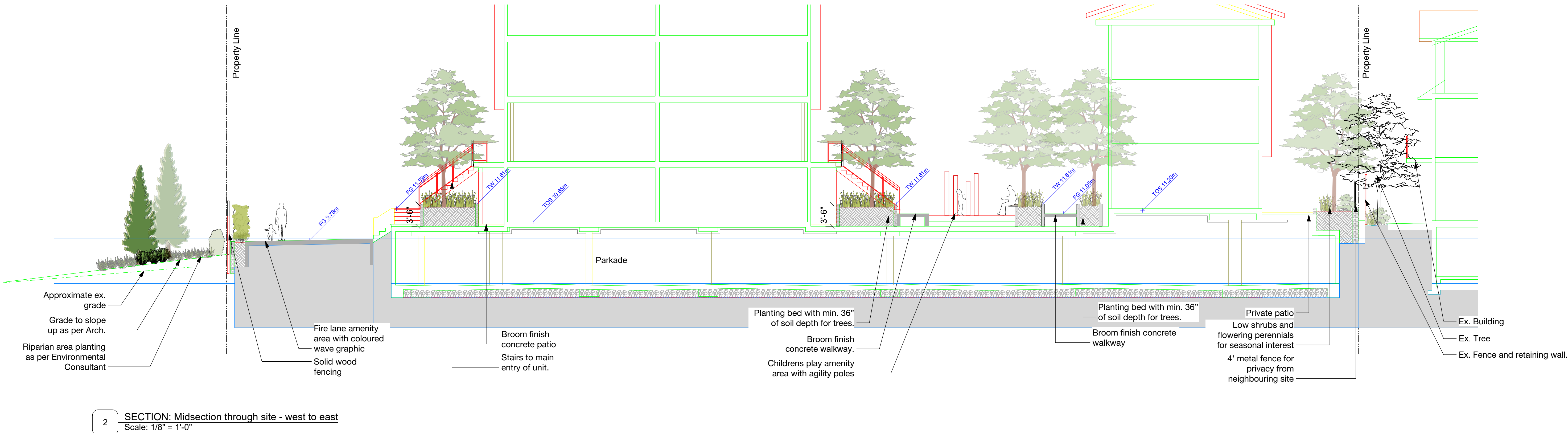
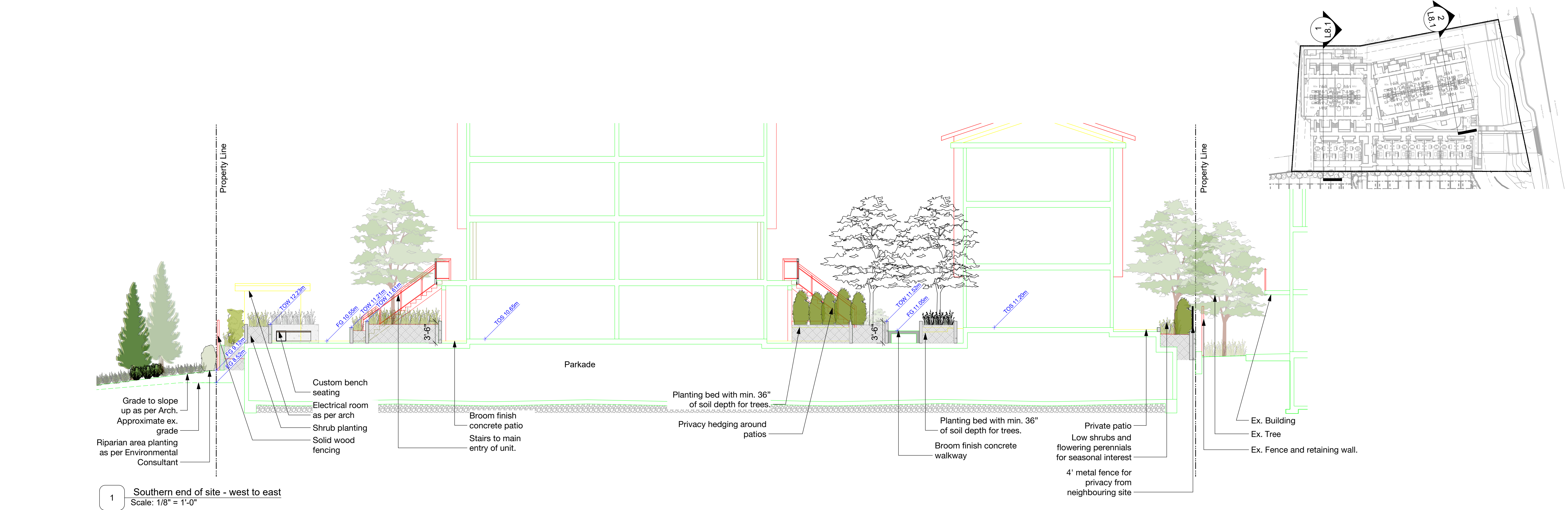
Drawing Title
DETAIL PLAN AMENITY AREA

Legal Description

Project Manager GE	Project ID 21607
Drawn By JL	Scale 1/8"=1'-0"
Reviewed By	Drawing No. L7.0
Date 16/07/13	of 17

Plot Date:
18-4-26
21607 MaplewoodWest Master.vwx





Revision		
No.	Date	Revision Notes

Issue		
No.	Date	Issue Notes
H	18-4-27	Issue for DP

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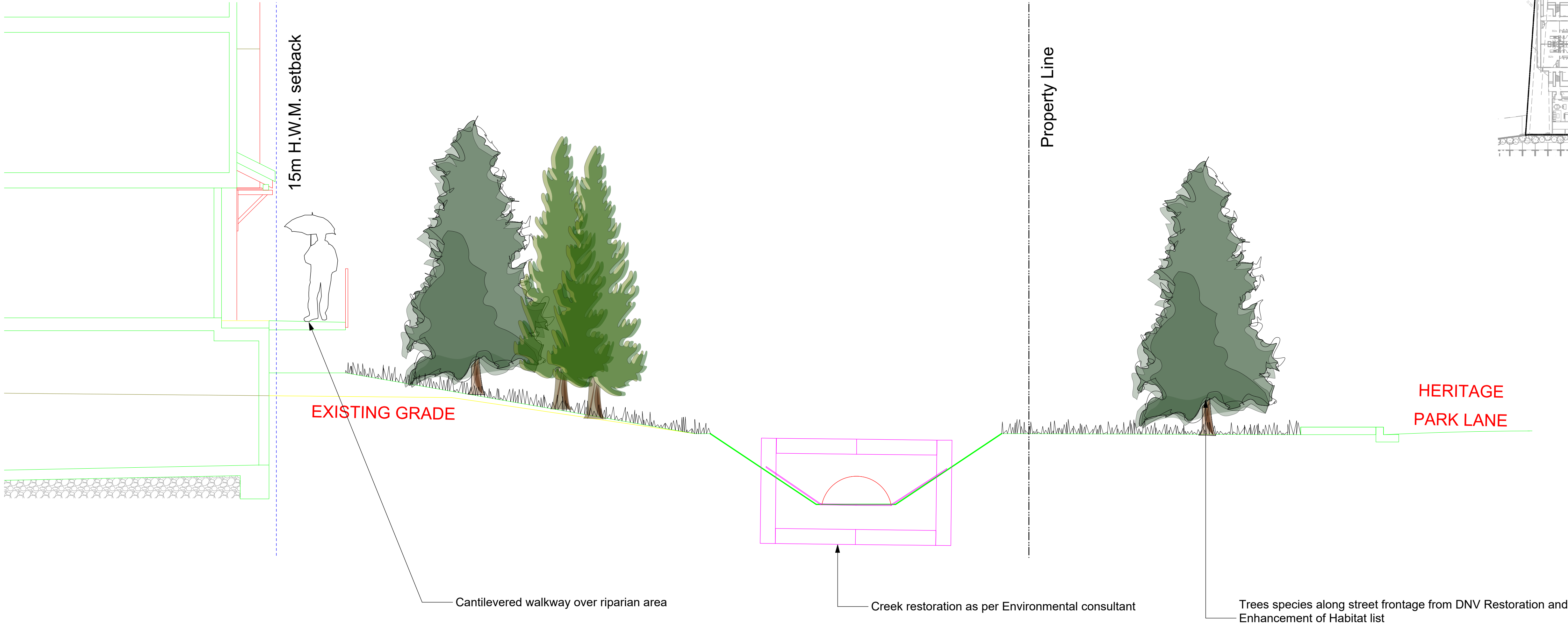
Anthem

Project
MAPLEWOOD WEST TOWNHOMES
2049, 2051, 2053, 2055, 2059
Heritage Park Lane, North Vancouver BC

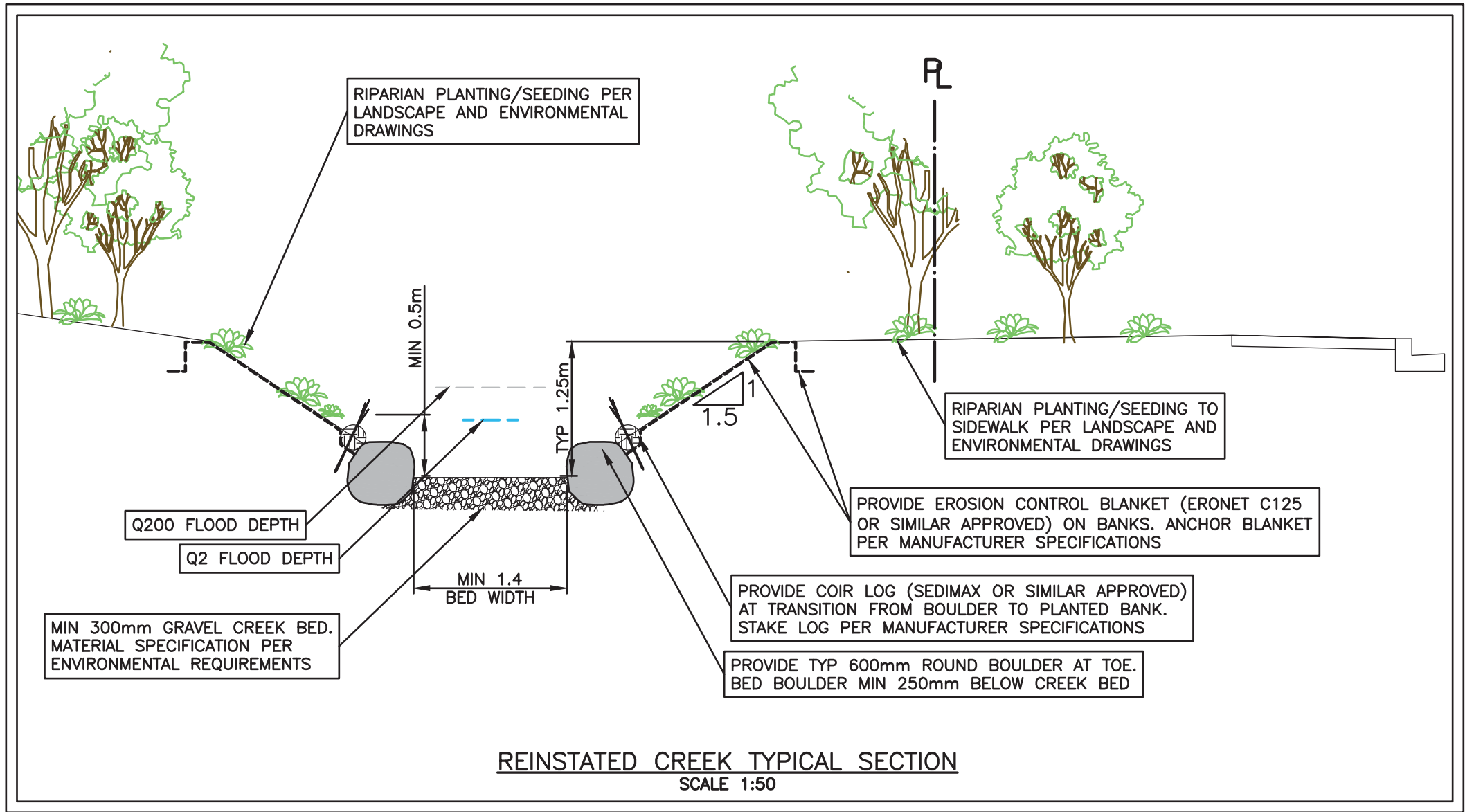
Drawing Title
LANDSCAPE SECTIONS

Legal Description

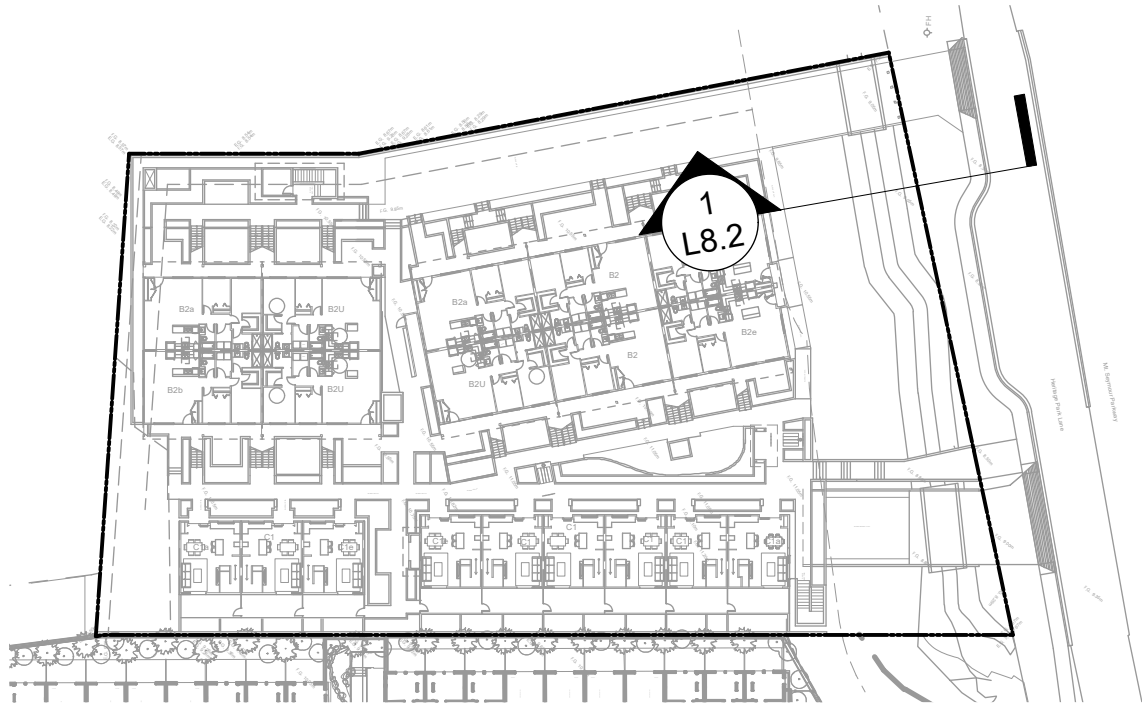
Project Manager GE	Project ID 21607
Drawn By JL	Scale 1/8"=1'-0"
Reviewed By	Drawing No. L8.1
Date 16/07/13	Plot Date 18-4-28 21607 MaplewoodWest Master.vwx



7 SECTION: Cantilevered walkway and RAR creekway
Scale: 1/4" = 1'-0"



2 SECTION: Typical Reinstated Creek Section as per Civil
Scale: 1/4" = 1'-0"



Revision		
No.	Date	Revision Notes

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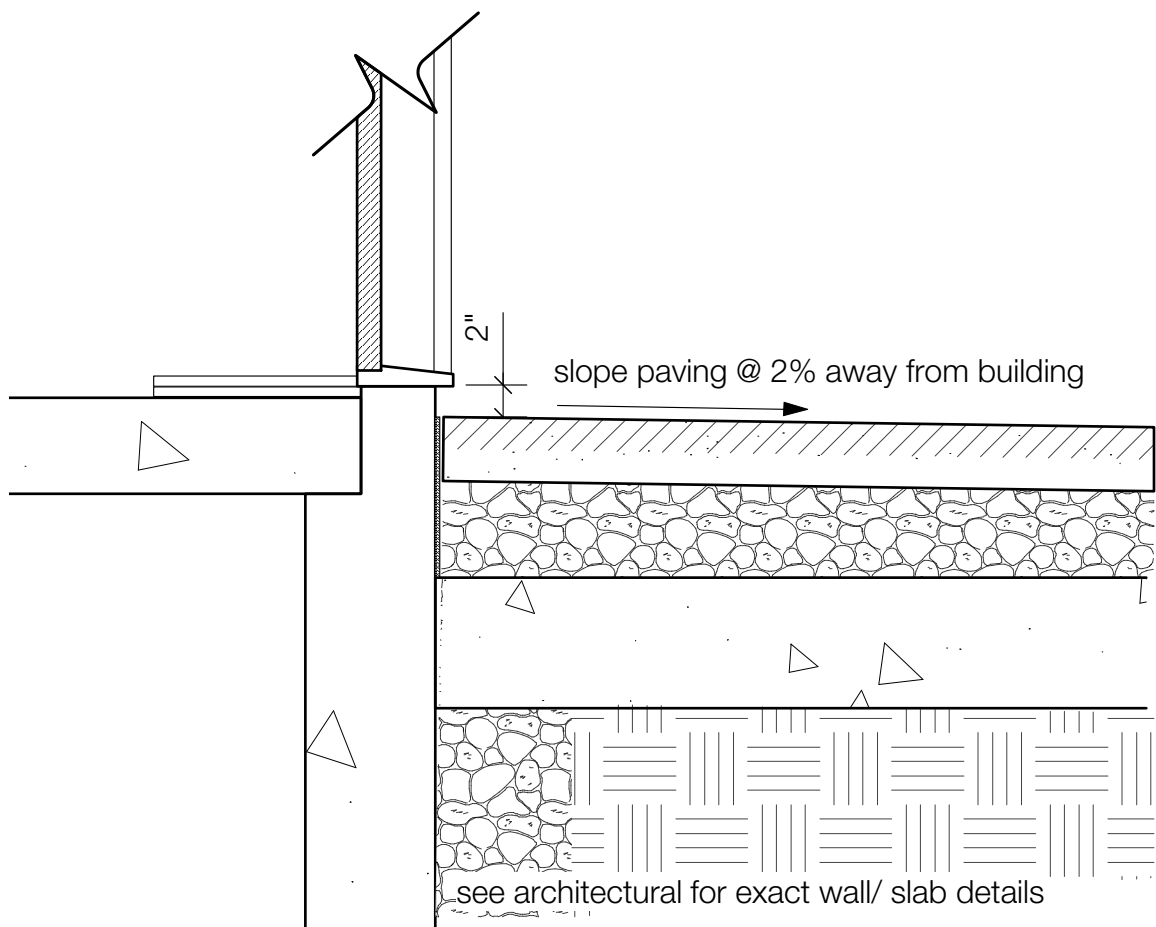
Project
MAPLEWOOD WEST TOWNHOMES
2049, 2051, 2053, 2055, 2059
Heritage Park Lane, North Vancouver BC

Drawing Title
LANDSCAPE SECTIONS

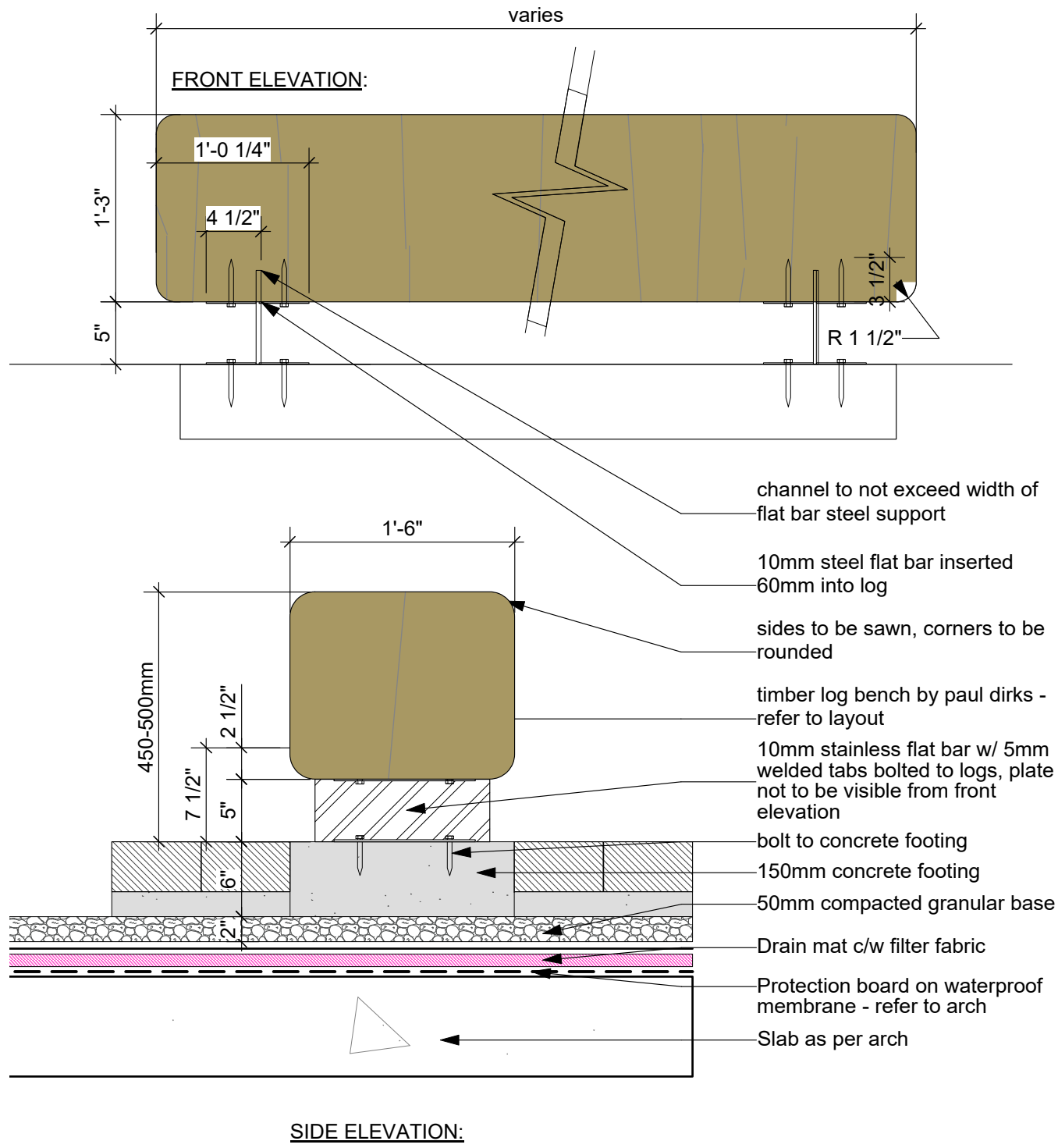
Legal Description

Project Manager GE	Project ID 21607
Drawn By	Scale 1/8"=1'-0"
Reviewed By	Drawing No. L8.2
Date 00/00/00	of 17

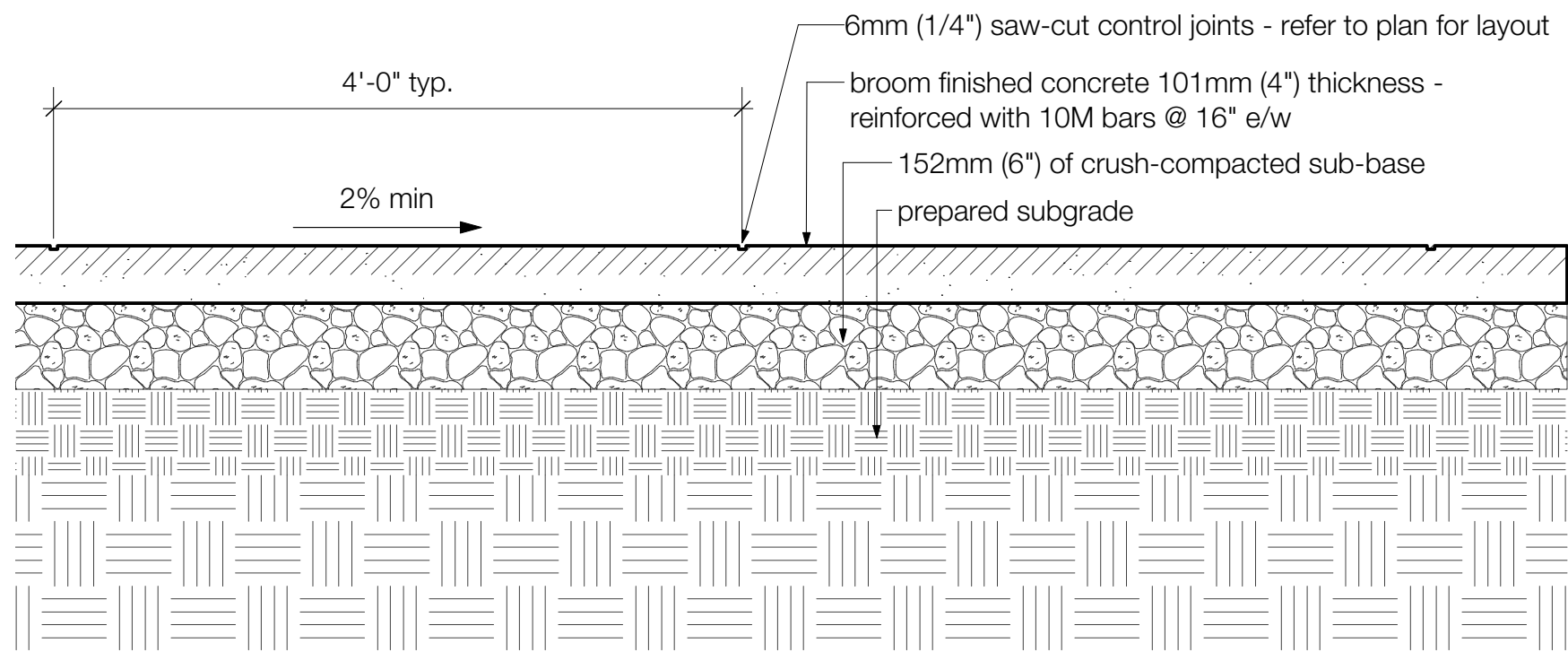
Plot Date:
18-4-26
21607 MaplewoodWest Master.vwx



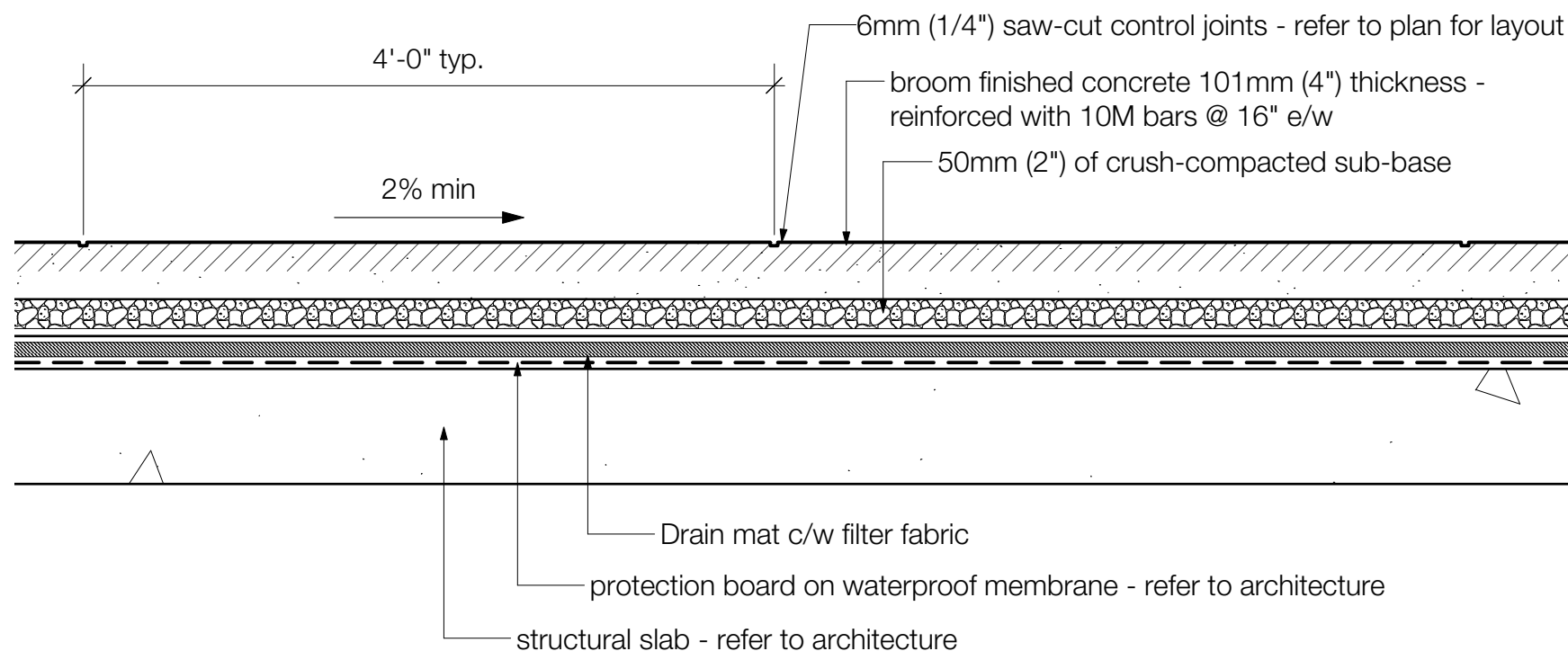
1 DETAIL: Threshold on slab, Typical
Scale: 1" = 1'-0"



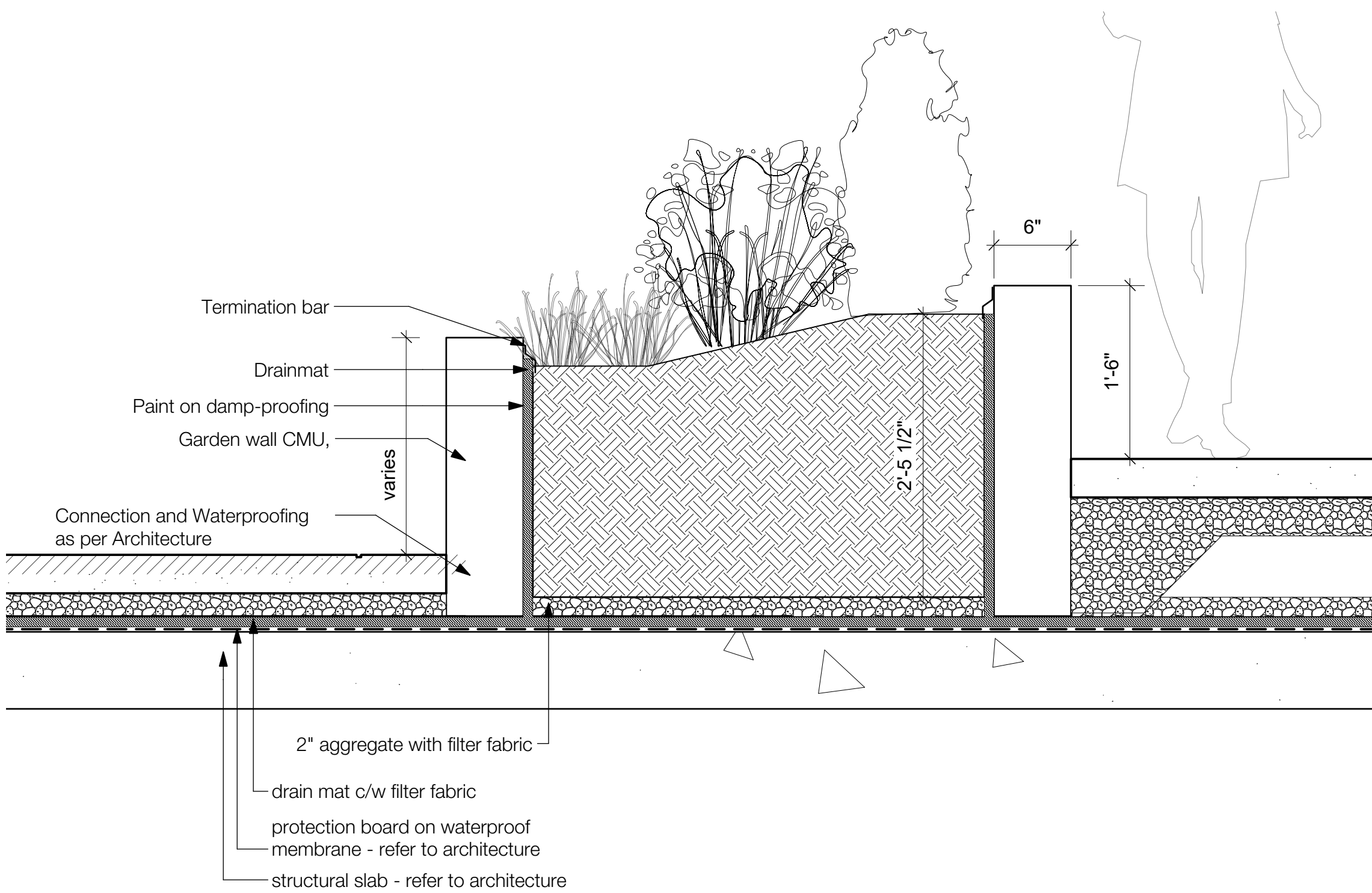
2 DETAIL: Heavy timber bench
Scale: 1" = 1'-0"



3 DETAIL: Concrete Walkway at Grade, Typical
Scale: 1" = 1'-0"



4 DETAIL: Concrete Walkway on Slab, Typical
Scale: 1" = 1'-0"



5 DETAIL: Central Walkway with Curb Edge and Planter
Scale: 1" = 1'-0"

Revision		
No.	Date	Revision Notes

Issue No.	Date	Issue Notes
H	18-4-27	Issue for DP

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Project

**MAPLEWOOD WEST
TOWNHOMES**

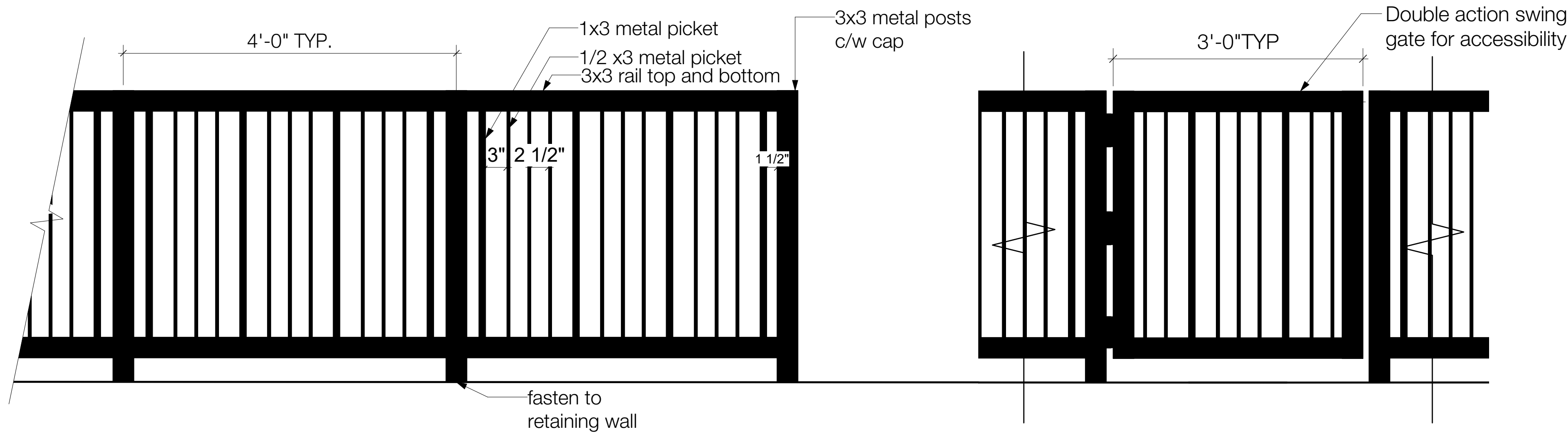
2049, 2051, 2053, 2055, 2059
Heritage Park Lane, North Vancouver BC

Drawing Title

LANDSCAPE DETAILS

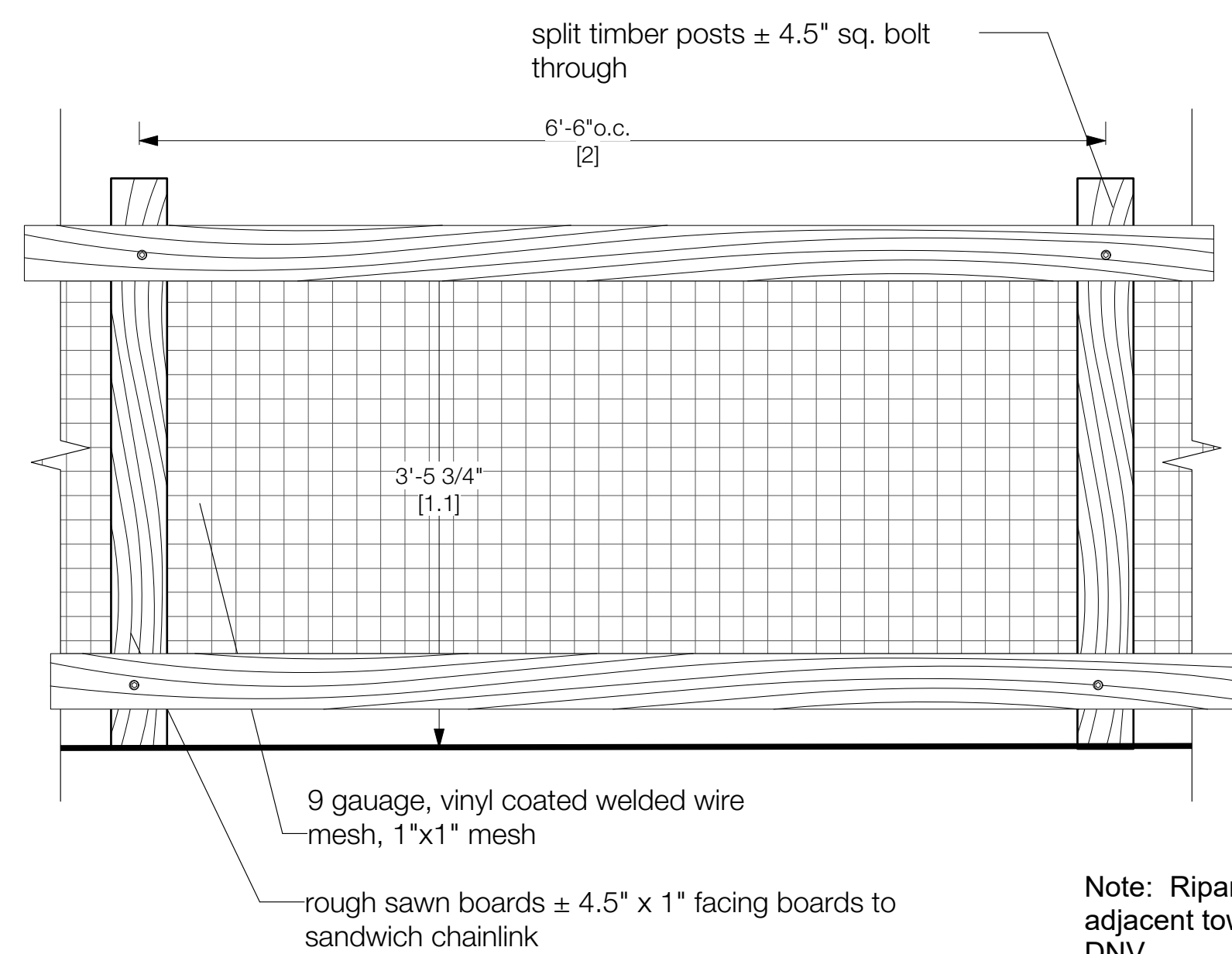
Legal Description

Project Manager		Project ID	
GE		21607	
Drawn By		Scale	
JL		as noted	
Reviewed By		Drawing No.	
GE		L9.1	
Date		Plot Date	
06/17/16		18-4-26	
		21607 MaplewoodWest Master.vwx	

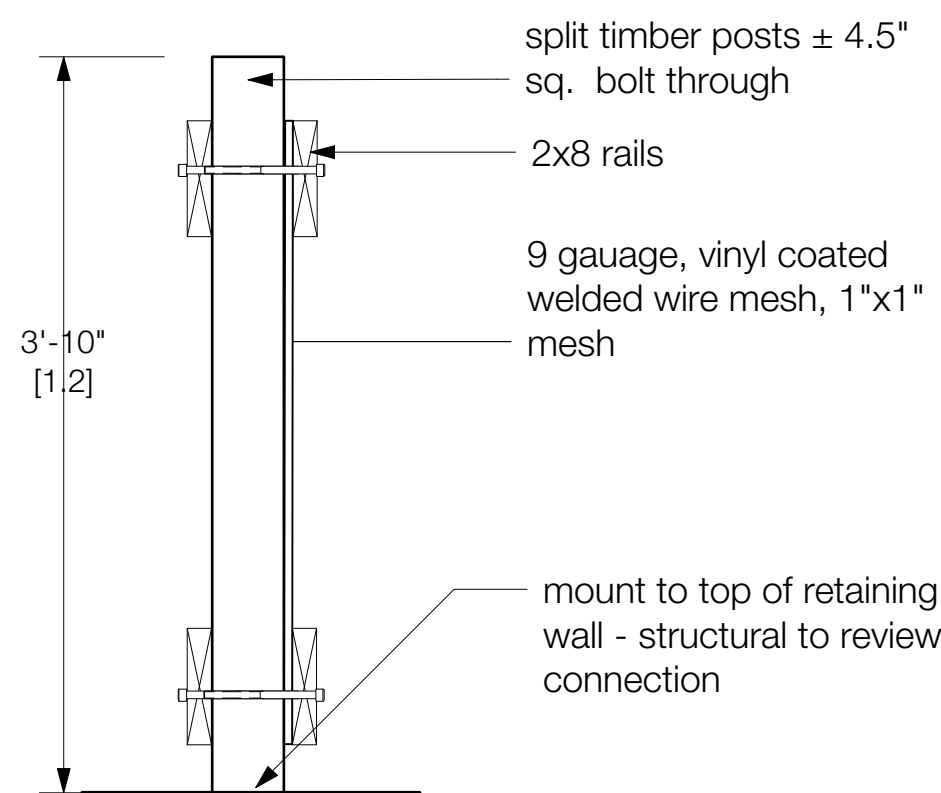


1 DETAIL: Metal picket fence
Scale: 1" = 1'-0"

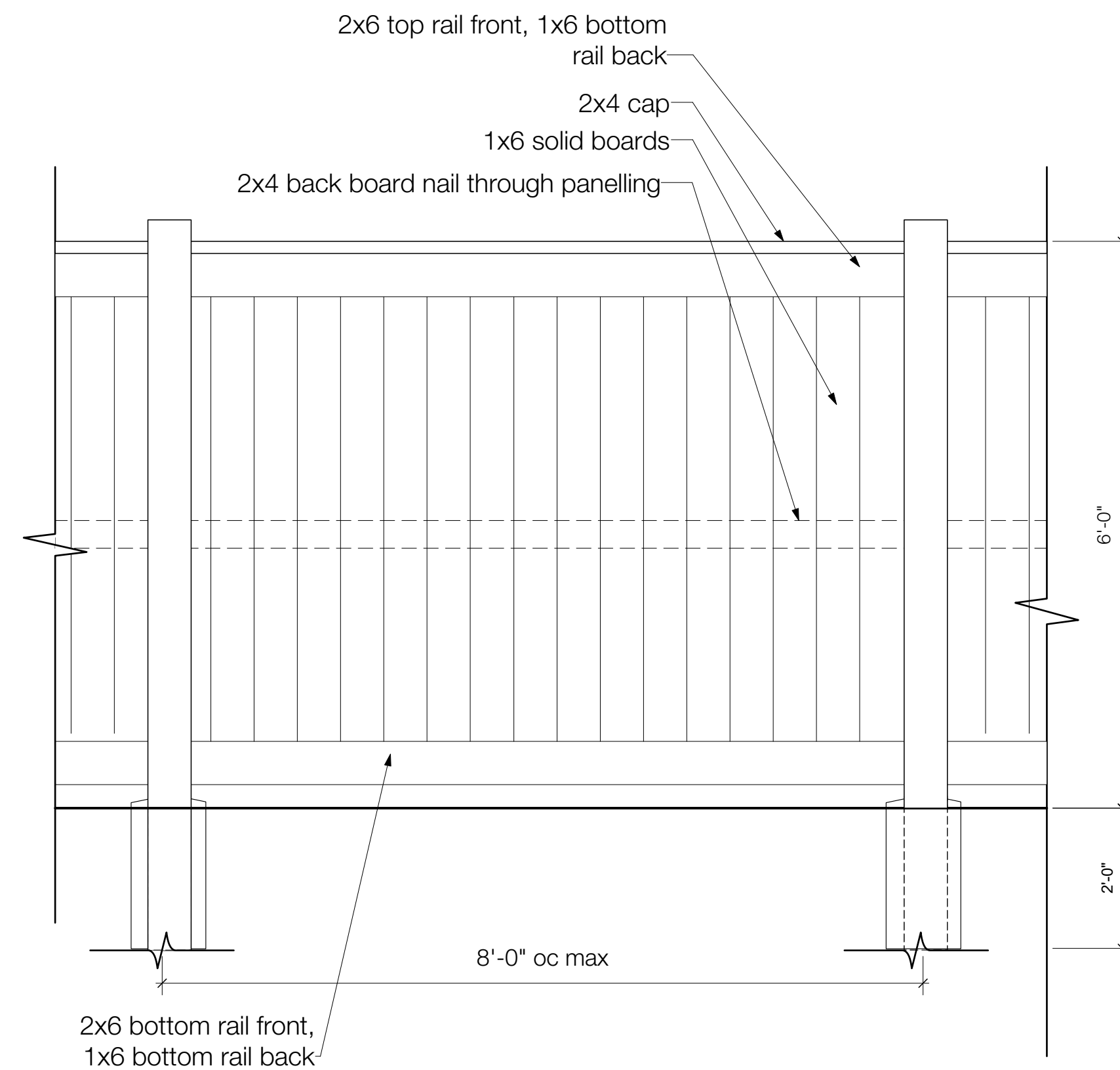
1.1 DETAIL: Metal picket gate
Scale: 1" = 1'-0"



2 DETAIL: Riparian Fence
Scale: 1" = 1'-0"



Note: Riparian Fence to match Riparian Fence at installed at adjacent townhouses at Maplewood Place to the approval of DNV



Notes:
-Posts to be set in concrete slope top of concrete to shed water
-All panelling, nailers, and rails to be cedar. Chamfer top edges of posts

3 DETAIL: Solid Wood Fence
Scale: 3/4" = 1'-0"

Revision		
No.	Date	Revision Notes

Issue No.	Date	Issue Notes
H	18-4-27	Issue for DP

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Project

**MAPLEWOOD WEST
TOWNHOMES**

2049, 2051, 2053, 2055, 2059
Heritage Park Lane, North Vancouver BC

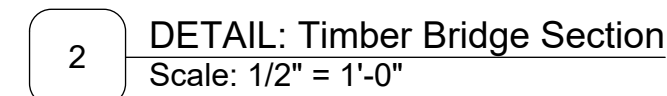
Drawing Title

LANDSCAPE DETAILS

Legal Description

Project Manager		Project ID	
GE		21607	
Drawn By		Scale	
JL		as noted	
Reviewed By		Drawing No.	
GE		L9.2	
Date		Plot Date	
06/17/16		18-4-26	

21607 MaplewoodWest Master.vwx



1. HW 26-28 to be built as shown.
2. Headwall to have opening for inlet/outlet as shown.
3. Unit c/w lifting inserts as required.
4. Structure c/w bolted anchors for grills and handrails.
5. Backwall height can be manufactured to varying heights as required to suit jobsite conditions.
6. Approximate weight: 12500 kg
7. Minimum rebar yield strength: 414 MPa.
8. Welded wire mesh min. yield strength: 448 MPa.
9. Min. Concrete Strength: 28 MPa.
10. All dimensions are in feet and inches.
11. Headwall to be sized by civil engineer.

Plot Date:
18-4-26
21607 MaplewoodWest Master.vwx

FIRE/EMERGENCY ACCESS



PAINTED ASPHALT



RIVER PATTERNING



BRIDGE DECKING AND WALKWAY

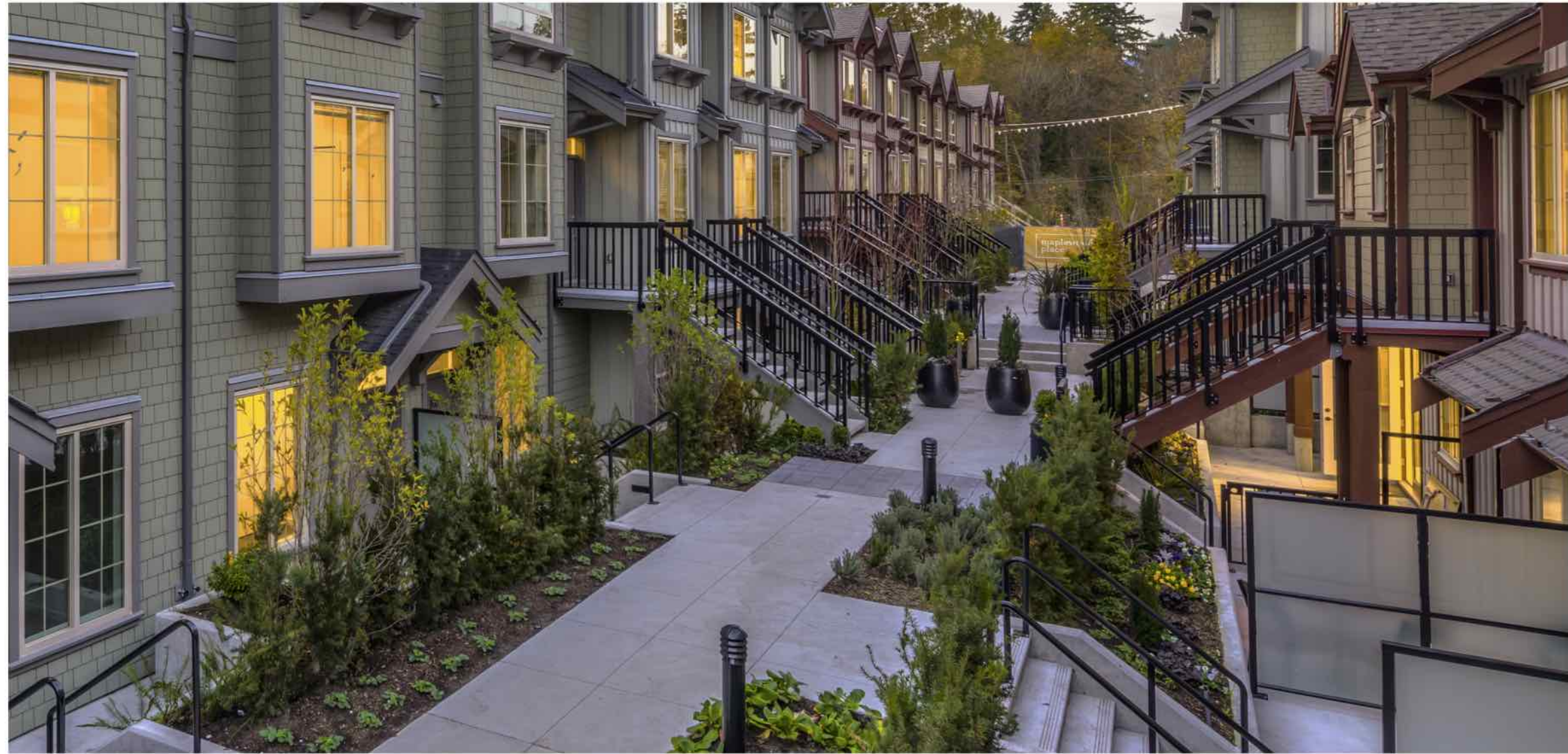


NATURAL PLAY LOGS



AGILITY POLES

INTERIOR COURTYARD



COURTYARD WITH UPPER AND LOWER UNIT ENTRIES



TIMBER BENCH



OUTDOOR CHALKBOARD

TREE PLANTING



ACER PALMATUM 'SEIRYU'



Pinus nigra 'Oregon Green'



STEWARTIA PSEUDOCAMELLIA



MAHONIA REPENS



CHOSIYA TERNATA 'AZTEC PEARL'



LIRIOPE MUSCARI 'LOVE POTION'



AZALEA 'GIRARD'S PLEASANT WHITE'

SHRUB AND GROUNDCOVER PLANTING

Revision		
No.	Date	Revision Notes

Issue		
No.	Date	Issue Notes
H	18-4-27	Issue for DP

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Project

MAPLEWOOD WEST
TOWNHOMES

2049, 2051, 2053, 2055, 2059
Heritage Park Lane, North Vancouver BC

Drawing Title

LANDSCAPE PRECEDENT
IMAGES

Legal Description

Project Manager GE	Project ID 21607
Drawn By JL	Scale 1:150
Reviewed By GE	Drawing No.
Date 06/17/16	L10.0 of 17

Plot Date:
18-4-28
21607 MaplewoodWest Master.vwx

LEGAL DESCRIPTION

LOTS 2, 3, AND 5, BLOCKS 2 AND 3, DL 791, PLAN 16486
LOTS A AND B, BLOCKS 2 AND 3, DL 791, PLAN 17275
ALL OF GROUP 1, NWD

CREUS Engineering

Civil Engineers & Project Managers
#610 EAST TOWER - 221 ESPLANADE WEST, NORTH VANCOUVER BC, V7M3J3
PH: 604-987-9070 WEBSITE: www.creus.ca

PROJECT:

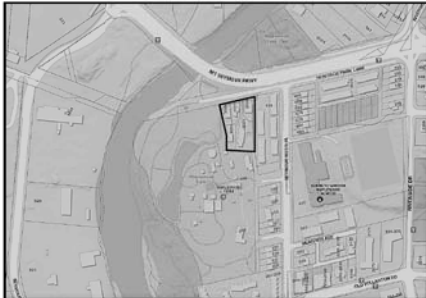
MAPLEWOOD WEST NORTH VANCOUVER, BC

CLIENT:

ANTHEM PROPERTIES

**SUITE 300 BENTALL 5 550 BURNARD STREET
604-235-3192**

BFINLEY@ANTHEMPROPERTIES.COM



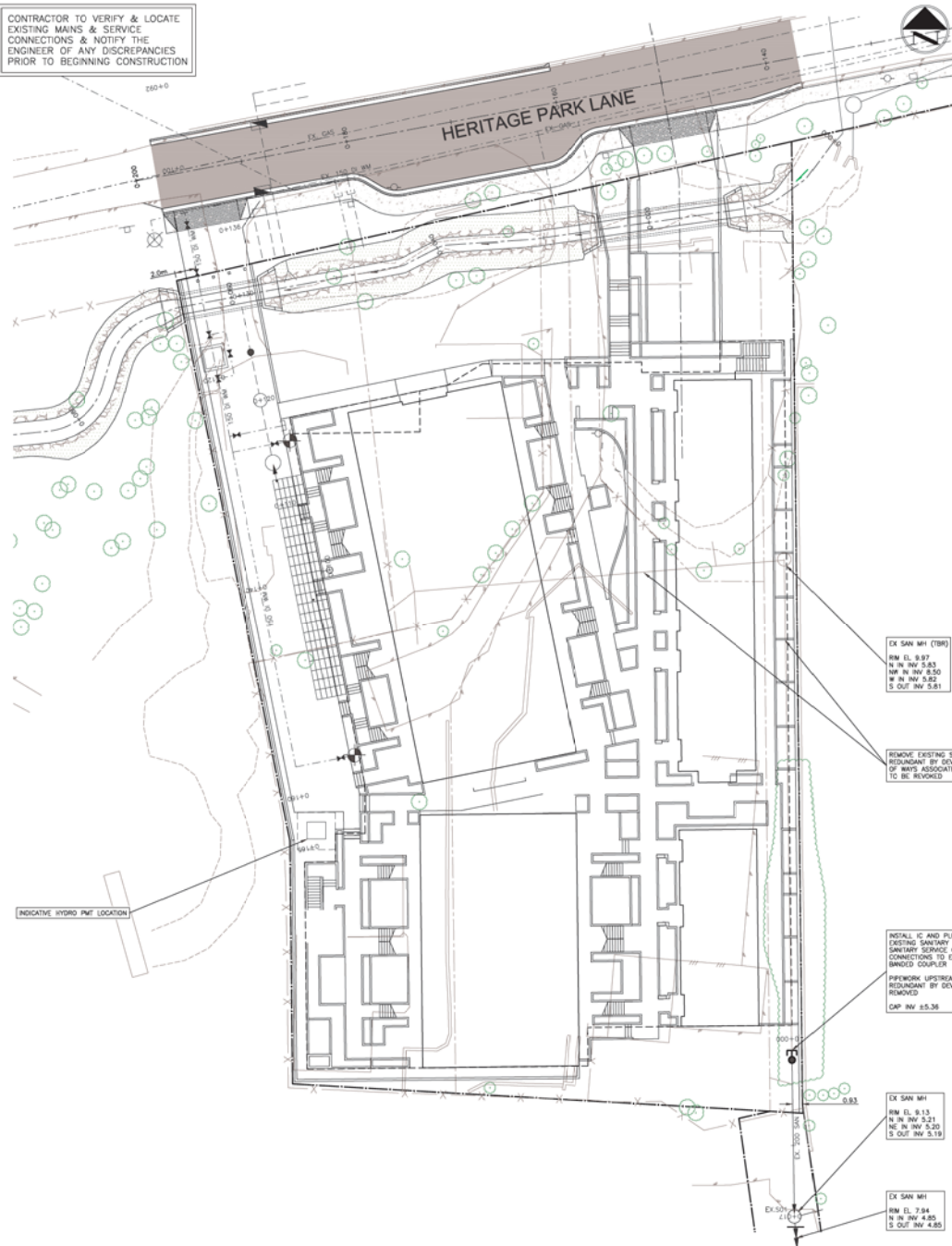
DRAWING LIST

DWG NO.		
KEY	KEYPLAN	
R-1	ROADWORKS	
S-1	SANITARY	
W-1	WATERWORKS	
D-1	CREEK WORKS	
D-2	CREEK WORKS	
LP	ROAD MARKING	
SMP	STORMWATER MANAGEMENT	
XS-1	CREEK CROSS SECTIONS	
XS-2	ROAD CROSS SECTIONS	
DET-1	DETAILS	
DET-2	DETAILS	

2018-04-20

ISSUED FOR DETAILED DEVELOPMENT PERMIT

CONTRACTOR TO VERIFY & LOCATE
EXISTING MAINS & SERVICE
CONNECTIONS & NOTIFY THE
ENGINEER OF ANY DISCREPANCIES
PRIOR TO BEGINNING CONSTRUCTION



LEGAL DESCRIPTION

LOTS 2, 3 AND 5, BLOCKS 2 AND 3, DL 791, PLAN 16486
LOTS 2 AND 5, BLOCKS 2 AND 3, DL 791, PLAN 17275
ALL OF GROUP 1, NMO.

BENCHMARK INFORMATION

ELEVATIONS ARE METRIC, GEODETIC DATUM, AND DERIVED FROM CONTROL MONUMENT B5H0619, PUBLISHED
ELEVATION = 8.92m, SEA No. 16, NAD 83, (C.S.S.S.) 2005, MONUMENT LOCATED ON NORTH CORNER CURB
OF MOUNT SENGEUR PARKWAY AT SENGEUR RIVER PLACE.

STORM AND SANITARY NOTES

- SANITARY GRAVITY SEWERS TO BE PVC SDR 26 FOR SERVICE CONNECTIONS AND SDR 35 FOR MAIN LINES WHEN TESTED IN ACCORDANCE WITH ASTM D3034 & CSA B182.1. PIPE STIFFNESS (I/II) SHALL BE 314 kN AT 2.5% DEFLECTION WHEN TESTED IN ACCORDANCE WITH ASTM D2412 UNLESS NOTED OTHERWISE.
- STORM GRAVITY SEWERS TO BE EITHER PVC SDR 26 FOR SERVICE CONNECTIONS AND SDR 35 FOR MAIN LINES WHEN TESTED IN ACCORDANCE WITH ASTM D3034 & CSA B182.1 (PIPE STIFFNESS (I/II) SHALL BE 314 kN AT 2.5% DEFLECTION WHEN TESTED IN ACCORDANCE WITH ASTM D2412 UNLESS NOTED OTHERWISE) OR CONCRETE AND SHALL MEET ASTM C14 CLASS 3 OR IF INDICATED ON DRAWINGS SDR 35 FOR MAIN LINES WHEN TESTED IN ACCORDANCE WITH ASTM D3034 & CSA B182.1 (PIPE STIFFNESS (I/II) SHALL BE 314 kN AT 2.5% DEFLECTION WHEN TESTED IN ACCORDANCE WITH ASTM D2412 UNLESS NOTED OTHERWISE).
- SANITARY FORCEMAINS ARE TO BE PVC TO AWWA C900 CLASS 150 OR HIGH DENSITY POLYETHYLENE SERIES 100 (DR17) OR BETTER, TO ASTM F714-85 & ASTM D-1248-84.
- STORM SERVICES TO BE MINIMUM SDR28 P.V.C. 150mm MIN C/W INSPECTION CHAMBER PER DISTRICT OF NORTH VANCOUVER STD. DRAWINGS SSD-5.3 & S.4. AND HAVE A MINIMUM OF 1.0m COVER.
- SANITARY SERVICES TO BE MINIMUM SDR28 P.V.C. 100mm MIN C/W INSPECTION CHAMBER PER DISTRICT OF NORTH VANCOUVER STD. DRAWINGS SSD-5.3 & S.4. AND HAVE A MINIMUM OF 1.5m COVER FOR TRAVELED AREAS & 1.0m COVER FOR NON-TRAVELED AREAS.
- CONTRACTOR TO INSURE TESTING OF SEWER MAINS AND LATERALS TO BE PERFORMED IN THE PRESENCE OF THE ENGINEER OF RECORD AND DISTRICT OF NORTH VANCOUVER INSPECTORS. CONTRACTORS TO PROVIDE MINIMUM OF 48 HOURS NOTICE. ALL MAINS AND SERVICES ARE TO BE TESTED AS PER MMCO SPECIFICATIONS WITH THE RESULTS FORWARDED TO THE DISTRICT OF NORTH VANCOUVER.
- CONTRACTOR TO PROVIDE TEMPORARY BYPASS AND RECONNECTION OF ANY SERVICES DISRUPTED BY CONSTRUCTION ACTIVITIES.
- ALL SEWER MAINS AND LATERALS TO BE CCTV INSPECTED. CCTV INSPECTIONS TO BE ARRANGED BY CONTRACTOR AT CONTRACTOR'S EXPENSE. CONTRACTOR TO FORWARD VIDEO FILES TO ENGINEER WITHIN TWO WEEKS OF INSPECTION.
- CROWN OF ALL SEWER SERVICE CONNECTIONS ENTERING MANHOLES TO MATCH CROWN ELEVATION OF DOWNSTREAM SEWER OUTLET EXCEPT WHERE NOTED OTHERWISE. INVERT OF SERVICE CONNECTIONS TO MAIN TO MATCH CROWN OF MAIN AS PER DWS STANDARD SERVICE CONNECTION DETAIL.
- WHERE SANITARY PIPE GRADE EXCEEDS 15% PIPE TO BE ANCHORED AS PER MMCO STD. DWG 08.
- MINIMUM GRADE ON SERVICE CONNECTIONS TO BE 2%, UNLESS NOTED OTHERWISE. SERVICE CONNECTIONS AS PER DISTRICT OF NORTH VANCOUVER STANDARD DWGS SSD-5.6 & SSD-5.7.
- PIPE BEDDING TO CONFORM WITH MMCO STANDARDS AND BE COMPACTED TO 95% MODIFIED PROCTOR PRIOR TO BACKFILLING TRENCH. SEE MMCO STD. DWG G4. TEST RESULTS ARE TO BE FORWARDED TO DISTRICT OF NORTH VANCOUVER.
- TE-INs TO EXISTING MAINS 250mm OR LARGER TO USE DOWNSHIFT INSERT CONNECTIONS.
- TE-INs TO EXISTING 150mm MAINS TO USE ROBAR 3406/2608 SEWER SADDLE OR ROMAC STYLE "CB" SEWER SADDLE.
- CUT IN INVERT COMPLETE WITH FLEX SEAL ADJUSTABLE SHIELDED COUPLINGS MAY ONLY BE USED AT THE DISCRETION OF THE DISTRICT OF NORTH VANCOUVER. APPROVAL MUST BE OBTAINED PRIOR TO INSTALLATION.
- REINSTATED EXISTING OR NEW SERVICE CONNECTIONS TO HAVE MANUFACTURED WYE CONNECTION AT MAIN.
- ALL CONNECTIONS TO EXISTING PIPES OR TO PIPES OF DIFFERING MATERIAL TO USE FLEX SEAL ADJUSTABLE SHIELDED COUPLINGS.
- ALL MANHOLES TO BE TO MMCO STD DWG S1, MINIMUM 1050 UNLESS OTHERWISE NOTED.
- EXCAVATION AND PAVEMENT RESTORATION TO BE COMPLETED BY CONTRACTOR PER REGULATORY AUTHORITY REQUIREMENTS, MMCO STANDARDS AND CONTRACT DOCUMENTS. CONTRACTOR TO GIVE NOTICE PRIOR TO COMPLETING WORKS.
- NEW AND/OR REINSTATED SERVICES TO BE FREE OF BENDS UNLESS OTHERWISE APPROVED.
- SERVICE CONNECTIONS TO BE MARKED WITH A 40mm x 80mm PAST POSTED RED FOR SANITARY AND GREEN FOR STORM AT TERMINATION. SERVICES TO BE TERMINATED 1m BEYOND THE PROPERTY LINE, UNLESS OTHERWISE NOTED.
- MIN. COVER FOR SANITARY & STORM SEWERS = 1.5m UNDER TRAVELED AREAS AND 1.0m UNDER NON-TRAVELED AREAS.
- LOCATION/INVERTS OF SERVICE CONNECTIONS TO BE CONFIRMED BY ENGINEER ONCE ROUGH GRADING IS COMPLETE.
- ALL CATCH-BASIN GRATES TO DISTRICT OF NORTH VANCOUVER STD. DWG. SSD-0.2 C/W FISH SYMBOL.
- WHEN INSTALLING PIPE DO NOT EXCEED HALF THE MANUFACTURERS PERMISSIBLE JOINT DEFLECTION. BENDING OF PVC PIPE IS NOT PERMITTED.
- TE IN TO EXISTING SYSTEM TO BE COMPLETED BY THE DOW UNLESS OTHERWISE NOTED. WHEN IT IS NOTED THAT THE CONTRACTOR IS TO COMPLETE THE TE-IN TO THE EXISTING SYSTEM IS TO GIVE THE ENGINEER AND THE DISTRICT INSPECTOR 48 HOURS NOTICE PRIOR TO THE TE-IN AND ONLY COMPLETE THE TE-IN UNDER THE SUPERVISION OF THE ENGINEER.
- SITE SERVING WORKS TO COMMENCE ONLY AFTER OFFSITE SERVICE CONNECTION HAS BEEN INSTALLED & VERIFIED.

EX SAN MH (T80)
RM EL. 9.97
N IN INV 9.83
W IN INV 9.80
S OUT INV 9.82
S OUT INV 9.81

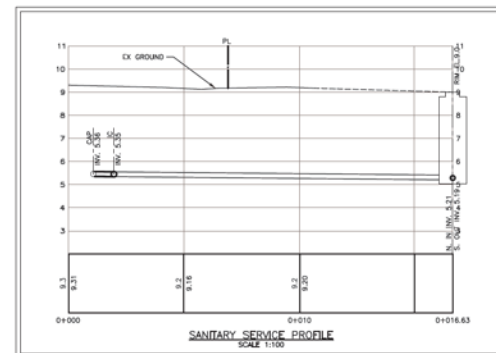
REMOVE EXISTING SANITARY PIPEWORK MADE
REDUNDANT BY DEVELOPMENT. ALL REDUNDANT RIGHTS
OF WAY ASSOCIATED WITH THE SANITARY PIPEWORK
TO BE REVOKED

INSTALL IC AND PLUG PER DWS SSD-5.3 ON
EXISTING SANITARY PIPE TO ACT AS FUTURE
SANITARY SERVICE CONNECTION. ALL
CONNECTIONS TO EXISTING TO BE VIA SHEAR
BRIDGES COUPLER

PIPEWORK UPSTREAM OF IC IS MADE
REDUNDANT BY DEVELOPMENT AND IS TO
BE REMOVED
CAP INV 8.5.36

EX SAN MH
RM EL. 8.13
N IN INV 8.21
W IN INV 8.20
S OUT INV 8.19

EX SAN MH
RM EL. 7.94
N IN INV 4.85
S OUT INV 4.85



CREUS
Engineering

Civil Engineers & Project Managers

201 EAST TOWER - 201 EAST AVE WEST NORTH VANCOUVER BC, V7P 3K6
PH: 604-887-8878

DRAWING LEGEND

	EXISTING	PROP.	TO BE REMOVED
LEGAL LINE	---	---	---
STORM	---	---	---
SANITARY	---	---	---
HYDRO	---	---	---
PROPOSED	---	---	---
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	EXISTING	PROP.	TO BE REMOVED
PROPOSED	---	---	---
PROPOSED	---	---	---
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PROPOSED	---	---	---

I, FRED CHAMBERLAIN, PROFESSIONAL
ENGINEER, IN GOOD STANDING IN
AND FOR THE PROVINCE OF BRITISH
COLUMBIA, HEREBY CERTIFY THAT
THE WORKS AS SHOWN ON THIS
DRAWING HAVE BEEN DESIGNED TO GOOD
ENGINEERING STANDARDS AND IN
ACCORDANCE WITH THE DISTRICT
OF NORTH VANCOUVER DESIGN
CRITERIA MANUAL, DATED NOV 2016.
I, FRED CHAMBERLAIN, PROFESSIONAL
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ENGINEERING STANDARDS AND IN
ACCORDANCE WITH THE DISTRICT
OF NORTH VANCOUVER DESIGN
CRITERIA MANUAL, DATED NOV 2016.



DATE

ANTHEM PROPERTIES

PROJECT

MAPLEWOOD WEST
NORTH VANCOUVER, BC

DATE

SANITARY

DATE

DATE

DATE

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LEGAL DESCRIPTION

LOTS 2, 3 AND 5, BLOCKS 2 AND 3, D. 791, PLAN 18486
LOTS 4 AND 6, BLOCKS 2 AND 3, D. 791, PLAN 17275
ALL OF GROUP 1, N.M.D.

BENCHMARK INFORMATION

ELEVATIONS ARE METRIC, GEODETIC DATUM, AND DERIVED FROM CONTROL MONUMENT 80-019, PUBLISHED
ELEVATION = 8.53m, NAD 83, (C.S.R.S.) 2005. MONUMENT LOCATED ON NORTH CORNER CURB
OF MOUNT SEYMOUR PARKWAY AT SEYMOUR RIVER PLACE.

WATERWORKS NOTES

1. VALVES AND HYDRANTS OF EXISTING SYSTEM ONLY TO BE OPERATED WITH THE PERMISSION OF THE ENGINEER AND WATER UTILITY.
2. ALL WATERMAIN PIPING TO BE DUCTILE IRON TO ANNA C115, CEMENT MORTAR LINED TO ANNA C104, CLASS 50 WALL THICKNESS. ALL PIPE TO BE CSA B137.3 CERTIFIED AND INSTALLED AS PER ANNA C200.
3. ALL WORKS TO BE PER MMCO (LATEST EDITION), MUNICIPAL REQUIREMENTS, CONTRACT DOCUMENTS AND ALSO, THE BOSC (LATEST EDITION) WITHIN PROPERTY LIMITS.
4. HYDRANTS TO BE TERMINAL CITY C71P TO D.N.V. STD. DWG 550-W.5. VALVE TO BE MMCO STD. & LEADS TO BE DUCTILE IRON AS PER WATERMAIN PIPING ABOVE. DISTRICT TO PROVIDE ALL MATERIALS & FITTINGS INCLUDING VALVES FOR WORKS PROVIDED BY THEIR CREWS.
5. SERVICE CONNECTIONS TO BE TYPE K ANNEALED COPPER TO ASTM B88M UP TO 75mm AND SIZED AS SPECIFIED. WATER SERVICE CONNECTION TO D.N.V. STD. DRAWING 550-W.4. SERVICE CONNECTIONS 100mm AND UP TO BE DUCTILE IRON TO THE SAME SPECIFICATION AS THE WATERMAIN NOTED ABOVE.
6. ALL FITTINGS TO BE DUCTILE IRON TO ANNA C110 OR C153, CEMENT MORTAR LINED TO ANNA C104, TYTON JOINTS TO ANNA C111, & ASTM 5313.9 & GASKETS TO ASTM 1477 WITH CLOSED LUGS.
7. SERVICE CONNECTIONS TO BE MARKED WITH A 40mm x 80mm POST PAINTED BLUE AT TERMINATION. SERVICES TO BE TERMINATED 1m BEYOND THE PROPERTY LINE, UNLESS OTHERWISE NOTED.
8. DURING CONSTRUCTION AND AT ANY TIME PRIOR TO ACCEPTANCE AND PRESSURIZING OF MAINS, THE CONTRACTOR SHALL BAG OR PLACE A 0.3m SQUARE 20mm SHEET OF PLYWOOD OVER THE PUMPER NOZZLE OF THE HYDRANT TO INDICATE THE HYDRANT IS NOT IN USE.
9. WATERMAIN TO BE CONSTRUCTED A MINIMUM OF 0.5m ABOVE STORM OR SANITARY SEWERS AND MAINTAIN 3.0m HORIZONTAL CLEARANCE. IN AREAS WHERE LESS THAN 0.5m VERTICAL OR 3.0m HORIZONTAL CLEARANCE CAN NOT BE MAINTAINED, ALL JOINTS TO BE HEAT SHRUNK WRAPPED OR TAPE WRAPPED AS PER MINISTRY OF HEALTH STANDARDS, AND/ANNA C214 (FACTORY APPLIED), AND/ANNA C209 (FIELD APPLIED) AND/ANNA C317-90 (PETROLIUM TAPE) ALL TO MINISTRY OF HEALTH STANDARDS. WATERMAIN CROSSINGS OF STORM OR SANITARY SEWER TO BE MADE AT WEDPOINT OF PIPE.
10. WHERE SEWER MAIN CROSSES WATERMAIN AND CLEARANCE IS LESS THAN 0.5m, THE UPPER PIPE SHALL BE CONCRETE ENCASED PER MMCO STD DWG 04 AND WRAPPED AS PER NOTE ABOVE.
11. WHERE WATERMAIN PIPE SPACE EXCEEDS FOR PIPE TO BE ENCASED AS PER MMCO STD DWG 04, JOINT RESTRAINTS TO MMCO SPECIFICATION SECTION 02666 TO BE INSTALLED WHERE GRADE EXCEEDS 20%.
12. PIPE BEDDING TO CONFORM WITH MMCO STANDARDS. SEE MMCO STD. DWG 04 AND BE COMPACTED TO 90% MODIFIED PROCTOR PRIOR TO BACKFILLING TRENCH.
13. EXCAVATION AND PAVEMENT RESTORATION TO BE COMPLETED BY CONTRACTOR PER REGULATORY AUTHORITY REQUIREMENTS, MMCO STANDARDS AND CONTRACT DOCUMENTS. CONTRACTOR TO GIVE NOTICE PRIOR TO COMPLETING WORKS.
14. WHERE IT IS SPECIFIED THAT THE CONTRACTOR IS TO MAKE TIE-IN(S) TO EXISTING WATERMAIN(S), ALL TIE-IN(S) SHALL BE MADE UNDER THE SUPERVISION OF THE ENGINEER. CONTRACTOR TO ADVISE ENGINEER 48 HOURS PRIOR TO TIE-IN WHERE THE TIE-IN SCOPE IS NOT SPECIFIED ONLY TO MAKE TIE-IN - CONTRACTOR TO GIVE DNV & ENGINEER A MINIMUM OF 2 WEEKS NOTICE IN ADVANCE OF TIE-IN.
15. INSTALLATION, TESTING AND COLOR-MARKING TO BE PERFORMED IN ACCORDANCE WITH DISTRICT OF NORTH VANCOUVER AND MMCO CONSTRUCTION SPECIFICATIONS AND ANNA C200 AND C651. ENGINEER AND DISTRICT TO BE GIVEN 48 HOURS NOTICE PRIOR TO TESTING AND CONTRACTOR TO INSURE TESTING IS COMPLETED IN THE PRESENCE OF THE ENGINEER.
16. MINIMUM COVER ON WATERMAIN = 1.2m.
17. THRUST BLOCKS AS PER DNV STD DWG 550-W6.
18. SERVICE CONNECTIONS AS PER DNV STD DWG 550-W2.
19. BLOW OFF AND AIR VALVES AS PER DNV STD DWG 550-W2 & 550-W3.
20. PIPE BEDDING TO CONFORM WITH MMCO STANDARDS. SEE MMCO STD. DWG 04 AND BE COMPACTED TO 90% MODIFIED PROCTOR PRIOR TO BACKFILLING TRENCH.
21. COVERS FOR INSPECTION CHAMBERS, VALVE RESERS AND METER CHAMBERS LOCATED WITHIN DRIVEWAYS SHALL BE SUITABLE FOR 900 TRAFFIC LOADING.
22. LOCATION OF SERVICE CONNECTIONS TO BE CONFIRMED BY ENGINEER ONCE ROUGH GRADING COMPLETE.
23. EXCAVATION AND PAVEMENT RESTORATION FOR WATERMAIN TIE-IN FROM EX. WATERMAIN TO PROPERTY LINE TO BE COMPLETED BY CONTRACTOR. DISTRICT OF NORTH VANCOUVER UTILITIES DEPT. WILL SUPPLY HOT TAP MATERIALS AND COMPLETE TIE-IN AT DEVELOPER'S COST. CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT OF ANY PAVEMENT AND BOULEVARD TO THE PRE-CONSTRUCTION CONDITION OR BETTER.
24. ALL ON-SITE WATERMAIN PIPING TO BE PVC DR18 PIPE TO ANNA C200 FOR PIPE 100mm TO 300mm DIAMETER AND ANNA C200 FOR PIPE LARGER THAN 300mm. ALL PIPE TO BE CSA B137.3 CERTIFIED.
25. ON-SITE WATER SERVICES LESS THAN 100mm TO BE POLYETHYLENE TO ANNA C901 OR ENGINEER APPROVED ALTERNATIVE UNLESS OTHERWISE NOTED.
26. DISTRICT OF NORTH VANCOUVER TO SUPPLY WATER METERS AT DEVELOPERS COST.
27. SITE SERVING WORKS TO COMMENCE ONLY AFTER OFFSITE SERVICE CONNECTION HAS BEEN INSTALLED & VERIFIED.

DRAWING LEGEND

	EXISTING	PROP.	TO BE REMOVED
LEGAL LINE	---	---	---
EXISTING WATERMAIN	---	---	---
EXISTING SANITARY SEWER	---	---	---
EXISTING STORM	---	---	---
EXISTING HYDRANT	---	---	---
EXISTING VALVE	---	---	---
EXISTING INSPECTION CHAMBER	---	---	---
EXISTING STREETLIGHT	---	---	---
PROPOSED WATERMAIN	---	---	---
PROPOSED SANITARY SEWER	---	---	---
PROPOSED STORM	---	---	---
PROPOSED HYDRANT	---	---	---
PROPOSED VALVE	---	---	---
PROPOSED INSPECTION CHAMBER	---	---	---
PROPOSED STREETLIGHT	---	---	---

1. FRED CHAMBERLAIN PROFESSIONAL ENGINEER, IN GOOD STANDING IN AND FOR THE PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY THAT THE WORKS AS HEREIN SET OUT ON THIS DRAWING HAVE BEEN DESIGNED TO GOOD ENGINEERING STANDARDS AND IN ACCORDANCE WITH THE DISTRICT OF NORTH VANCOUVER DESIGN CRITERIA MANUAL, DATED NOV 2016, L.S.E. W.A.T.E.R. & S.W.E.R. (S.W.E.R. VERSION 2016) AND THE DISTRICT OF NORTH VANCOUVER SUPPLEMENTARY MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (SUPPLEMENTARY SPECIFICATIONS AND SUPPLEMENTARY STANDARDS DRAWINGS), ADOPTED BY THE DISTRICT OF NORTH VANCOUVER.

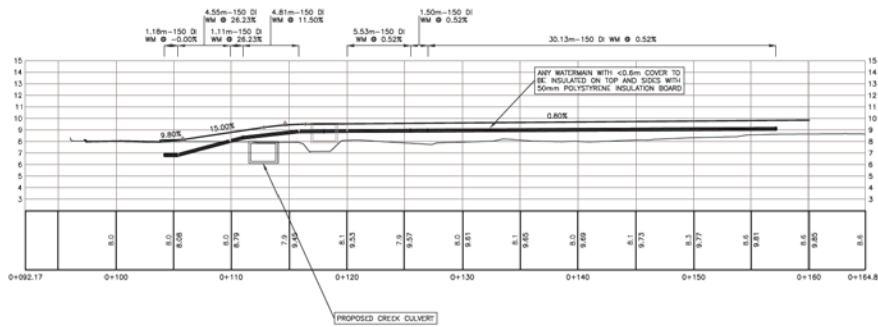
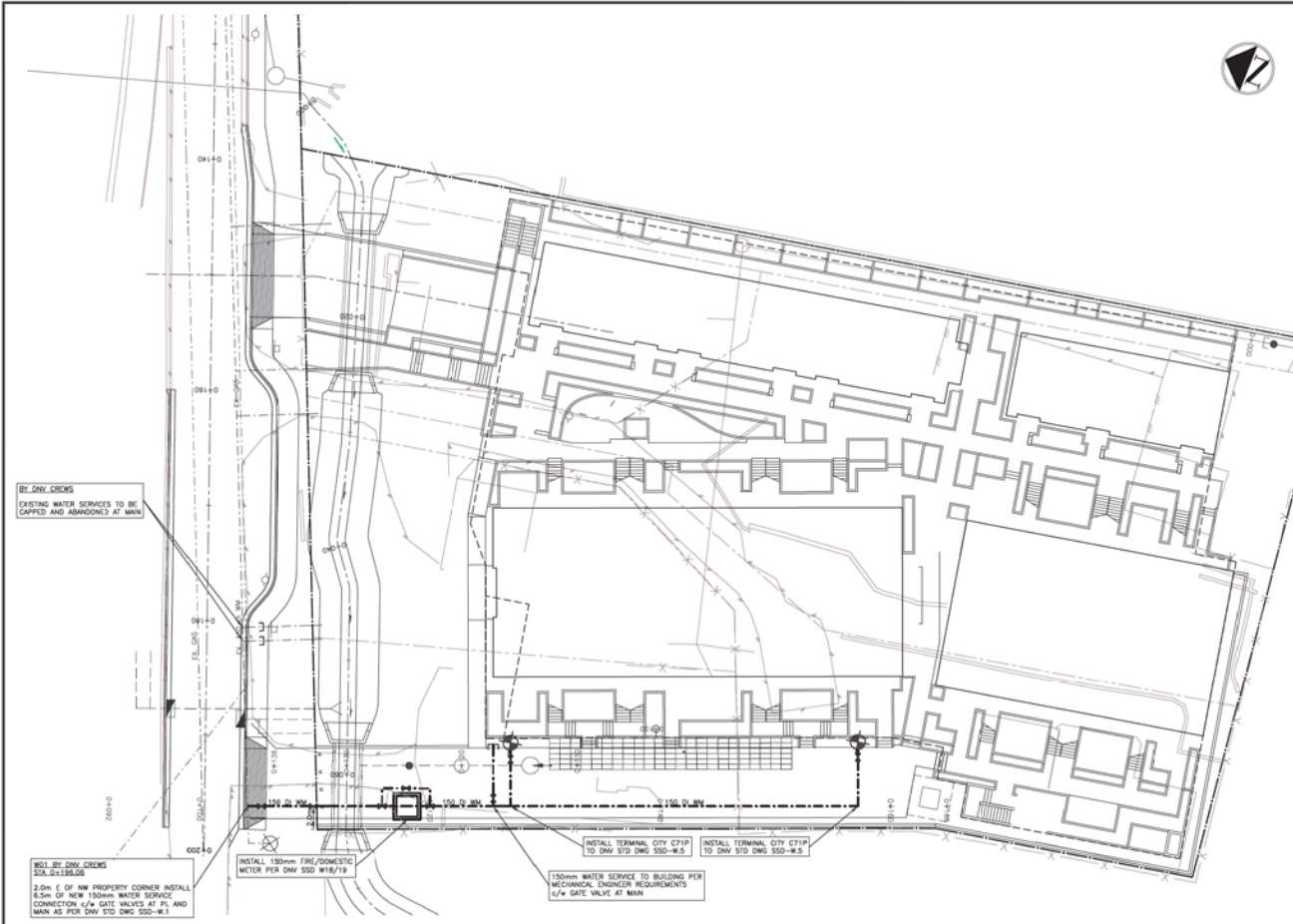
ANTHEM PROPERTIES

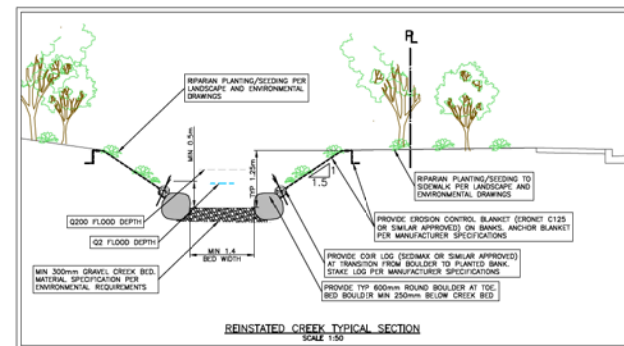
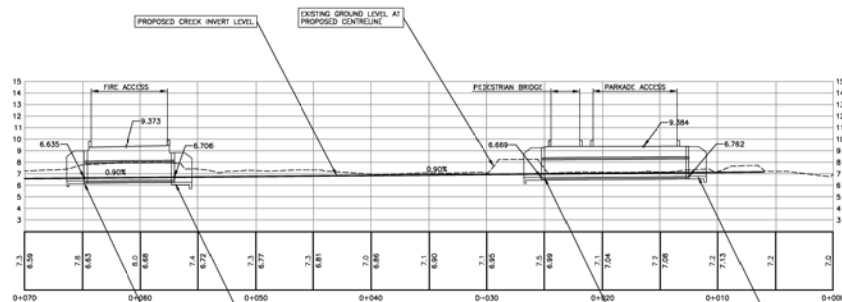
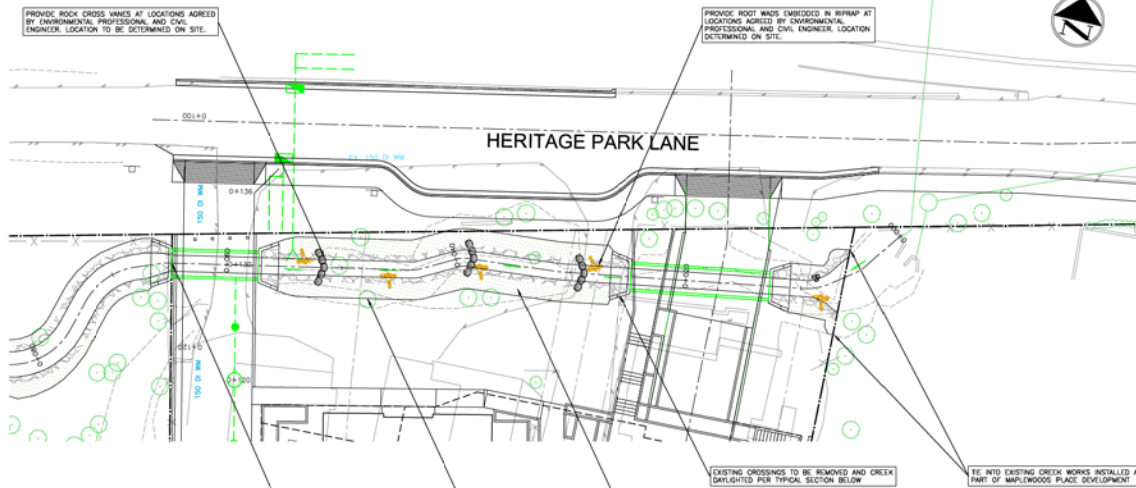
project
MAPLEWOOD WEST
NORTH VANCOUVER, BC

WATERWORKS

CONTRACTOR TO VERIFY & LOCATE EXISTING MAINS & SERVICE CONNECTIONS & NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO BEGINNING CONSTRUCTION

engineer of record	F.M.C.	scale	1:200	date	2017-01-26
designed by	JPC	drawn by	16244		
checked by	JPC	approved by			
date	2017-01-26	drawing no.	W-1		





LEGAL DESCRIPTION

LOTS 2, 3 AND 5, BLOCKS 2 AND 3, D.L. 791, PLAN 16486
LOTS 4 AND 6, BLOCKS 2 AND 3, D.L. 791, PLAN 17275
ALL OF GROUP 1, NW.

BENCHMARK INFORMATION

ELEVATIONS ARE METRIC, GEODETIC DATUM, AND DERIVED FROM CONTROL MONUMENT #5504615, PUBLISHED ELEVATION = 9.52m, SA No. 18, NAD 83, (C.S.R.S.) 2005. MONUMENT LOCATED ON NORTH CORNER CURB OF MOUNT SEYMOUR PARKWAY AT SEYMOUR RIVER PLACE.

CREUS Engineering

Civil Engineers & Project Managers

480 EAST TOWER, 201 KILBANE WEST NORTH VANCOUVER, BC, V7M 1G6
PH: 604-887-8878 FAX: 604-887-8878

DRAWING LEGEND

	EXISTING	PROP.	TO BE REMOVED
LEGAL LINE	---	---	---
EXISTING	---	---	---
SANITARY	---	---	---
STORM	---	---	---
HYDRO	---	---	---
UTILITY	---	---	---
STREETLIGHT	---	---	---
DATE	---	---	---

	EXISTING	PROP.	TO BE REMOVED
FIRE HYDRANT	---	---	---
GATE VALVE	---	---	---
WATER VALVE	---	---	---
HEADGATE	---	---	---
PROTECTION CHAMBER	---	---	---
CULVERT (TOD)	---	---	---
MANHOLE	---	---	---
STREETLIGHT	---	---	---

I, FRED CHAMBERELL, PROFESSIONAL ENGINEER, IN GOOD STANDING IN AND FOR THE PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY THAT THE WORKSAS HEREIN SET OUT ON THIS DRAWING HAVE BEEN DESIGNED TO GOOD ENGINEERING STANDARDS AND IN ACCORDANCE WITH THE DISTRICT OF NORTH VANCOUVER DESIGN CRITERIA MANUAL DATED NOV 2008. I, FRED CHAMBERELL, PROFESSIONAL ENGINEER (CIVIL), VERSION 2008 AND THE DISTRICT OF NORTH VANCOUVER SUPPLEMENTARY MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (SUPPLEMENTARY SPECIFICATIONS AND SUPPLEMENTARY STANDARDS DRAWINGS), ADOPTED BY THE DISTRICT OF NORTH VANCOUVER.



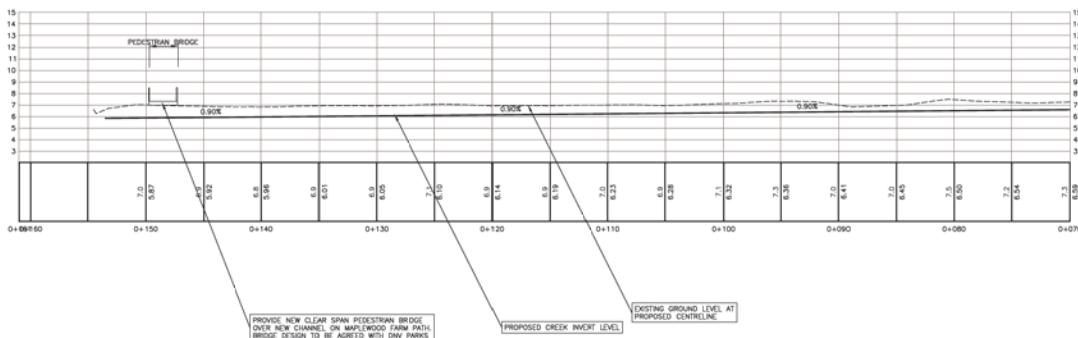
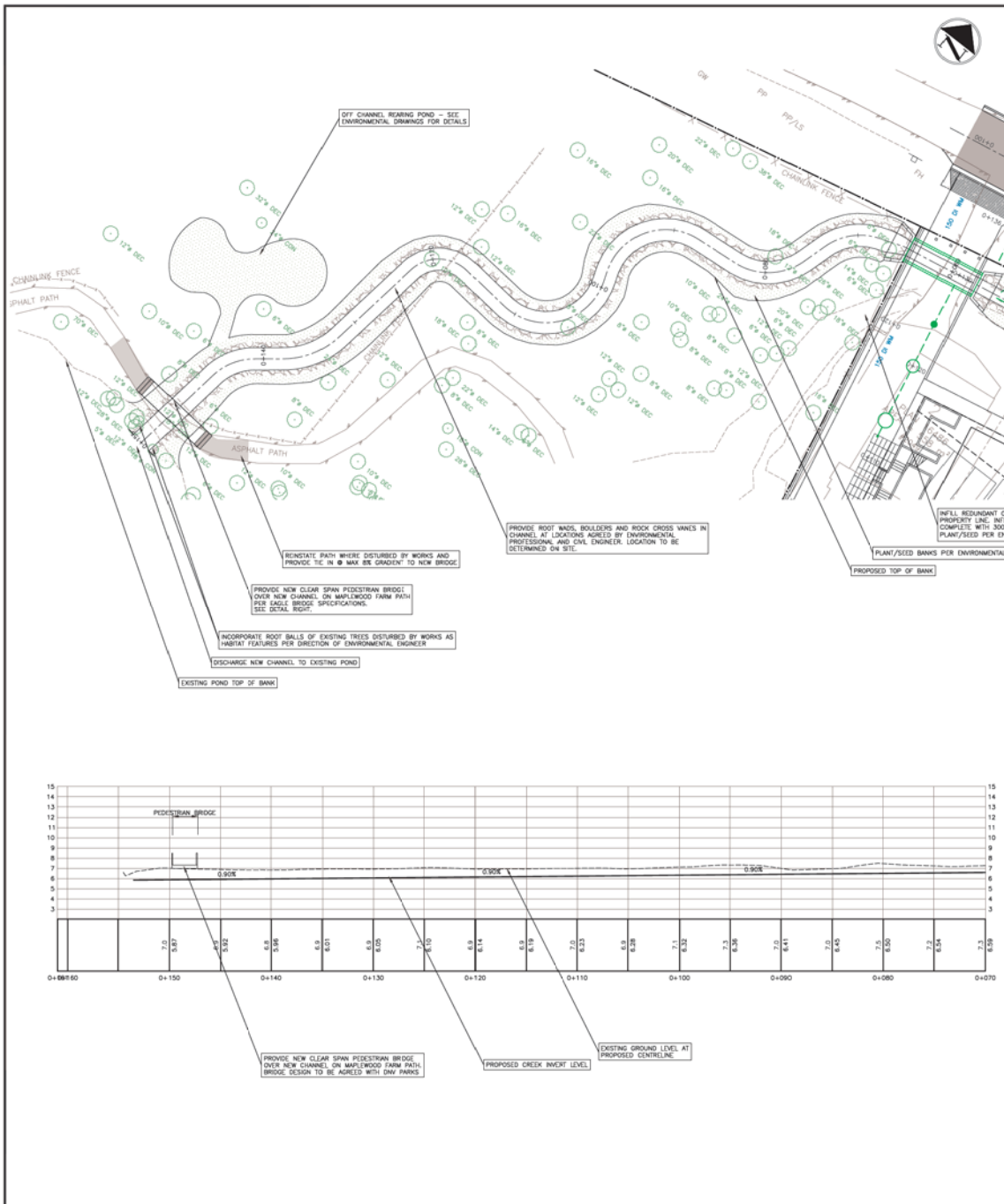
ANHEM PROPERTIES

MAPLEWOOD WEST
NORTH VANCOUVER, BC

CREEK WORKS
ONSITE

CONTRACTOR TO VERIFY & LOCATE EXISTING MAINS & SERVICE CONNECTIONS & NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO BEGINNING CONSTRUCTION

2	16/04/20	GENERAL REVISION	CWB
1	01/06/15	ISSUED FOR DETAILED DP	CWB
NO. (SHEET)	16/04/20	DATE	2
DESIGNED BY	F.M.C.	DATE	16/04/20
CHECKED BY	J.P.C.	DATE	16/04/20
APPROVED BY	A.A.P.	DATE	16/04/20
DATE	2017-01-24	DATE	D-1

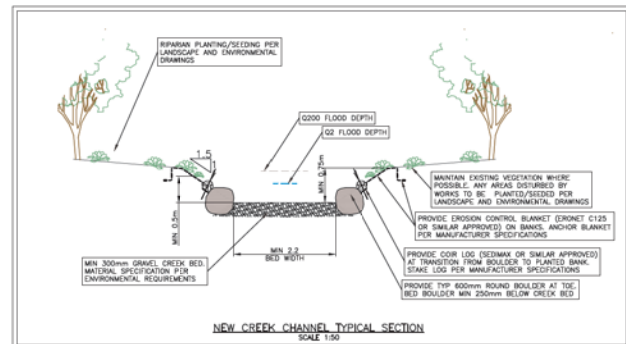


LEGAL DESCRIPTION

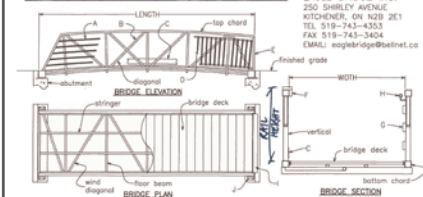
LOTS 2, 3 AND 5, BLOCKS 2 AND 3, DL 791, PLAN 16486
 LOTS 4 AND 6, BLOCKS 2 AND 3, DL 791, PLAN 17275
 ALL OF GROUP 1, NMO.

BENCHMARK INFORMATION

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 ELEVATION = 9.52m, (SA No. 16, NAD 83, (C.S.R.S.) 2005, MONUMENT LOCATED ON NORTH CORNER CORNER
 OF MOUNT SCHMIDT PARKWAY AT SCHMIDT RIVER PLACE.



EAGLE BRIDGE CUSTOMER SPECIFICATION SHEET



- * PLEASE SPECIFY THE FOLLOWING INFORMATION *
- BRIDGE LENGTH = 15m
 - BRIDGE WIDTH = 2.1m
 RAILING HEIGHT: 1.4m
 - BRIDGE DESIGN (e.g. 15 ft or 18 ft) OR GREATER SPECIFY VEHICLE LOAD RATING REQUIRED
 - ☐ = 58 kN (5814 kg) (EAGLE VEHICLE)
 - ☐ = 80 kN (8158 kg) (CAN/CSA-58-00)
 - ☐ = OTHER (PLEASE SPECIFY)
 - BRIDGE FINISHES
 - ☒ = SELF WEATHERING STEEL
 - ☐ = PAINTED FINISH
 - ☐ = HOT DIP GALVANIZED
 - BRIDGE DECK
 - ☒ = 240 PRESSURE TREATED S.P.F.
 - ☐ = ANTI-SLIP SELF WEATHERING STEEL DECK
 - ☐ = CONCRETE
 - DELIVERY
 - ☒ = DELIVERED TO SITE, OFF LOADING BY OTHERS
 - ☒ = DELIVERY AND INSTALLATION
 - SITE LOCATION = 405 SEYMOUR RIVER PLACE, NORTH VANCOUVER, BC

CONTRACTOR TO VERIFY & LOCATE EXISTING MAINS & SERVICE CONNECTIONS & NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO BEGINNING CONSTRUCTION

CREUS Engineering

Civil Engineers & Project Managers
 405 SEYMOUR STREET, NORTH VANCOUVER, BC, V7P 3N5
 TEL: 604-887-8875

DRAWING LEGEND

	EXISTING	PROP.	TO BE REMOVED
LEGAL LINE	---	---	---
BOUNDARY	---	---	---
WATER	---	---	---
ROAD	---	---	---
RAILROAD	---	---	---
UTILITY	---	---	---
TO BE REMOVED	---	---	---

	EXISTING	PROP.	TO BE REMOVED
PROPOSED	---	---	---
PROPOSED	---	---	---
PROPOSED	---	---	---
PROPOSED	---	---	---
PROPOSED	---	---	---
PROPOSED	---	---	---
PROPOSED	---	---	---
PROPOSED	---	---	---
PROPOSED	---	---	---
PROPOSED	---	---	---

I, FRED CAMERON, PROFESSIONAL ENGINEER, IN GOOD STANDING IN THE PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY THAT THE WORKS AND DRAWINGS SET OUT ON THESE PLANS HAVE BEEN DESIGNED TO GOOD ENGINEERING STANDARDS AND IN ACCORDANCE WITH THE DISTRICT OF NORTH VANCOUVER DESIGN CRITERIA MANUAL, DATED NOV 2010, L.V.E. WATERS, B.S.C.E. (P.E.), CONSULTING ENGINEER (SIGNED, VERSION 2010) AND THE DISTRICT OF NORTH VANCOUVER SUPPLEMENTARY MASTER MUNICIPAL SUPPLEMENTARY SPECIFICATIONS AND SUPPLEMENTARY STANDARD DRAWINGS, ADOPTED BY THE DISTRICT OF NORTH VANCOUVER.



ANTHEM PROPERTIES

MAPLEWOOD WEST
 NORTH VANCOUVER, BC

CREEK WORKS OFFSITE

NO.	DATE	DESCRIPTION	STATUS
3	18/04/20	GENERAL REVISION	CORE
2	18/03/20	GENERAL REVISION	CORE
1	01/06/19	ISSUED FOR DETAILED OF	CORE
0	01/06/19	ISSUED	CORE
3	18/04/20	GENERAL REVISION	CORE
2	18/03/20	GENERAL REVISION	CORE
1	01/06/19	ISSUED FOR DETAILED OF	CORE
0	01/06/19	ISSUED	CORE

DATE: 2017-01-24
 D-2

CONTRACTOR TO VERIFY & LOCATE
EXISTING MAINS & SERVICE
CONNECTIONS & NOTIFY THE
ENGINEER OF ANY DISCREPANCIES
PRIOR TO BEGINNING CONSTRUCTION

LEGAL DESCRIPTION

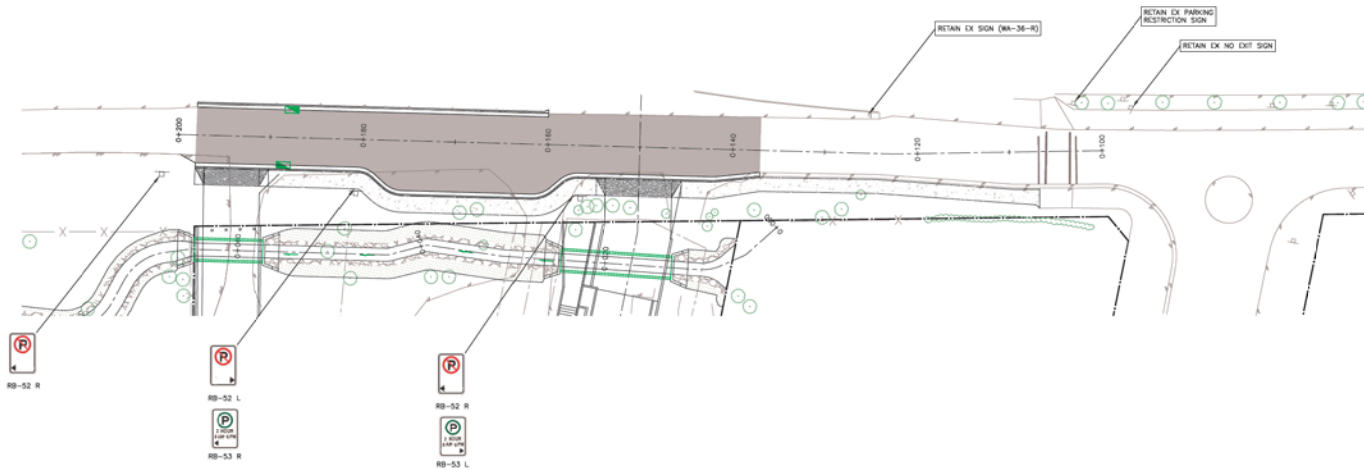
LOTS 2, 3 AND 5, BLOCKS 2 AND 3, DL 791, PLAN 16486
LOTS A AND B, BLOCKS 2 AND 3, DL 791, PLAN 17275
ALL OF GROUP 1, NWD.

BENCHMARK INFORMATION

ELEVATIONS ARE METRIC, GEOIDETIC DATUM, AND DERIVED FROM CONTROL MONUMENT 85H0619, PUBLISHED ELEVATION = 9.52m, ISA No. 16, NAD 83, (C.S.R.S.) 2005. MONUMENT LOCATED ON NORTH CORNER CURB OF MOUNT SEYMOUR PARKWAY AT SEYMOUR RIVER PLACE.

SIGNAGE & ROAD MARKING NOTES:

1. ALL SIGNAGE & MARKING AS FOR THE TRANSPORTATION ASSOCIATION OF CANADA MANUAL OF UNIFORM TRAFFIC CONTROL, DEVICES, OR WHEN WORKING IN A MINISTRY OF TRANSPORTATION, THE REST OF THE MINISTRY OF TRANSPORTATION MANUAL OF STANDARD TRAFFIC SIGNS AND PAVEMENT MARKINGS.
2. SIGN COLOURS, TEXT SIZE & FONTS TO CONFORM WITH T.A.C. AND DISTRICT OF NORTH VANCOUVER STANDARDS.
3. PAVEMENT MARKINGS TO CONFORM WITH T.A.C. AND DISTRICT OF NORTH VANCOUVER STANDARDS.
4. ALL SIGNAGE TO BE DIAMOND GRADE.
5. CONTRACTOR TO SUPPLY AND INSTALL ALL SIGNAGE AT DEVELOPER'S EXPENSE.
6. ROAD MARKING TO BE EXTRUDED THERMOPLASTIC OR BETTER. CONTRACTOR TO BE ACCEPTED BY ROAD TRANSPORTATION.
7. SIGNS TO BE PLACED SUCH THAT EDGE OF SIGN IS 0.5m FROM FACE OF CURB.
8. SIGN POSTS TO BE ROUND. BOTTOM OF SIGNS TO BE 2.0m - 3.0m ABOVE GROUND.
9. BASES TO BE 30x60 CONCRETE TRAPEZOIDAL WITH SLEEVES BY ALLEY SIGNS OR APPROVED ELEGANT IN BOULEVARD. SLEEVES TO BE USED IN SIDEWALKS/CONCRETE AREAS.
10. BASES TO BE BURIED TO 25mm FROM THE TOP AND BASE TO BE SECURE IN GROUND.
11. ALL SIGN POSTS TO BE INSTALLED VERTICALLY, TOLERANCE ± 2 .



CREUS
Engineering

Civil Engineers & Project Managers

DRAWING LEGEND

	EXISTING	PROP.	TO BE REMOVED
LEGAL LINE	---	---	---
BASEMENT	---	---	---
WATERMAIN	---	---	---
STORM DRAIN	---	---	---
SEWER	---	---	---
HYDRANT	---	---	---
STREETLIGHT	---	---	---
GAZ	---	---	---

	EXISTING	PROP.	TO BE REMOVED
FIRE HYDRANT	---	---	---
GATE VALVE	---	---	---
REDUCER	---	---	---
DIRECTION CHAMBER	---	---	---
CATCHBASIN (STORE)	---	---	---
MANHOLE	---	---	---
POWER POLE	---	---	---
STREETLIGHT	---	---	---

[illegible]

client

ANTHEM PROPERTIES

project

MAPLEWOOD WEST
NORTH VANCOUVER, BC

the	
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ROAD MARKING
HERITAGE PARK LANE

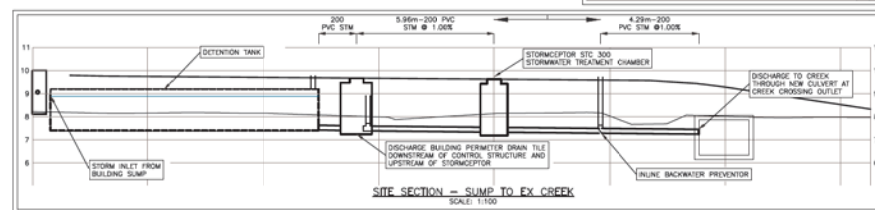
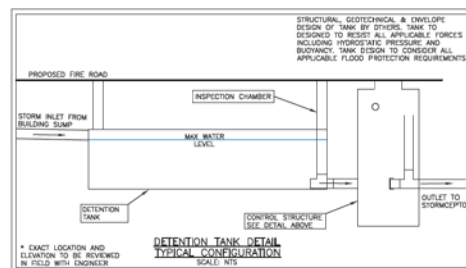
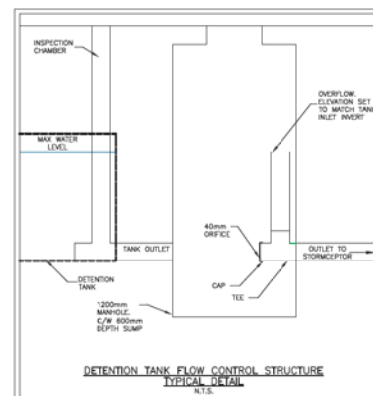
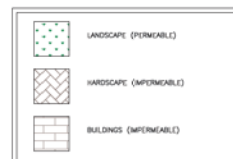
1	18/04/20	GENERAL REVISION	CWB
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NO. (ginn)	revision	DATE
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engineer of record	scales
F.M.C.	hor: 1/250 vert: 1/4

designed by CWB	CNV file no.
drawn by	file no.

CMB	16244
date 2017-01-24	drawing no. LP



LOTS 2, 3 AND 5, BLOCKS 2 AND 3, DL 791, PLAN 16486
LOTS A AND B, BLOCKS 2 AND 3, DL 791, PLAN 17275
ALL OF GROUP 1, NWD.

ELEVATIONS ARE METRIC, GEOIDETIC DATUM, AND DERIVED FROM CONTROL MONUMENT 85+0619, PUBLISHED ELEVATION = 9.52m, ISA No. 16, NAD 83, (C.S.R.S.) 2005. MONUMENT LOCATED ON NORTH CORNER CURB OF MOUNT SEYMOUR PARKWAY AT SEYMOUR RIVER PLACE.

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Project:	Maplewood West	File:	M244
Subject:	Stormwater Management Plan	Date:	17-Apr-18
Section:	SMP Source Control Calculations	By:	MCP

Objective:
No Net Increase in The Rate & Volume of Stormwater Runoff From Existing To Developed Conditions Up To The MAR (2-Year Return Period)

No Net Increase in The Rate & Volume of Stormwater Runoff From Existing To Developed Conditions Up To The MAR (2-Year Return Period)

IDE Curve	* Low Zone
Surface Type	* Clayey Soil, Flat Slope
System Configuration	* Offline
Soil Infiltration Rate	* 10 mm/hr
Storm Pipe Diameter	* 200 mm
Proposed Development Type	* Multi-Family Lot

Post Development Catchment Area		
Building Area (Impervious)	=	1284 m ²
Hardscape Area (Impervious)	=	1623 m ²
Landscape (Pervious)	=	1395 m ²
Total Area	=	4302 m²
Percent Impervious	=	68%
Runoff Coefficient	=	0.62

Pre-Development		
Building Area (Impervious)	=	745 m ²
Hardscape Area (Impervious)	=	1062 m ²
Landscape Area (Pervious)	=	2475 m ²
Total Area		4302 m²
Percent Impervious	=	42%
Runoff Coefficient	=	0.47

Maximum Release Rate	
Runoff Coefficient (C)	= 0.47 [Pre-Develop.]
Soil Adjustment Factor (SAF)	= 1.0
2-Year, 24-Hour Intensity (I)	= 4.13 mm/hr
Catchment Area (A)	= 4302 m ²

Post-Development Peak Flow	
Runoff Coefficient (C)	= 0.67 [Post-Develop.]
Soil Adjustment Factor (SAF)	= 1.0
Time of Concentration (Tc)	= 8 min
Intensity (I)	= 45.8 mm/hr
Catchment Area	= 4302 m ²

Drill Size		
Net Head	=	0.60 m
Maximum Release Rate	=	2.71 l/s
Drill Diameter	=	40 mm

T (°C)	τ (ms)	Intensity (counts/sec)	$Q_{\text{H}}(1/\text{\AA})$	$Q_{\text{L}}(1/\text{\AA})$	Vol. (m ³)
1	60	18.5	15.17	2.71	44.93
2	120	13.9	11.58	2.71	61.12
4	240	10.3	8.24	2.71	79.87
6	360	8.6	6.90	2.71	90.67
12	720	6.3	5.08	2.71	102.93
18	1080	5.3	4.25	2.71	100.50
28	1440	4.7	3.75	2.71	100.25

$\text{CALCULATED VOLUME CHANGE} = \frac{100.25 - 44.93}{44.93} \times 100 = 123.2\%$

Landscape Capture		
U/P Ratio	=	1.16
Landscape Infiltration Rate	=	10 mm/yr
Absorbent Landscape Depth	=	200 mm
Rainfall Capture Depth	=	129 mm

Soil Porosity	=	30%
Landscape Area	=	1,895 m ²
Rainfall Volume Captured	=	54.2 m ³

Detention Tank Storage Volume			
Detention Tank Length	=	1.83 m	2 mod
Detention Tank Width	=	2.74 m	6 mod
Detention Tank Depth	=	10.51 m	28 mod
Tank Porosity	=	95%	
Tank Storage Volume	=	50.2 m ³	






























Soil Infiltration Rate	=	0.0 mm/hr
Infiltration Over 24hrs	=	0.0 m ³
Capture Volume	=	58.2 m ³

Detection Tank Capture Volume	=	50.2 m ³
Landscape Capture	=	54.2 m ³
Total Rainfall Capture Volume	=	104.4 m ³
Rainfall Capture Target	=	103.3 m ³

Civil Engineers & Project Managers

Print: 0046-087-00370 Web: 0046-087-00370

	EXISTING	PROP.	TO BE REMOVED
LEGAL LINE			
EASEMENT			
WATERMAIN			
SANITARY			
STORM			
HYDRO			
TEL			
STREETLIGHT			
GAS			

	EXISTING	PROP.	TO BE REMOVED
FIRE HYDRANT			
GATE VALVE			
AIR VALVE			
REDUCER			
INSPECTION CHAMBER			
CATCHBASIN (STORM)			
CAP			
MANHOLE			
POWER POLE			
STREETLIGHT			

1. I, FRED CAMMBELLI, PROFESSIONAL ENGINEER, IN GOOD STANDING IN AND FOR THE PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY THAT THE WORKS AS HEREIN SET OUT ON THE ENCLOSED DRAWING HAVE BEEN DESIGNED TO GOOD ENGINEERING STANDARDS AND IN ACCORDANCE WITH THE DISTRICT OF NORTH VANCOUVER DESIGN CRITERIA MANUAL DATED NOV 2008. MASTER PLANS, GENERAL CONSTRUCTION DOCUMENTS (MCO, VOLUME 2008) AND THE DISTRICT OF NORTH VANCOUVER SUPPLEMENTARY MASTER DOCUMENTS, CONSTRUCTION DOCUMENTS, SUPPLEMENTARY SPECIFICATIONS AND SUPPLEMENTARY STANDARD DRAWINGS, ADOPTED BY THE DISTRICT OF NORTH VANCOUVER.

client

ANTHEM PROPERTIES

MAPLEWOOD WEST
NORTH VANCOUVER, BC

STORMWATER MANAGEMENT

[illegible]

DRAWING LEGEND

	EXISTING	PROP.	TO BE REMOVED
LEGAL LINE	---	---	---
EXISTING	---	---	---
PROPOSED	---	---	---
SANITARY	---	---	---
STORM	---	---	---
HYDRO	---	---	---
PIPE	---	---	---
STREETLIGHT	---	---	---
GAB	---	---	---
FIRE HYDRANT	---	---	---
GATE VALVE	---	---	---
WATER VALVE	---	---	---
HEADGAGE	---	---	---
INSPECTION CHAMBER	---	---	---
CUTWATER (STOPS)	---	---	---
WALL	---	---	---
MINOR POLE	---	---	---
STREETLIGHT	---	---	---

I, FRED CHAMBERLAIN, PROFESSIONAL ENGINEER, IN GOOD STANDING IN AND FOR THE PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY THAT THE WORKS AS SHOWN SET OUT ON THESE PLANS HAVE BEEN DESIGNED TO GOOD ENGINEERING STANDARDS AND IN ACCORDANCE WITH THE DISTRICT OF NORTH VANCOUVER DESIGN CRITERIA MANUAL DATED NOV 2008. I, FRED CHAMBERLAIN, PROFESSIONAL ENGINEER, IN GOOD STANDING IN AND FOR THE PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY THAT THE WORKS AS SHOWN SET OUT ON THESE PLANS HAVE BEEN DESIGNED TO GOOD ENGINEERING STANDARDS AND IN ACCORDANCE WITH THE DISTRICT OF NORTH VANCOUVER DESIGN CRITERIA MANUAL DATED NOV 2008. I, FRED CHAMBERLAIN, PROFESSIONAL ENGINEER, IN GOOD STANDING IN AND FOR THE PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY THAT THE WORKS AS SHOWN SET OUT ON THESE PLANS HAVE BEEN DESIGNED TO GOOD ENGINEERING STANDARDS AND IN ACCORDANCE WITH THE DISTRICT OF NORTH VANCOUVER DESIGN CRITERIA MANUAL DATED NOV 2008.



VIEW

ANTHEM PROPERTIES

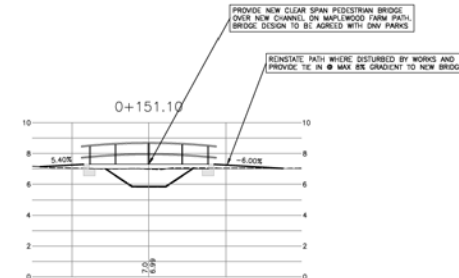
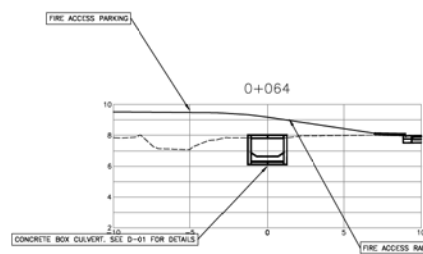
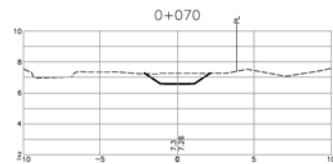
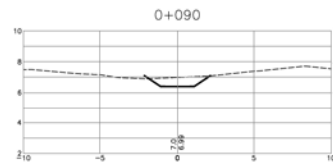
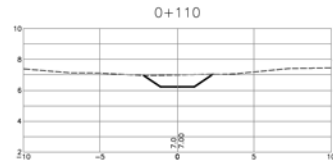
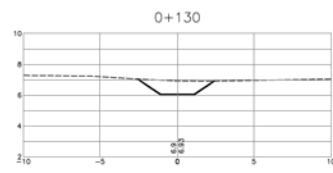
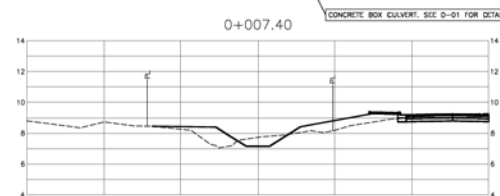
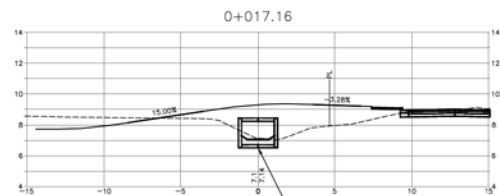
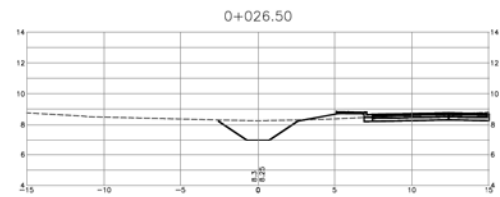
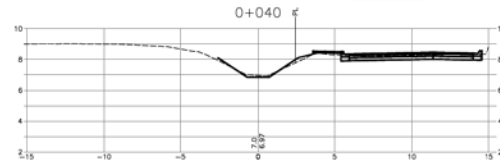
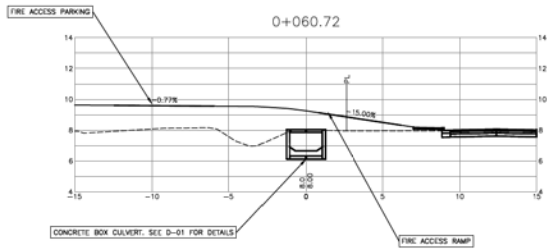
PROJECT

MAPLEWOOD WEST
NORTH VANCOUVER, BC

SITE

CREEK CROSS SECTIONS

2	18/04/20	GENERAL REVISION	CORE
1	01/05/15	ISSUED FOR DETAILED DP	CORE
NO. 1	01/05/15	DESIGN	2
ENGINEER OF RECORD	F.M.C.	SCALE	AS SHOWN
DESIGNED BY	J.P.C.	DATE	16/04/15
DRAWN BY	A.A.P.	NO. 16244	
SHEET	2	OF 2	
DATE	2017-01-24	REVISION NO.	XS-1



ROAD SECTIONS

FRED CAMBELL, PROFESSIONAL ENGINEER, IN GOOD STANDING IN AND FOR THE PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY THAT THE WORKS AS HEREIN SHOWN ON THE ATTACHED UNPAIDWORKS HAVE BEEN DESIGNED TO MEET ENGINEERING STANDARDS AND IN ACCORDANCE WITH THE DISTRICT OF NORTH VANCOUVER ENGINEERING CRITERIA MANUAL DATED NOV 2008, THE WATER MUNICIPAL CONSTRUCTION CODES (MCMCO), VERSION 2008 AND THE DISTRICT OF NORTH VANCOUVER SUPPLEMENTARY MASTER MUNICIPAL CONSTRUCTION DOCUMENTS SUPPLEMENTARY SPECIFICATIONS AND SUPPLEMENTARY STANDARD DRAWINGS, ADOPTED BY THE DISTRICT OF NORTH VANCOUVER.

client

ANTHEM PROPERTIES

ANTHEM PROPERTIES

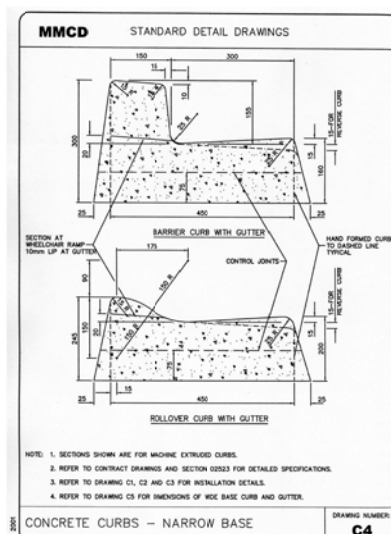
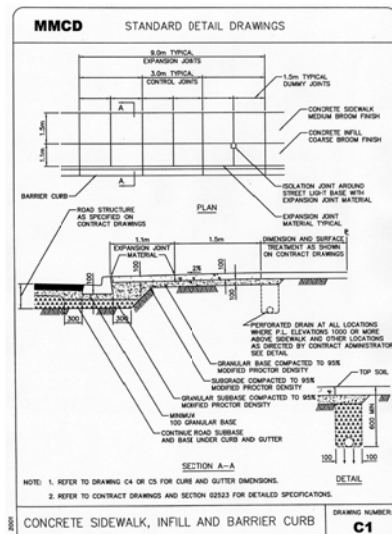
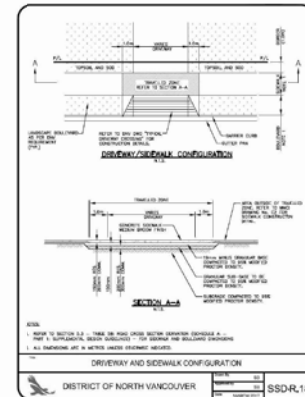
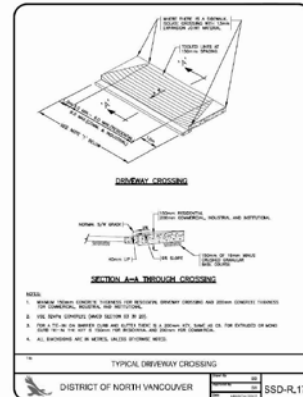
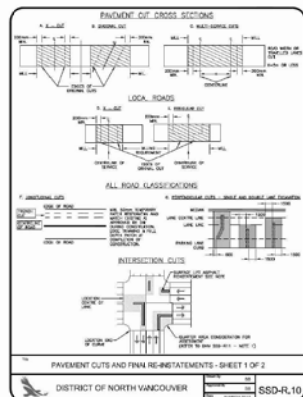
project	
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MAPLEWOOD WEST
NORTH VANCOUVER, BC

file	
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ROAD CROSS SECTIONS

1	15/04/01	GENERAL REVISION	OWN
2	17/08/15	ISSUED FOR DETAILED OP	OWN
<p>no. (year)</p> <p>comment</p> <p>comment (please use this space and, if necessary, attach drawings or photos of the work to be carried out. Do not forget to mention the location of the work to be carried out.)</p> <p>2</p>			
engineer of road		scale	for: 1:100
designed by		Draw No.:	
drawn by		Rev. no.	
date		drawing no.	
23/07-01/38		XS-2	



DRAWING LEGEND

	EXISTING	PROP.	TO BE REMOVED
LEGAL LINE	---	---	---
EASEMENT	---	---	---
WATERMAIN	---	---	---
SEWERMAIN	---	---	---
STORM	---	---	---
HYDRO	---	---	---
TEL.	---	---	---
STREETLIGHT	---	---	---
GAS	---	---	---

	EXISTING	PROP.	TO BE REMOVED
FIRE HYDRANT	⊙	⊙	⊙
GAS VALVE	⊙	⊙	⊙
AIR VALVE	⊙	⊙	⊙
REDUCER	⊙	⊙	⊙
DIRECTION CHAMBER (CAT CHAMBER) (STOGO)	⊙	⊙	⊙
MANHOLE	⊙	⊙	⊙
POWER POLE	⊙	⊙	⊙
STREETLIGHT	⊙	⊙	⊙

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**MINUTES OF THE ADVISORY DESIGN PANEL MEETING HELD ON
April 12, 2018 AT THE DISTRICT OF NORTH VANCOUVER**

ATTENDING: Mr. Jordan Levine (Chair)
 Mr. Steve Wong
 Ms. Carolyn Kennedy
 Mr. Darren Burns
 Mr. Charles Leman
 Mr. Samir Eidnani
 Ms. Diana Zoe Coop

REGRETS: Mr. Stefen Elmitt
 Sgt. Kevin Bracewell
 Mr. Tieg Martin

STAFF: Ms. Tamsin Guppy
 Mr. Alfonso Tejada
 Mr. Adam Wright
 Mr. Kevin Zhang (Item 3.a.)
 Ms. Tamsin Guppy (Item 3.b.)

The meeting came to order at 6:00 pm.

1. ADOPTION OF MINUTES

A motion was made and carried to adopt as circulated the minutes of the Advisory Design Panel meeting of March 8, 2018.

2. ANNOUNCEMENTS AND ADMINISTRATION

In discussing how to keep the agenda on track while still allowing time for useful input, Panel members agreed to try harder to be concise with their comments during discussion and to provide specific details and clear direction.

The Panel agreed to use the new simplified list of suggested motions.

The Panel agreed to review applications for 2018 ADP Awards later in the year, in February/ March instead of December/January, to avoid logistical challenges from winter weather and holiday scheduling, thereby pushing the awards night back to March/April.

At least two ADP meetings will be held in May to accommodate six development applications that are seeking review by the Panel next month.

The two meeting dates are May 10th and May 24th at 6:00pm. The location for the May 24th meeting will be shared once confirmed.

The Panel members discussed the extent to which they review applications using both the District of North Vancouver's design guidelines and their own professional experience. It was discussed that while Panel members do not have to review applications strictly against the District's design guidelines, it is important to be cognizant of them and the differences in form and character that exist between the different town and village contexts.

3. NEW BUSINESS

a.) 2049 Heritage Park Lane – Maplewood West

Mr. Kevin Zhang, Development Planner, introduced the project and explained the context.

The Chair welcomed the applicant team and Mark Blackwood, architect from Ekistics Architects, and Gerry Eckford, from ETA Landscape Architects introduced the project.

The Chair thanked the applicant team for their presentation and asked if there were any questions of clarification from the Panel:

Questions were asked and answered on the following topics:

- What is the material showing between planter beds that looks green on page L-5? A gravel area underneath the stairs.
- Is there a gap between the neighbour to the east's fence and the concrete wall on page L5-1? There is a gap that is approximately 8 inches.
- Is there an elevation change around electrical room on page A1-3? Grades were dictated by flood elevation – The vision is to change the slope to minimize the grade change, there is also a requirement for a 6ft fence from ground elevation. We are discussing with environmental consultants and the environment team at the District to try to balance the grade change.
- What is the detailing idea behind the perforated screen in the middle of the buildings? It is white perforated metal as a knuckle in between the buildings. People will be able to pass through at ground level and it will provide elevator access.
- In previous version of plans there was a connection with Maplewood, is that still there? There was a connection on east side of the property, but it was not permitted after consultation with the District. No connection to the South is possible.
- What is the function of the perforated panel? It is serving as an exit stair because of the 4 story building height, along with the rooftop access. We are in conversations with Code Consultants here.

Mr. Alfonso Tejada, District Urban Design Planner, provided the following comments for consideration:

- The project team should be commended for the effort and involvement in the design process, there were major issues, but much work has been done.
- The extra elevator is great and the ramp access at grade works.
- The only key issue that merits further consideration is the proximity to the neighbour. There is only about 24 feet between the buildings on the east side to the east, when there would usually be about 30 feet between building faces. Expanding the width between the buildings to the east, would improve privacy.
- The north side of street, facing Heritage Street could use more detail, especially the concrete wall on the lower level.
- The small proportion of the windows on the north elevation for the front presence needs attention.
- Metal box staircase would be improved by more detailing, colour, and artistic elements.

The Chair invited comments from the Panel members, and the following comments and items for consideration were provided:

- The creek has been made to be a feature of the project, which is great.
- The splayed out buildings creates an interesting element and play space.
- Fire access has been made as a place to play, the material palate and the plant material selection is nice.
- The staircase doesn't seem to exist on the plans.
- The Western red cedars, Spruce, and Douglas are nice elements.
- North face of the buildings - looks nice.
- Rooftop access is slightly awkward, but the approach is acceptable.
- The slope on the Creek is quite steep, a 1 to 1.2 slope would be better. Have the boulders spaced randomly to prevent soil from getting into the creek.
- The team should be commended on their creativity.
- If the stairs are required for emergency exit, consider how they will be protected from weather, perhaps a heated pad to keep snow out, or a commitment with the strata to keep it clean.
- It would be worth considering a code review as a 5-story building if using non-combustible cladding.
- Consider rating the roof deck.
- Open risers are shown which allow light, but can be problematic. Consider thinking through using these in other ways.
- Fire Access Plan – could consider adjusting where the access points are to the south so that travel distance is reduced.
- Who owns Maplewood Farm? – Tamsin Guppy, Development Planner pointed out that Maplewood Farm is owned by the District of North Vancouver and the park adjacent to the river is also owned by the District.

- How the edge of the parkade is treated next to the park is important and planting and grading in this area will need to be carefully considered.
- The sense of arrival could be strengthened with stronger landscaping around the pedestrian bridge, and more attention given to the entrance.
- The height of the blackboard may be visible from behind the fence.
- The north face of the building may be improved by adding lighter tones.
- Agree with the concerns around the proximity of the buildings and wonder if in addition to increasing the setback there may be opportunities to improve unit privacy through the programming of the individual unit layouts.
- The landscaping seems to be weave in to the development, there are interesting public spaces and the integrated mews feels nice.
- The exposed rafters, level of detailing and material selection are appreciated. Consider another pass at elevation contrasts and palate to address some of the concerns.
-
- On the exterior stairwell, panel members noted that it might be nice not to enclose but instead allow views through to the park, or if enclosing it in the perforated metal panel to consider including a pattern in the design.

The Chair invited the project team to respond. Mark Blackwood acknowledged the Panel's suggestions, appreciated the comments and were happy to take them into account in the development of the design. They also conveyed the following comments below:

- We tried to mirror the neighbour setback for the Maplewood place edge – we can look at increasing it to 27 - 28 feet, it is currently around 11.5, but there is some flexibility there.
- We can reconsider the glazing and doors to enhance the North face.
- Maintenance of the roof top decks will be discussed with the strata and fire department.
- We are trying to increase permeability with perforated metal and roof top egress, we have removed the cover from the exit stairs.
- The North elevation has stone material to mark entrances that are repeated throughout the buildings.
- We intend to develop the entrance to the parkade with trellises' and landscaping along the sides.

The Chair invited the Panel to compose a motion:

MOVED by Steve Wong and **SECONDED** by Carolyn Kennedy Motion.

THAT the ADP has review 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

b.) 3288 Brookridge Drive, 1135 and 1147 Ridgewood Drive – Edgemont Townhouse Development

Ms. Tamsin Guppy, Development Planner, introduced the project and reminded the Panel that the project was returning for reconsideration having been reviewed by the Panel on February 8, 2018, and provided a brief reminder of the general context.

The Chair welcomed the applicant team and representatives from Boldwing Continuum Architects and PMG Landscape Architects introduced the project.

The Chair thanked the applicant team for their presentation and asked if there were any questions of clarification from the Panel:

Questions were asked and answered on the following topics:

- Has the neighbouring property been completed? It is still under construction, they do not have occupancy yet.
- Is there an opportunity to share a parking ramp? There may have been an opportunity, but the timing of the projects in this case precluded it.
- On page AC-402, are there windows in middle units in the bedrooms of building 1 and building 4? Yes, there are windows.
- Are the patios covered in the rear of Ridgewood? They are just for protection over the front doors, not over the entire patio.
- What materials and colours are used for the metal railings? Steel with dark grey.
- Are the window frames dark grey? Yes, charcoal grey.
- Is there a requirement for a children's play area? No.
- Is there a requirement that the driveway access ramp flattens at the boulevard? – Yes, the requirement is that the ramp is flat to meet with the sidewalk. Engineering work is still underway and public feedback is being considered and this will impact the final design of the boulevard and sidewalk and in turn the access ramp.

Mr. Alfonso Tejada, District Urban Design Planner, provided a brief presentation and provided the following comments for consideration:

- There has been an incredible improvement with the submission, the issues were well addressed.
- The oval window doesn't seem to relate to the other side of the street, but it is an interesting element.
- The location of the communal outdoor amenity space could be reconsidered and in doing so there may be an opportunity to improve the relationship to the neighbour to the south as currently the setback to that building's side yard is only 20 feet.
- The amenity space could be shifted to the east side of Building 3 to create a more centralized space.

- The amenity space could be better detailed to match the elegance and traditional elements of the building designs.
- The roof line transitions fit with the context of the buildings.

The Chair invited comments from the Panel members, and the following comments and items for consideration were provided:

- Congratulations to the team, the authenticity of the project is appreciated in the changing context of Edgemont.
- The palette seems clean, sleek, and sophisticated.
- There seems to be lots of light, you can feel the air in the buildings.
- The landscaping and hedging can really enhance the feel of the building, it seems to be a visual relief.
- The curved sidewalk is nice.
- Consider the extent to which the development will be used as a kids-oriented complex enough to justify the proposed play area.
- Share the concern about potential overlook, so consider the potential to reduce overlook through landscaping and unit layout, and perhaps stagger the windows between buildings.
- The on site landscaping does not seem to be improved. The common space feels like it may be wasted, perhaps provide a green space or community gardens if a play area is not merited, but if proposing a play area then give this space more attention.
- Your landscape plans need better coordination, particularly with tree locations.
- Brown colours of the pavers could be moved to a grey tone.
- If you choose to keep the bird bath consider moving the bird bath so it creates visual interest and can be accessed
- Materiality, tone, and hardscape is really well done and much improved from last time.
- The reduced height of the ridge line, fenestration of the roof, and material changes look nice.
- Support the improvements to the architectural design, particularly the reduced height, and the improved material selection.
- Support the addition of the sidewalk on Brookridge Drive.
- Consider rethinking the ultimate use of the common space outside. The bird bath could be reconsidered. The whale tale and benches are quite poetic but fail as a play space. This common area could be rethought and improved.
- If the common space is a play area then a guard rail next to the wall for the driveway ramp may be required.
- The open stairwell next to the elevator could create a large puddle or heavily used drain at the bottom.
- Circulation space – bad call to have
- Door beside elevator could be reconsidered, it is encroaching into elevator space.
- Consider separating elevator access from the stairs.

- Elevator machine room should be located next to the elevator to avoid challenges with cabling.
- Water could be coming into elevator area with current layout.
- Consider locating electrical service close to PMT to save cost.
- There may be a security risk around the staircase area. Consider CPTED strategies and improved lighting.
- There may be an opportunity for pedestrian access from Brookridge Drive.
- Patterning on sidewalk could help from ramp.
- Gabled roof configuration on north building and hipped variant on south building seems to be lacking in detail, as compared to the north.
- The dark roofs are quite prominent in the renderings – Consider the concern for heat island.
- The project seems to have its own personality and though it has been improved, it seems to maintain the bones of the original strong concept but is far more successful and fits the character of the area far better in this rendition. The only concern remains the landscaping.

The Chair invited the project team to respond. The project team acknowledged the Panel's suggestions, appreciated the comments.

The Chair invited the Panel to compose a motion:

MOVED by Ms. Diana Zoe Coop and **SECONDED** by Mr. Darren Burns.

THAT the ADP has review 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 8:46 p.m.

6. NEXT MEETING

May 10, 2018


Chair


Date

Arboricultural Inventory and Report



Site Location:

2049, 2051, 2059 2053, 2055 Heritage Park Lane,
North Vancouver, BC

To be submitted with Tree Retention and Removal Plan
dated 2018, April 26

Submitted to:

Anthem Properties
#300 – 550 Burrard Street
Vancouver, BC
V6C 2B5

Date: 2018, April 26

Submitted by:



The following Diamond Head Consulting staff conducted the on-site tree inventory and prepared or reviewed the report.

All general and professional liability insurance and staff accreditations are provided below for reference.



Mike Coulthard, R.P.Bio., R.P.F.
Senior Forester, Biologist
Certified Tree Risk Assessor (46)

Please contact us if there are any questions or concerns about the contents of this report.

Contact Information:

Phone: 604-733-4886
Fax: 604-733-4879
Email: mike@diamondheadconsulting.com
Website: www.diamondheadconsulting.com

Insurance Information:

WCB: # 657906 AQ (003)
General Liability: Northbridge General Insurance Corporation - Policy #CBC1935506,
\$10,000,000
Errors and Omissions: Lloyds Underwriters – Policy #1010615D, \$1,000,000

Scope of Assignment:

Diamond Head Consulting Ltd. (DHC) was retained to complete an arboricultural assessment to supplement the proposed development application for 2049, 2051, 2059 2053, 2055 Heritage Park Lane. This report contains an inventory of protected on and off-site trees and summarizes management recommendations with respect to future development plans and construction activities. Off-site trees are included because pursuant to municipal bylaws, site owners must include the management of off-site trees that are within the scope of the development. This report is produced with the following primary limitations, detailed limitations specified in Appendix 7:

- 1) Our investigation is based solely on visual inspection of the trees during our last site visit. This inspection is conducted from ground level. We do not conduct aerial inspections, soil tests or below grade root examinations to assess the condition of tree root systems unless specifically contracted to do so.
- 2) Unless otherwise stated, tree risk assessments in this report are limited to trees with a *high* or *extreme* risk rating in their current condition, and in context of their surrounding land use at the time of assessment.
- 3) The scope of work is primarily determined by site boundaries and local tree-related bylaws. Only trees specified in the scope of work were assessed.
- 4) Beyond six months from the date of this report, the client must contact DHC to confirm its validity because site base plans and tree conditions may change beyond the original report's scope. Additional site visits and report revisions may be required after this point to ensure report accuracy for the municipality's development permit application process. Site visits and reporting required after the first submission are not included within the original proposal fee and will be charged to the client at an additional cost.

The client is responsible for:

- Reviewing this report to understand and implement all tree removal and protection requirements related to the project.
- Obtaining a tree removal permit from the relevant municipal authority prior to any tree cutting.
- Obtaining relevant permission from adjacent property owners before removing off-site trees and vegetation.
- Obtaining a timber mark if logs are being transported offsite.
- Ensuring the project is compliant with the tree permit conditions.
- Constructing and maintaining tree protection fencing.
- Ensuring an arborist is present onsite to supervise any works in or near tree protection zones.

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1.0 Introduction

1.1 Site Overview

The project site consists of 5 developed residential lots. Adjacent properties to the east include the Maplewood Place townhomes which have been recently completed. To the west and south is Maplewood Farm. Maplewood creek runs across the north end of the site adjacent to Heritage Park Lane, then draining into Maplewood Farm Lake and then to the Seymour River. The topography of the site is flat. The trees found on and adjacent to the site consist of a mix of native and non native species of varying age and size. Most are concentrated on the banks of Maplewood creek along the north edge of the property.



Photo 1. View north from 2055



Photo 2. View south of tree 92



Photo 3. View north of trees 130,131 from 2051



Photo 4. View of trees along Heritage Park Lane that have been pruned for utility lines

1.2 Proposed Land Use Changes

The proposed development consists of demolition of the existing residents, widening of Heritage Park Lane, installing road and pedestrian crossings of Maplewood creek, construction of a townhouse complex with underground parking. Maplewood creek will be rerouted within the District owned park to the west of the property. Trees within this park that will be impacted have been included in this arborist report.

1.3 Report Objective

This report has been prepared to ensure the proposed development is compliant with the District of North Vancouver Tree Protection Bylaw 7671 and the Development Servicing Bylaw 8145. Refer to Bylaw 7671 for the complete definition of protected trees, summarized below as:

- Large diameter trees greater than 75 cm DBH (measured at 1.3 m above grade) measured for a single stem or, calculated based on the sum of the DBH of the largest stem + (60% x DBH) of each additional stem;
- District tree of any size;
- Tree of any size in a protected area (defined buffer adjacent to a stream) or on wetland (and within 30 m of wetland) or waterfront (and 30 m inland) or sloping terrain (>30%);
- A replacement tree or tree retained as part of a past tree permit;
- A heritage tree identified in Schedule A of the bylaw;
- A wildlife tree;
- A tree of any size that is an arbutus, Garry oak, Oregon ash, Pacific yew, western white pine or yellow-cedar;

Bylaw 8145 requires that arborist reports for development assess the health of **all existing on-site and boulevard trees**, interpreted as an inventory of on-site trees greater than or equal to 10 cm DBH and a count of any trees under that size.

Additionally, neighbouring trees with a tree protection zone that extends into the subject site have been captured in the arborist report. This report outlines the existing condition of all trees on and adjacent to the property required to be protected or assessed under Bylaws 7671 and Bylaw 8145, summarizes the proposed tree retention and removal, and suggests guidelines for protecting retained trees during the construction process.

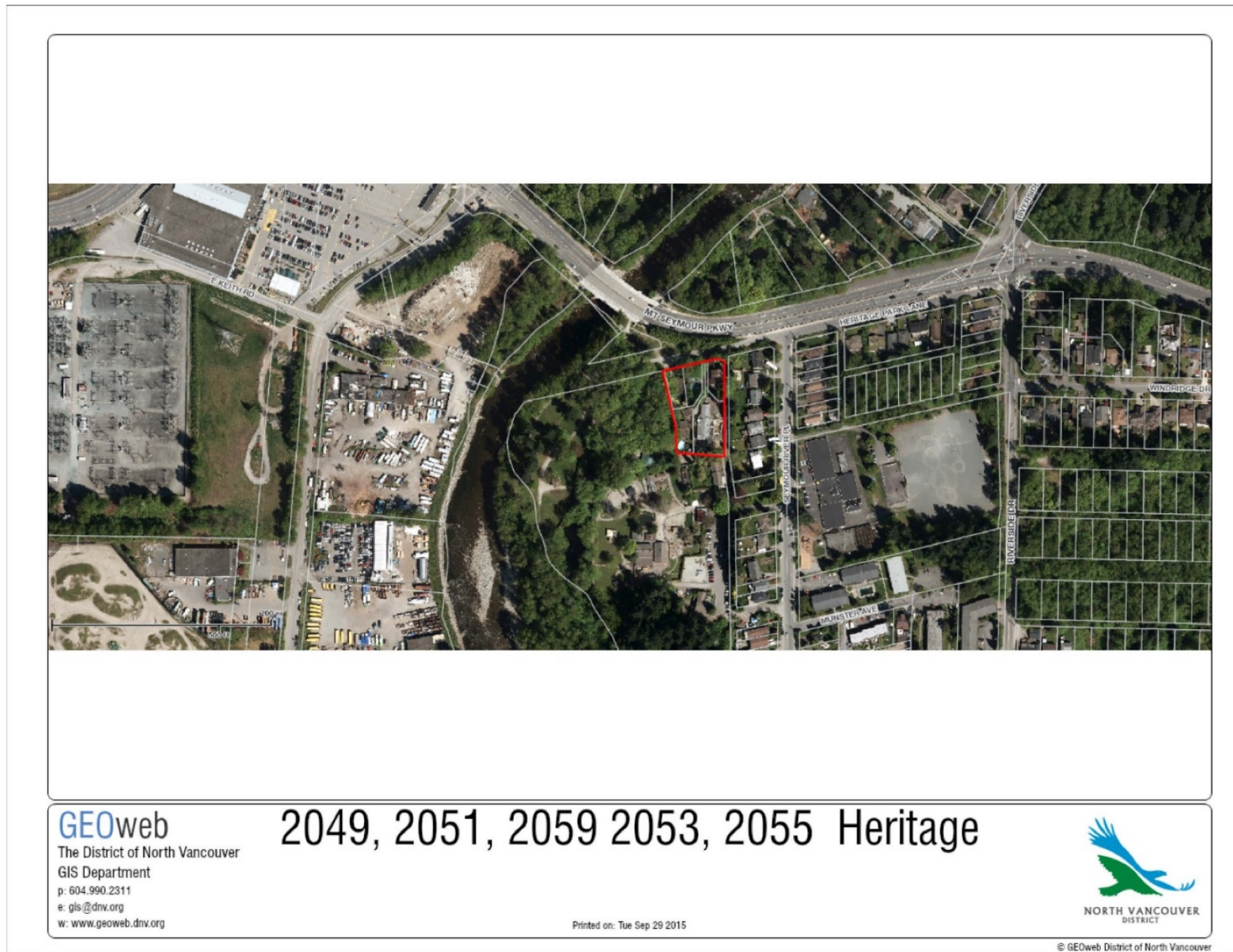


Figure 1. Project site in context of the surrounding landscape and infrastructure.

2.0 Process and Methods

Mike Coulthard of DHC visited the site on Sept 29, 2015 and Sept 2017. The following methods and standards are used throughout this report.

2.1 Tree Inventory

Trees on site and trees shared with adjacent properties were marked with a numbered tag and assessed for attributes including: species; height measured to the nearest meter; and, diameter at breast height (DBH) measured to the nearest centimeter at 1.4 m above grade. Off-site trees were inventoried, but not tagged. The general health and structural integrity of each tree was assessed visually and assigned to one of five categories: *excellent*; *good*; *moderate*; *poor*; or *dying/dead*. Descriptions of the health and structure rating criteria are given in Appendix 3.

Tree retention value, categorized as *high*, *medium*, *low*, or *nil*, was assigned to each tree or group of trees based on their health and structure rating, and potential longevity in a developed environment. Descriptions of the retention value ratings are given in Appendix 4.

Recommendations for tree retention or removal were determined by taking in to account a tree's retention value rating, its location in relation to proposed building envelopes and development infrastructure.

2.2 Tree Risk Assessment

Tree risk assessments were completed following methods of the ISA Tree Risk Assessment Manual¹ published in 2013 by the International Society of Arboriculture, which is the current industry standard for assessing tree risk. This methodology assigns risk based on the likelihood of failure, the likelihood of impact and the severity of consequence if a failure occurs. Only on-site hazard trees that had *high* or *extreme* risk ratings in their current condition and in context of their surrounding land use were identified and reported in section 3.2. Appendix 5 gives the likelihood and risk rating matrices used to categorize tree risk. DHC recommends that on-site trees be re-assessed for risk after the site conditions change (e.g. after damaging weather events, site disturbance from construction, creation of new targets during construction or in the final developed landscape).

2.3 Tree Protection and Replacement

Tree protection zones were calculated for each tree according to Bylaw 7671 requirements for barriers to extend to the dripline or 5 metres from the stem of the outermost tree, whichever is greater, but may be modified based on professional judgement of the project arborist to accommodate species specific tolerances and site specific growing conditions.

The number of replacement trees has been calculated based on the number of protected trees >75 cm DBH removed and the residual canopy cover according to the specifications in Bylaw 7671.

¹ Dunster, J.A., Smiley, E.T., Matheny, N. and Lilly, S. (2013). Tree Risk Assessment Manual. *International Society of Arboriculture*. Champaign, Illinois.

3.0 Findings: Tree Inventory and Risk Assessment

All trees have been inventoried in Appendix A. The majority of these trees have been located on the site survey. Trees on adjacent properties were inventoried if they have critical root zones that extend into the property and would require protection during construction. These are labeled in the tree tag column as OS (off site).

The site inventory identified 61 trees on and immediately adjacent to the subject site. Many of these are within the riparian zone of Maplewood creek. A total of 45 trees are proposed to be removed.

Table 1. Tree species on site summary

Tree Species	Total Number of Trees	Total Retained	Total Removed	Bylaw tree to be removed
Beaked Hazelnut	1		1	
Bigleaf Maple	1		1	1
Black Cottonwood	1		1	1
Black Pine	1		1	1
Cherry/Plum	1		1	
Cypress	3	1	2	2
Douglas-fir	2	2		
Horse -chestnut	1	1		
Japanese maple	1		1	1
Other	1		1	
Red Alder	9		9	4
Red Maple	2		2	1
Western Hemlock	1		1	
Western Redcedar	5		5	2
Total	30	4	26	13

There are a number of off site trees that will be impacted by this development. These are mainly along the north edge of the site where access improvements and infrastructure are in conflict. There is one bigleaf maple tree of significance at the south end of the lot (#92). This is a large diameter tree that is on District land. The root protection zone to the north of this tree has been reduced to 7m where there is a preexisting concrete slab. All excavation for the parking facility must be done in a way that does not cause erosion of this soil profile. A proposed pedestrian trail will be constructed between 5m and 7m from this tree. This can be built as long as it is done using structural soils and preferably using a cellular confinement system (ie. Geoweb load support system). All construction work within 7m of this tree must be done under the direction and supervision of the project arborist. Impacts related to the stream relocation planned to the west of this site are not included in this inventory.

Table 2. Tree species off site summary

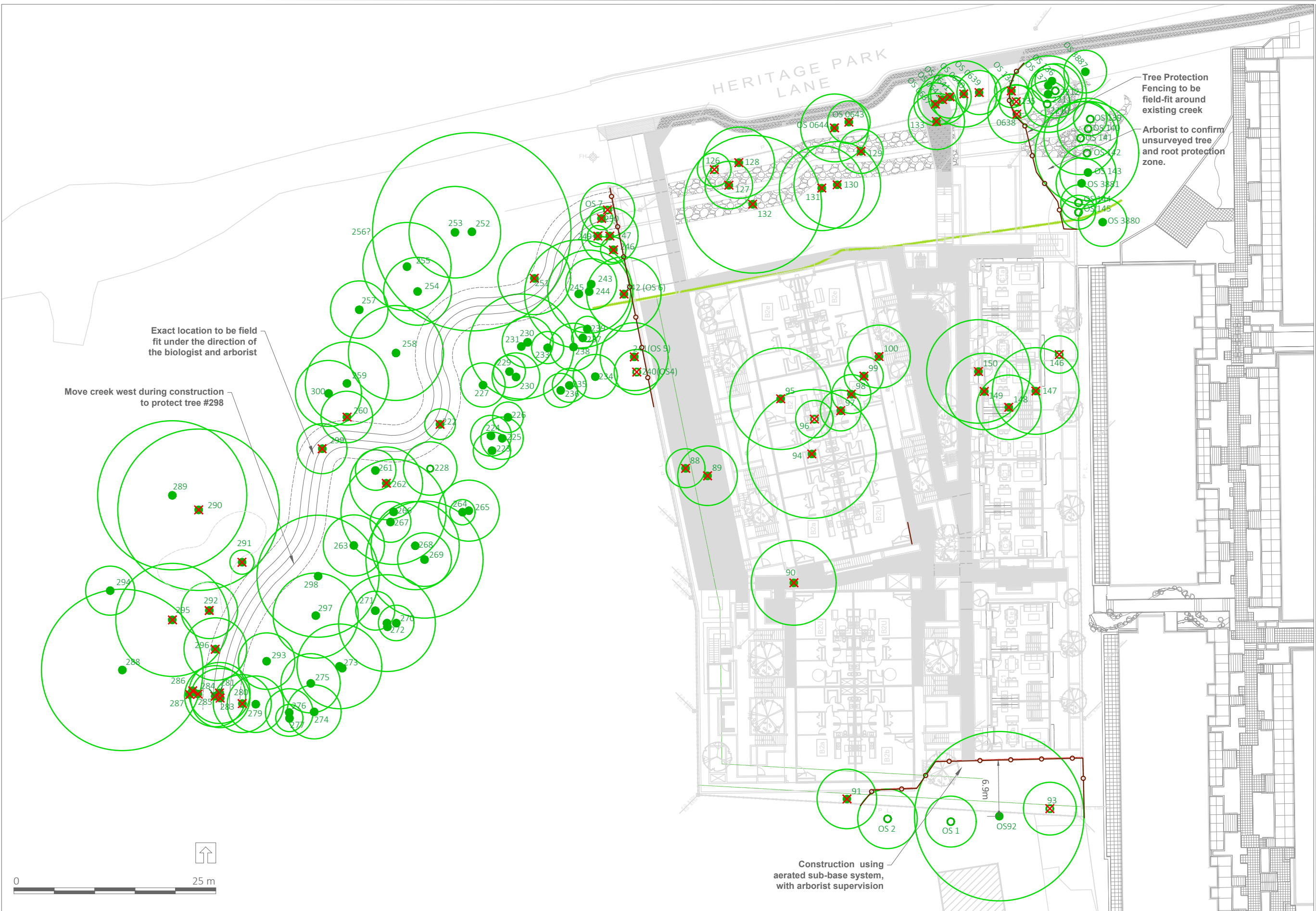
Tree Species	Total Number of Trees	Total Removed	Total Retained
Bigleaf Maple	9	4	5
Cherry/Plum	1		1
Douglas-fir	5	3	2
Horsechestnut	1	1	
Red Alder	4	2	2
Western hemlock	2	2	
Western Redcedar	9	4	5
Total	31	16	15

3.1 Tree Risk Assessment

Table 3 provides a summary of hazard trees that posed a high or extreme risk at the time of assessment. These had a probable or imminent likelihood of failure and can impact an existing target with significant or severe consequences. Their risk rating, recommended remedial actions and residual risk ratings are given.

Table 3. Tree Risk Assessment.

Tree #	Likelihood of failure	Likelihood of impacting the target	Likelihood of failure & impact (From Matrix 1)	Consequence of failure	Tree Risk Rating (From Matrix 2)
93	Probable	High	Likely	Significant	High



LEGEND

- TREE PROTECTION ZONE
- TREE PROTECTION FENCE
- TREE TO BE RETAINED
- UN-SURVEYED TREE
- TREE TO BE REMOVED

NOTES

- The location of un-surveyed trees on this plan is approximate. Their location and ownership cannot be confirmed without being surveyed by a Registered BC Land Surveyor.
- All tree protection fencing must be built to the relevant municipal bylaw specifications. The dimensions shown are from the outer edge of the stem of the tree.
- The tree protection zone shown is a graphical representation of the critical root zone, measured from the outer edge of the stem of the tree. ($\frac{1}{2}$ the trees diameter was added to the graphical tree protection circles to accommodate the survey point being in the center of the tree)
- Any construction activities or grade changes within the Root Protection Zone must be approved by the project arborist.
- This plan is based on a topographic and tree location survey provided by the owners' Registered British Columbia Land Surveyor (BCLS) and layout drawings provide by the owners' Engineer (P Eng).
- This plan is provided for context only, and is not certified as to the accuracy of the location of features or dimensions that are shown on this plan. Please refer to the original survey plan and engineering plans.

REFERENCE DRAWINGS

- Base Survey by:

Appendix 1 Complete Tree Inventory Table

The complete tree inventory below contains information on tree attributes and recommendations for removal or retention. Tree ownership in this inventory table is not definitive, its determination here is based on information available from the legal site survey, GPS locations, and field assessment during site visits. Tree Protection Zones are measured from the outer edge of a tree's stem. If using these measurements for mapping the tree protection zone, ½ the tree's diameter must be added to the distance to accommodate a survey point at the tree's center. Where tree protection fencing is proposed to vary from the TPZ, comments will be included in the Retention/TPZ comments and shown on the Tree Retention and Removal Plan.

*TPZ is the tree protection zone size required by the relevant municipal bylaw or, if not defined, the project arborist.

Table 4. Tree Inventory

Tag # (OS = Off site tree)	Common Name	Botanical Name	DBH (cm)	Ht (m)	Live Crown Ratio (%)	Overall Condition	Comment	Retain/ Remove	Root Protection Zone (m)	Bylaw Tree
88	Black Pine	<i>Pinus nigra</i>	23	9	20-29%	Poor	Thinning crown. Leaning 5 degrees. In Riparian zone. Conflicts with proposed buildings and infrastructure.	Remove	2.3	Yes
89	Japanese maple	<i>Acer plamatum</i>	35	8	80-89%	Normal	Leaning 15 degrees. One broken stem at 5m. In Riparian zone. Conflicts with proposed buildings and infrastructure.	Remove	3.5	Yes
90	Cherry/Plum	<i>Prunus sp.</i>	50	4	40-49%	Moderate	4 main co-dominant stems 15cm, 15cm, 15cm, 10cm. Leaning 40 degrees. Decay present in one stem. Conflicts with proposed buildings and infrastructure.	Remove	5	No
91	Cypress	<i>Cupressaceae</i>	35	13	80-89%	Normal	Adjacent to small retaining wall. Compacted root zone. Conflicts with proposed buildings and infrastructure.	Remove	3.5	No
93	Western Hemlock	<i>Tsuga heterophylla</i>	31	4	40-49%	Very Poor	Tree was topped. Stem has a 2m long crack. Hazard tree.	Remove	3.1	No
94	Cypress	<i>Cupressaceae</i>	76	23	90-100%	Moderate	3 co-dominant stems from 6m. Decay in stem at crotch. Compacted root zone. Pavement is 1m south. Conflicts with proposed buildings and infrastructure.	Remove	7.6	Yes
95	Beaked Hazelnut	<i>Corylus avellana</i>	60	9	70-79%	Normal	Compacted root zone. Tree has multiple stems. Conflicts with proposed buildings and infrastructure.	Remove	6	No

Tag # (OS = Off site tree)	Common Name	Botanical Name	DBH (cm)	Ht (m)	Live Crown Ratio (%)	Overall Condition	Comment	Retain/Remove	Root Protection Zone (m)	Bylaw Tree
96	Red Alder	<i>Alnus rubra</i>	22	18	30-39%	Normal	Compacted root zone. South side of the root zone has been stripped and compacted. Ivy growing up stem to 9m. Conflicts with proposed buildings and infrastructure.	Remove	2.2	No
97	Red Alder	<i>Alnus rubra</i>	24	18	40-49%	Normal	Compacted root zone. South side of the root zone has been stripped and compacted. Conflicts with proposed buildings and infrastructure.	Remove	2.4	No
98	Red Alder	<i>Alnus rubra</i>	23	18	40-49%	Normal	Compacted root zone. South side of the root zone has been stripped and compacted. Ivy growing up stem to 3m. Conflicts with proposed buildings and infrastructure. Conflicts with proposed buildings and infrastructure.	Remove	2.3	No
99	Red Alder	<i>Alnus rubra</i>	23	18	50-59%	Normal	Compacted root zone. South side of the root zone has been stripped and compacted. Conflicts with proposed buildings and infrastructure.	Remove	2.3	No
100	Red Alder	<i>Alnus rubra</i>	37	19	90-100%	Moderate	Compacted root zone. Surface structural roots have been damaged during demolition. South side of the root zone has been stripped and compacted. Conflicts with proposed buildings and infrastructure.	Remove	3.7	No
126	Bigleaf Maple	<i>Acer macrophyllum</i>	16	13	90-100%	Normal	At top of bank. Young healthy tree. Conflicts with proposed buildings and infrastructure.	Remove	2	Yes
127	Red Alder	<i>Alnus rubra</i>	28	15	70-79%	Normal	At top of bank. Young healthy tree. Conflicts with proposed buildings and infrastructure.	Remove	2.8	Yes
128	Red Alder	<i>Alnus rubra</i>	42	23	60-69%	Normal	North side has been pruned for utility lines. Crook in in main stem at 11m but with no defect or decay. Can be retained with adjacent trees for protection. Conflicts with proposed buildings and infrastructure.	Remove	4.2	Yes
129	Cypress	<i>Cupressaceae</i>	26	9	80-89%	Normal	On creek edge. Suppressed tree. Crown mostly on south side. Conflicts with proposed buildings and infrastructure.	Remove	2.6	Yes
130	Red Alder	<i>Alnus rubra</i>	51	27	70-79%	Normal	At top of bank. 1.5m to driveway asphalt. Base of stem buried in soil debris. Conflicts with proposed buildings and infrastructure.	Remove	5.1	Yes

Tag # (OS = Off site tree)	Common Name	Botanical Name	DBH (cm)	Ht (m)	Live Crown Ratio (%)	Overall Condition	Comment	Retain/Remove	Root Protection Zone (m)	Bylaw Tree
131	Red Alder	<i>Alnus rubra</i>	50	27	70-79%	Normal	At top of bank. 2m to driveway asphalt. Base of stem buried in soil debris. Conflicts with proposed buildings and infrastructure.	Remove	5	Yes
132	Black Cottonwood	<i>Populus balsamifera ssp. trichocarpa</i>	105	31	70-79%	Normal	On creek edge. Large diameter tree. Dominant in stand. Epidemic shoots on stem to 8m. Risk of branch drop due to large scaffolds. Conflicts with proposed buildings and infrastructure.	Remove	8	Yes
133	Red Maple	<i>Acer rubrum</i>	33	16	60-69%	Normal	Adjacent to retaining wall on creek. 2m to driveway asphalt. Conflicts with proposed buildings and infrastructure.	Remove	3.3	Yes
146	Western Redcedar	<i>Thuja plicata</i>	22	9	80-89%	Normal	3 co-dominant stems from base and 2m. Not hazardous. Conflicts with proposed buildings and infrastructure.	Remove	2.2	No
147	Other	<i>Other</i>	51	23	50-59%	Normal	3 co-dominant stems, 2 from, 4m and 2 from 9m. Attachments are structurally sound. Conflicts with proposed buildings and infrastructure.	Remove	5.1	No
148	Red Maple	<i>Acer rubrum</i>	38	17	80-89%	Normal	Fence is 1.5m on south side, disturbed by construction; compacted and stripped soils. Conflicts with proposed buildings and infrastructure.	Remove	3.8	No
149	Western Redcedar	<i>Thuja plicata</i>	45	21	80-89%	Moderate	Co-dominant stems from 7m. Growing on fenceline. South side of the root zone past fence has been stripped and compacted. Conflicts with proposed buildings and infrastructure.	Remove	4.5	No
150	Western Redcedar	<i>Thuja plicata</i>	61	21	80-89%	Normal	4 co-dominant stems from 3m. Not hazardous. 1.5m to fence. South side of the root zone past fence has been stripped and compacted. Conflicts with proposed buildings and infrastructure.	Remove	6.1	No
135	Western Redcedar	<i>Thuja plicata</i>	19	5	30-39%	Moderate	Topped for utility lines. Moderate structure. Conflicts with proposed buildings and infrastructure.	Remove	2	Yes

Tag # (OS = Off site tree)	Common Name	Botanical Name	DBH (cm)	Ht (m)	Live Crown Ratio (%)	Overall Condition	Comment	Retain/Remove	Root Protection Zone (m)	Bylaw Tree
0638	Western Redcedar	<i>Thuja plicata</i>	34	16	90-100%	Moderate	North side has been pruned for utility lines. Driveway is 1.5m east impacting root zone. Previously topped at 8m with two co-dominant stems from the old topping point. Conflicts with proposed buildings and infrastructure.	Remove	3.4	Yes
2210	Horse - chestnut	<i>Aesculus hippocastanum</i>	27	17	70-79%	Normal	3 co-dominant stems. Growing 1m from driveway asphalt	Retain	2.7	Yes
2211	Douglas-fir	<i>Pseudotsuga menziesii</i>	45	24	70-79%	Moderate	Co-dominant stems from 10m. 1m from driveway asphalt. Prune off least dominant stem if retained	Retain	4.5	Yes
2212	Douglas-fir	<i>Pseudotsuga menziesii</i>	32	18	50-59%	Normal	1m from driveway asphalt. Crown all on north and east sides. Retain with 2211	Retain	3.2	Yes
Off site Trees										
OS 92	Bigleaf Maple	<i>Acer macrophyllum</i>	180	29	80-89%	Moderate	This is a District owned tree. There are 2 main co-dominant stems at the base that are 85cm and 95cm. North most stem spits again at 2m. Both of these north stems have decay cavities that affect estimated 40-50% of the stems integrity. There is also evidence of kretschmeria fungus between these two stems. These two stems pose a mod risk to the site. This tree should be strategically pruned to reduce the risk of failure in the north most stem. This includes reduction of end weight and removal of dead branches. Also the root protection zone of this tree should be covered in 10cm of organic mulch. A trail is proposed to be constructed within this 7m zone. This should done under arborist supervision and using structural soils.	Prune and Retain	10m except for 7m directly north of the tree to an existing slab foundation	Yes
OS 134	Western Redcedar	<i>Thuja plicata</i>	14	3	30-39%	Moderate	Topped for utility lines. Moderate structure. Conflicts with proposed buildings and infrastructure.	Remove	2	Yes
OS 136	Western Redcedar	<i>Thuja plicata</i>	16	4	50-59%	Moderate	Topped for utility lines. Moderate structure. 0.5m from driveway asphalt	Retain	2	Yes
OS 137	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	4	40-49%	Moderate	Topped for utility lines. Moderate structure. 1m from driveway asphalt	Retain	2	Yes

Tag # (OS = Off site tree)	Common Name	Botanical Name	DBH (cm)	Ht (m)	Live Crown Ratio (%)	Overall Condition	Comment	Retain/Remove	Root Protection Zone (m)	Bylaw Tree
OS 138	Western Redcedar	<i>Thuja plicata</i>	12	4	50-59%	Moderate	Topped for utility lines. Moderate structure. Conflicts with proposed buildings and infrastructure.	Remove	2	Yes
OS 139	Bigleaf Maple	<i>Acer macrophyllum</i>	13	7	40-49%	Moderate	On creek edge. Scar in stem at 2m. Phototrophic lean 35 degrees	Retain	2	Yes
OS 140	Bigleaf Maple	<i>Acer macrophyllum</i>	36	19	70-79%	Normal	On creek edge. Ivy growing up stem to 12m.	Retain	3.6	Yes
OS 141	Bigleaf Maple	<i>Acer macrophyllum</i>	43	18	60-69%	Normal	On creek edge. Scar in stem at 1.5m with minor decay. Phototrophic lean 15 degrees	Retain	4.3	Yes
OS 142	Bigleaf Maple	<i>Acer macrophyllum</i>	61	19	80-89%	Normal	Co-dominant stems 26cm and 35cm	Retain	6.1	Yes
OS 143	Red Alder	<i>Alnus rubra</i>	33	6	Dead	Dead/dying	Wildlife tree with 2 stems. Retain if there is not target.	Retain	3.3	Yes
OS 144	Western Redcedar	<i>Thuja plicata</i>	21	12	80-89%	Normal	Construction impacts to within 1m on east side. Root zone covered in debris. Expected to recover.	Retain	2.1	Yes
OS 145	Western Redcedar	<i>Thuja plicata</i>	20	7	80-89%	Normal	Construction impacts to within 1m on east side. Root zone covered in debris. Expected to recover.	Retain	2	Yes
OS 3880	Cherry/Plum	<i>Prunus sp.</i>	62	5	Dead	Dead/dying	Wildlife tree. Retain if no target. Keep 3m protection zone to ensure it remains stable	Retain	3.0	Yes
OS 3881	Western Redcedar	<i>Thuja plicata</i>	30	10	80-89%	Normal	Young healthy tree.	Retain	3	Yes
OS 3887	Red Alder	<i>Alnus rubra</i>	25	9	50-59%	Very moderate	Topped for utility lines. Root zone very disturbed from construction of culvert.	Retain	2.5	Yes
OS 0637	Western Redcedar	<i>Thuja plicata</i>	25	17	50-59%	Moderate	North side has been pruned for utility lines. Ivy is growing up the stem to 3m. Driveway is 1.5m west impacting root zone. Crown is suppressed by tree 0642. Conflicts with proposed buildings and infrastructure.	Remove	2.5	Yes
OS 0639	Horsechestnut	<i>Aesculus hippocastanum</i>	26	16	50-59%	Normal	Healthy young tree. Conflicts with proposed buildings and infrastructure.	Remove	2.6	Yes
OS 0640	Douglas-fir	<i>Pseudotsuga menziesii</i>	39	21	40-49%	Normal	North side has been pruned for utility lines. Conflicts with proposed buildings and infrastructure.	Remove	3.9	Yes

Tag # (OS = Off site tree)	Common Name	Botanical Name	DBH (cm)	Ht (m)	Live Crown Ratio (%)	Overall Condition	Comment	Retain/Remove	Root Protection Zone (m)	Bylaw Tree
OS 0641	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	17	30-39%	Moderate	North side has been pruned for utility lines. Ivy is growing up the stem to 13m. Co-dominant stems at 4m. Aerial inspection is required to confirm the condition of co-dominant stem attachments. Conflicts with proposed buildings and infrastructure.	Remove	2.5	Yes
OS 0642	Douglas-fir	<i>Pseudotsuga menziesii</i>	29	19	30-39%	Moderate	North side has been pruned for utility lines. Ivy is growing up the stem to 13m. Crook in stem at 8m. Aerial inspection is required to confirm the condition of crook. Conflicts with proposed buildings and infrastructure.	Remove	2.9	Yes
OS 0643	Red Alder	<i>Alnus rubra</i>	25	12	50-59%	Moderate	North side has been pruned for utility lines. Tree was topped at 8m. Crown is leaning 5 degrees south over the creek. Crown mostly on south side of tree. Conflicts with proposed buildings and infrastructure.	Remove	2.5	Yes
OS 0644	Red Alder	<i>Alnus rubra</i>	40	22	60-69%	Normal	North side has been pruned for utility lines. There is a crook in the main stem at 7m. Soil and rock debris are piled on the root zone. Adjacent to 1m high rock wall on the south side. Conflicts with proposed buildings and infrastructure.	Remove	4	Yes
OS1	Douglas-fir	<i>Pseudotsuga menziesii</i>	30	12	40-49%	Normal	Off site. Suppressed tree.	Retain	3	Yes
OS2	Western Redcedar	<i>Thuja plicata</i>	35	11	90-100%	Moderate	0.5m from fence. Multiple stems from 6m	Retain	3.5	Yes
OS4 (240)	Western Redcedar	<i>Thuja plicata</i>	28	14	60-69%	Normal	Off Site tree. 1m from fence. Suppressed tree. Conflicts with retaining wall along the west edge of the development site.	Remove	2.8	Yes
OS5 (241)	Bigleaf Maple	<i>Acer macrophyllum</i>	39	23	70-79%	Normal	Off Site tree. 1m from fence. At top of bank. Conflicts with retaining wall along the west edge of the development site.	Remove	3.9	Yes
OS6 (242)	Bigleaf Maple	<i>Acer macrophyllum</i>	45	24	30-39%	Normal	Off Site tree. 0.5m from fence. On creek edge. An underground tank is proposed within its root protection zone.	Remove	4.5	Yes

Tag # (OS = Off site tree)	Common Name	Botanical Name	DBH (cm)	Ht (m)	Live Crown Ratio (%)	Overall Condition	Comment	Retain/Remove	Root Protection Zone (m)	Bylaw Tree
OS7	Bigleaf Maple	<i>Acer macrophyllum</i>	32	23	60-69%	Normal	Off Site tree. 1m from fence. Remove for construction of stream.	Remove	3.2	Yes
246	Western Hemlock	<i>Tsuga heterophylla</i>	15	9	60-69%	Moderate	Off Site tree. Supressed tree. Conflicts with retaining wall along the west edge of the development site.	Remove	2.0	Yes
247	Bigleaf Maple	<i>Acer macrophyllum</i>	35	23		Moderate	Off site tree. Small Co-dom stem from 2m, compacted root zone from foot traffic. Conflicts with retaining wall along the west edge of the development site.	Remove	2.1	Yes
250	Western Hemlock	<i>Tsuga heterophylla</i>	14	9		Moderate	Off Site tree. Supressed tree. Remove for construction of stream.	Remove	2.0	Yes

Appendix 2 Tree Health and Structure Rating Criteria

The tree health and structure ratings used by Diamond Head Consulting summarize each tree based on both positive and negative attributes using five stratified categories. These ratings indicate health and structural conditions that influence a tree's ability to withstand local site disturbance during the construction process (assuming appropriate tree protection) and benefit a future urban landscape.

Excellent: Tree of possible specimen quality, unique species or size with no discernible defects.

Good: Tree has no significant structural defects or health concerns, considering its growing environment and species.

Moderate: Tree has noted health and/or minor to moderate structural defects. This tree can be retained, but may need mitigation (e.g., pruning or bracing) and monitoring post-development. A moderate tree may be suitable for retention within a stand or group, but not suitable on its own.

Poor: Tree is in serious decline from previous growth habit or stature, has multiple defined health or structural weaknesses. It is unlikely to acclimate to future site use change. This tree is not suitable for retention within striking distance of most targets.

Dying/Dead: Tree is in severe decline, has severe defects or was found to be dead.

Appendix 3 Tree Retention Value Rating Criteria

The tree retention value ratings used by Diamond Head Consulting provide guidance for tree retention planning. Each tree in an inventory is assigned to one of four stratified categories that reflect its value as a future amenity and environmental asset in a developed landscape. Tree retention value ratings take in to account the health and structure rating, species profile*, growing conditions and potential longevity assuming a tree's growing environment is not compromised from its current state.

High: Tree suitable for retention. Has a good or excellent health and structure rating. Tree is open grown, an anchor tree on the edge of a stand or dominant within a stand or group. Species of *Populus*, *Alnus* and *Betula* are excluded from this category.

Medium: Tree suitable for retention with some caveats or suitable within a group**. Tree has moderate health and structure rating, but is likely to require remedial work to mitigate minor health or structural defects. Includes trees that are recently exposed, but wind firm, and trees grown on sites with poor rooting environments that may be ameliorated.

Low: Tree has marginal suitability for retention. Health and structure rating is moderate or poor; remedial work is unlikely to be viable. Trees within striking distance of a future site developments should be removed.

Nil: Tree is unsuitable for retention. It has a dying/dead or poor health and structure rating. It is likely that the tree will not survive, or it poses and unacceptable hazard in the context of future site developments.

* The species profile is based upon mature age and height/spread of the species, adaptability to land use changes and tree species susceptibility to diseases, pathogen and insect infestation.

** Trees that are 'suitable as a group' have grown in groups or stands that have a single, closed canopy. They have not developed the necessary trunk taper, branch and root structure that would allow them to be retained individually. These trees should only be retained in groups.

Appendix 4 Risk Rating Matrices

Trees with a *probable* or *imminent* likelihood of failure, a *medium* or *high* likelihood of impacting a specified target, and a *significant* or *severe* consequence of failure have been assessed for risk and included in this report (Section 3.2). These two risk rating matrices showing the categories used to assign risk are taken without modification to their content from the International Society of Arboriculture Tree Risk Assessment Qualification Manual.

Matrix 1: Likelihood

Likelihood of Failure	Likelihood of Impacting Target			
	Very Low	Low	Medium	High
Imminent	Unlikely	Somewhat Likely	Likely	Very Likely
Probable	Unlikely	Unlikely	Somewhat Likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat Likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

Matrix 2: Risk Rating

Likelihood of Failure and Impact	Consequences of Failure			
	Negligible	Minor	Significant	Severe
Very Likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat Likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low

Appendix 5 Construction Guidelines

Tree management recommendations in this report are made under the expectation that the following guidelines for risk mitigation and proper tree protection will be adhered to during construction.

Respecting these guidelines will prevent changes to the soil and rooting conditions, contamination due to spills and waste, or physical wounding of the trees. Any plans for construction work and activities that deviate from or contradict these guidelines should be discussed with the project arborist so that mitigation measures can be implemented.

Tree Protection Zones

A Tree protection zone (TPZ) is determined using either dripline or a DBH multiplier to define a radius measured in all directions from the outside of a tree's trunk. It is typically determined according to local municipal bylaw specifications and may be modified based on professional judgement of the project arborist to accommodate species specific tolerances and site specific growing conditions. For retained trees, the TPZ and fencing indicated in this report are proposed as suitable in relation to the level of disturbance proposed on the site plan provided to the project arborist. Arborist consultation is required if any additional work beyond the scope of the plans provided is proposed near the tree. Work done in addition to the proposed impacts discussed in this report may cause the tree to decline and die.

Tree Protection Fencing: Tree protection zones (TPZs) will be protected by Tree Protection Fencing except where site features constrict roots (e.g., retaining walls or roads), where continual access is required (e.g., sidewalks), or when an acceptable encroachment into the TPZ is proposed, in which case the fencing will be modified. Tree Protection Fencing is shown on the Tree Protection Plan and, where it varies from the TPZ, the rationale is described in the inventory table in Section 3.1.

Within a TPZ, no construction activity, including materials storage, grading or landscaping, may occur without project arborist approval. Within the TPZ, the following are tree preservation guidelines based on industry standards for best practice and local municipal requirements:

- No soil disturbance or stripping.
- Maintain the natural grade.
- No storage, dumping of materials, parking, underground utilities or fires within TPZs or tree driplines.
- Any planned construction and landscaping activities affecting trees should be reviewed and approved by a consulting arborist.
- Install specially designed foundations and paving when these structures are required within TPZs.
- Route utilities around TPZs.
- Excavation within the TPZs should be supervised by a consultant arborist.
- Surface drainage should not be altered in such a way that water is directed in or out of the TPZ.
- Site drainage improvements should be designed to maintain the natural water table levels within the TPZ.

Prior to any construction activity, Tree Protection Fencing must be constructed as shown on the Tree Protection Plan. The protection barrier or temporary fencing must be at least 1.2 m in height and constructed of 2" by 4" lumber with orange plastic mesh screening. Tree Protection

Fencing must be constructed prior to tree removal, excavation or construction and remain intact for the entire duration of construction.

Tree Crown Protection and Pruning

All heavy machinery (excavators, cranes, dump trucks, etc.) working within five meters of a tree's crown should be made aware of their proximity to the tree. If there is to be a sustained period of machinery working within five meters of a tree's crown, a line of colored flags should be suspended at eye-level of the machinery operator for the length of the protected tree area. Any concerns regarding the clearance required for machinery and workers within or immediately outside tree protection zones should be referred to the project arborist so that a zone surrounding the crowns can be established or pruning measures undertaken. Any wounds incurred to protected trees during construction should be reported to the project arborist immediately.

Unsurveyed Trees

Unsurveyed trees identified by DHC in the Tree Retention Plan have been hand plotted for approximate location only using GPS coordinates and field observations. The location and ownership of unsurveyed trees cannot be confirmed without a legal survey. The property owner or project developer must ensure that all relevant on- and off-site trees are surveyed by a legally registered surveyor, whether they are identified by DHC or not.

Removal of logs from sites

Private timber marks are required to transport logs from privately-owned land in BC. It is property owner's responsibility to apply for a timber mark prior to removing any merchantable timber from the site. Additional information can be found at:

<http://www.for.gov.bc.ca/hth/private-timber-marks.htm>

Regulation of Soil Moisture and Drainage

Excavation and construction activities adjacent to TPZs can influence the availability of moisture to protected trees. This is due to a reduction in the total root mass, changes in local drainage conditions, and changes in exposure including reflected heat from adjacent hard surfaces. To mitigate these concerns the following guidelines should be followed:

- Soil moisture conditions within the tree protection zones should be monitored during hot and dry weather. When soil moisture is inadequate, supplemental irrigation should be provided that penetrates soil to the depth of the root system or a minimum of 30 cm.
- Any planned changes to surface grades within the TPZs, including the placement of mulch, should be designed so that any water will flow away from tree trunks.
- Excavations adjacent to trees can alter local soil hydrology by draining water more rapidly from TPZs more rapidly than it would prior to site changes. It is recommended that when excavating within 6 m of any tree, the site be irrigated more frequently to account for this.

Root Zone Enhancements and Fertilization

Root zone enhancements such as mulch, and fertilizer treatments may be recommended by the project arborist during any phase of the project if they deem it necessary to maintain tree health and future survival.

Paving Within and Adjacent to TPZs

If development plans propose the construction of paved areas and/or retaining walls close to TPZs, measures should be taken to minimize impacts. Construction of these features would raise concerns for proper soil aeration, drainage, irrigation and the available soil volume for adequate root growth. The following design and construction guidelines for paving and retaining walls are recommended to minimize the long-term impacts of construction on protected trees:

- Any excavation activities near or within the TPZ should be monitored by a certified arborist. Structures should be designed, and excavation activities undertaken to remove and disturb as little of the rooting zone as possible. All roots greater than 2 cm in diameter should be hand pruned by a Certified Arborist.
- The natural grade of a TPZ should be maintained. Any retaining walls should be designed at heights that maintain the existing grade within 20 cm of its current level. If the grade is altered, it should be raised not reduced in height.
- Compaction of sub grade materials can cause trees to develop shallow rooting systems. This can contribute to long-term pavement damage as roots grow. Minimizing the compaction of subgrade materials by using structural soils or other engineered solutions and increasing the strength of the pavement reduces reliance on the sub-grade for strength.
- If it is not possible to minimize the compaction of sub-grade materials, subsurface barriers should be considered to help direct roots downward into the soil and prevent them from growing directly under the paved surfaces.

Plantings within TPZs

Any plans to landscape the ground within the TPZ should implement measures to minimize negative impacts on the above or below ground parts of a tree. Existing grass layer in TPZs should not be stripped because this will damage surface tree roots. Grass layer should be covered with mulch at the start of the project, which will gradually kill the grass while moderating soil moisture and temperatures. Topsoil should be mixed with the mulch prior to planting of shrubs, but new topsoil layer should not be greater than 20 cm deep on top of the original grade. Planting should take place within the newly placed topsoil mixture and should not disturb the original rooting zone of the trees. A two-meter radius around the base of each tree should be left unplanted and covered in mulch; a tree's root collar should remain free from any amendments that raise the surface grade.

Monitoring during construction

Ongoing monitoring by a consultant arborist should occur for the duration of a development project. Site visits should be more frequent during activities that are higher risk, including the first stages of construction when excavation occurs adjacent to the trees. Site visits will ensure contractors are respecting the recommended tree protection measures and will allow the arborist to identify any new concerns that may arise.

During each site visit the following measures will be assessed and reported on by a consulting arborist:

- Health and condition of protected trees, including damage to branches, trunks and roots that may have resulted from construction activities, as will the health of. Recommendations for remediation will follow.
- Integrity of the TPZ and fencing.
- Changes to TPZ conditions including overall maintenance, parking on roots, and storing or dumping of materials within TPZ. If failures to maintain and respect the TPZ are observed, suggestions will be made to ensure tree protection measures are remediated and upheld.
- Review and confirmation of recommended tree maintenance including root pruning, irrigation, mulching and branch pruning.
- Changes to soil moisture levels and drainage patterns; and
- Factors that may be detrimentally impact the trees.

Appendix 6 Report Assumptions and Limiting Conditions

- 1) Unless expressly set out in this report or these Assumptions and Limiting Conditions, Diamond Head Consulting Ltd. ("Diamond Head") makes no guarantee, representation or warranty (express or implied) regarding this report, its findings, conclusions or recommendations contained herein, or the work referred to herein.
- 2) The work undertaken in connection with this report and preparation of this report have been conducted by Diamond Head for the "Client" as stated in the report above. It is intended for the sole and exclusive use by the Client for the purpose(s) set out in this report. Any use of, reliance on or decisions made based on this report by any person other than the Client, or by the Client for any purpose other than the purpose(s) set out in this report, is the sole responsibility of, and at the sole risk of, such other person or the Client, as the case may be. Diamond Head accepts no liability or responsibility whatsoever for any losses, expenses, damages, fines, penalties or other harm (including without limitation financial or consequential effects on transactions or property values, and economic loss) that may be suffered or incurred by any person as a result of the use of or reliance on this report or the work referred to herein. The copying, distribution or publication of this report (except for the internal use of the Client) without the express written permission of Diamond Head (which consent may be withheld in Diamond Head's sole discretion) is prohibited. Diamond Head retains ownership of this report and all documents related thereto both generally and as instruments of professional service.
- 3) The findings, conclusions and recommendations made in this report reflect Diamond Head's best professional judgment given the information available at the time of preparation. This report has been prepared in a manner consistent with the level of care and skill normally exercised by arborists currently practicing under similar conditions in a similar geographic area and for specific application to the trees subject to this report on the date of this report. Except as expressly stated in this report, the findings, conclusions and recommendations it sets out are valid for the day on which the assessment leading to such findings, conclusions and recommendations was conducted. If generally accepted assessment techniques or prevailing professional standards and best practices change at a future date, modifications to the findings, conclusions, and recommendations in this report may be necessary. Diamond Head expressly excludes any duty to provide any such modification if generally accepted assessment techniques and prevailing professional standards and best practices change.
- 4) Conditions affecting the trees subject to this report (the "Conditions", include without limitation, structural defects, scars, decay, fungal fruiting bodies, evidence of insect attack, discolored foliage, condition of root structures, the degree and direction of lean, the general condition of the tree(s) and the surrounding site, and the proximity of property and people) other than those expressly addressed in this report may exist. Unless otherwise stated information contained in this report covers only those Conditions and trees at the time of inspection. The inspection is limited to visual examination of such Conditions and trees without dissection, excavation, probing or coring. While every effort has been made to ensure that any trees recommended for retention are both healthy and safe, no guarantees, representations or warranties are made (express or implied) that those trees will not be subject to structural failure or decline. The Client acknowledges that it is both professionally

and practically impossible to predict with absolute certainty the behavior of any single tree, or groups of trees, in all given circumstances. Inevitably, a standing tree will always pose some risk. Most trees have the potential for failure and this risk can only be eliminated if the risk is removed. If Conditions change or if additional information becomes available at a future date, modifications to the findings, conclusions, and recommendations in this report may be necessary. Diamond Head expressly excludes any duty to provide any such modification of Conditions change or additional information becomes available.

- 5) Nothing in this report is intended to constitute or provide a legal opinion and Diamond Head expressly disclaims any responsibility for matters legal in nature (including, without limitation, matters relating to title and ownership of real or personal property and matters relating to cultural and heritage values). Diamond Head makes no guarantee, representation or warranty (express or implied) as to the requirements of or compliance with applicable laws, rules, regulations, or policies established by federal, provincial, local government or First Nations bodies (collectively, "Government Bodies") or as to the availability of licenses, permits or authorizations of any Government Body. Revisions to any regulatory standards (including bylaws, policies, guidelines and any similar directions of a Government Bodies in effect from time to time) referred to in this report may be expected over time. As a result, modifications to the findings, conclusions and recommendations in this report may be necessary. Diamond Head expressly excludes any duty to provide any such modification if any such regulatory standard is revised.
- 6) Diamond Head shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
- 7) In preparing this report, Diamond Head has relied in good faith on information provided by certain persons, Government Bodies, government registries and agents and representatives of each of the foregoing, and Diamond Head assumes that such information is true, correct and accurate in all material respects. Diamond Head accepts no responsibility for any deficiency, misinterpretations or fraudulent acts of or information provided by such persons, bodies, registries, agents and representatives.
- 8) Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
- 9) Loss or alteration of any part of this report invalidates the entire report.



June 26, 2017

Reference No. VAN-0213089-A0

Anthem Maplewoods Development LP
#300 - 550 Burrard Street
Vancouver, BC V6C 2B5

Email: sforrest@anthemproperties.com

Attention: Steve Forrest, Vice President, Development

**Re: Geotechnical Exploration Report
Maplewood West Properties
2049, 2051, 2053, 2055, 2055 Heritage Park Lane, North Vancouver, BC**

Dear Mr. Forrest:

1.0 INTRODUCTION

In accordance with your request, the following provides geotechnical recommendations pertaining to site preparation and foundation design for the proposed development to be located at the above-mentioned site.

The geotechnical recommendations summarized herein are based on field work completed by **exp** Services Inc. (**exp**). The scope of our services was limited to the evaluation of geotechnical characteristics of the site, and does not address any environmental issues relating to soil, groundwater, or proposed construction materials. Should any changes be made to the layout, elevations, or general nature of the project, **exp** should be notified to review and modify the recommendations to reflect those changes, as appropriate.

2.0 SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The development site is located in North Vancouver, BC (Figure 1) to the northwest of Maplewood Farm, and consists of five separate residential lots with current civic address of 2049, 2051, 2053, 2055, 2055 Heritage Park Lane. The site is irregular shape with a total plan area of approximately 4,299.6 m².

A small shallow (less than 1m deep) stream traverses through the north portion of 2051 and flows towards the southwest. During the survey completed on December 14, 2012, the recorded water level of the stream was at El. 7.0m. Generally, the ground surface slopes to the west from an approximate elevation of 9.7m geodetic at the central east portion to elevation 8.3m geodetic at the northern west portion of the site. Along the west side of 2055, a sloped low area with surface geodetic elevations varying from about 9m at the north end to about 7.5m at the south end appeared to have been created by the property owner and surfaced with 19mm x 10mm clear crushed gravel.

We understand that the proposed construction would likely be similar to Maplewood North which consists of 3-storey, wood-framed, residential townhouse/apartment buildings over one level of

underground parking. The parking structure floor slab could be in the range of 6.7m to 8m geodetic elevations.

Based on the Northwest Hydraulic Consultants (NHC) report dated April 25, 2013 completed for the Maplewood North development, the 1:50 year flood elevation is 7.6m geodetic, and that the 1:200 year flood construction level (FCL) is in the range of 8.3m to 9.0m geodetic. Note that these flood levels were not provided specifically for this site; however, District of North Vancouver has reviewed and approved these flood levels may be used for the development.

3.0 SUBSURFACE EXPLORATION

The subsurface exploration of the site was completed on June 10 and 11, 2013 using a Sonic Drill Rig combined with Standard Penetration Tests (SPT) at discrete depths. A total of three (3) sonic holes were completed within accessible areas and the test hole locations are shown on attached Figure 1 Testhole Location Plan.

The test holes were located, logged, and sampled in the field by a representative from **exp**. The approximate testhole locations are shown on attached Figure 1.

Subsequently, two standpipe piezometers were installed on November 6, 2015, after the demolition of the existing building. The locations of the standpipe piezometers are also shown on the attached Figure 1, denoted as MW15-1 and MW15-2. The standpipes extended to depths of about 2.5m at MW15-1 and 3.2m at MW15-2, respectively. The ground surface elevations were estimated using survey information provided to us prior to demolition.

4.0 GENERAL SUBSURFACE CONDITIONS

4.1 Soil Conditions

The results of the subsurface exploration are summarized on the attached testhole logs. A generalized subsoil profile based on the testholes is provided below. Refer to the testhole logs for detailed subsurface conditions encountered.

Because of the nature of the exploratory work below ground, extrapolation of subsurface conditions between and beyond the test holes is necessary. It should be noted that differing subsurface conditions might be present due to the random nature of deposition and the alteration of topography by past grading and/or filling. The nature and extent of any variations between the field explorations may not become fully evident until construction. If variations are observed at that time, it may be necessary to re-evaluate specific recommendations in this report and make appropriate changes.

In general, the soil conditions at the site consist of Fill of up to 0.5m overlying silty sand to sand with some silt overlying a coarser grained sand to sand & gravel with cobbles. Note, however, that a layer of soft soils was found 'sandwiched' between the fill and the silty sand at BH13-01. All three test holes encountered a layer of dense/hard till-like soils. Depth to top of till-like soils varied from about 3.5m to 6.5m (geodetic elevations of 6.3m to 1.6m).

In general, the encountered soil conditions are consistent with the published surficial geological maps for the area which suggests the sand and gravel layer overlying till-like soils.

4.2 Groundwater

As discussed earlier, to assess the groundwater variations within the site, two monitoring wells were installed at the locations shown on Figure 1. Table 1 below provides a summary of the groundwater monitoring readings taken to date. The groundwater information from Maplewood North development was also included for comparison purposes.

Table 1 Summary of Groundwater Monitoring

Site	Piezometer / Test Hole Location	Date of Reading	Depth (m)	Approx. Ground Surface Elevation (m)	Groundwater Elevation (m)
Maplewood West	MW15-1 (near BH13-03)	2015-Dec-18	1.2	7.5*	6.3
		2016-Jan-18	1.5	7.5*	6
		2016-Feb-18	1.1	7.5*	6.4
		2016-Mar-21	1.6	7.5*	5.9
		2016-Apr-18	0.9	7.5*	6.6
	MW15-2 (near BH13-02)	2015-Dec-18	1.3	7.5*	6.2
		2016-Jan-18	1.6	7.5*	5.9
		2016-Feb-18	1.2	7.5*	6.3
		2016-Mar-21	1.7	7.5*	5.8
		2016-Apr-18	1.0	7.5*	6.5
Maplewood North (North)	BH13-01	2013-Jun-12	3.8	9.8	6
	BH12-2	2012-Feb-09	2.4	9.8	7.4
		2013-Aug-07	3.2	9.8	6.6
		2013-Nov-12	2.67	9.87	7.2
	BH13-01	2013-Jun-07	3.8	9.8	6.0
		2013-Aug-07	4.2	9.8	5.6
		2013-Nov-12	3.72	9.8 (previous elevation)	6.1
	TP13-01	2013-Nov-12	Dry up to depth of 2.9m	9.58	**
	TP13-02	2013-Nov-12	3.5	9.85	6.35
	TP13-03	2013-Nov-12	4.75	9.04	4.29

* The ground surface elevations were estimated using survey information provided prior to the demolition works.

** no groundwater noted in the test pits during exploration.

Review of the available data indicated that groundwater levels at MW15-1 and MW15-2 were about elevations of EL. 5.8m to EL. 6.6m geodetic. The measured groundwater elevations were generally similar to the groundwater level observed from test hole BH13-01, and those elevations

from Maplewood North site. Note that the groundwater levels would vary in response to the time of the year, variations in rainfall, and nearby land use.

5.0 DISCUSSIONS AND RECOMMENDATIONS

5.1 General

Based on experience at the Maplewood North development and results of the field exploration, design elevation of top of the proposed parkade floor slab will be influenced by several factors:

1. **Bearing Support:** There was a near surface soft silt layer found in BH13-01 extending down to about elevation 8m geodetic. If the parkade is established below elevation 8m, the soft silt will likely be removed and, hence, not likely a major issue. Conventional footings founded on the compact to dense sand or sand and gravel is considered feasible.
2. **Groundwater:** Based on exp's groundwater level monitoring data presented in Table 1 above, the groundwater levels at MW15-1 and MW15-2 were ranging between elevations of EL. 5.8m and EL. 6.6m, geodetic. The piezometer installed at BH13-01 showed a groundwater level at about 6m elevation. The unlined pool (with the bottom elevation at about 7.3m geodetic) at the back of 2055 had no water in it. Also, the lowest part of the site at the southwest corner of 2055 was at about elevation 7.47m geodetic and showed no surface ponding. The piezometer at the north end of Maplewood North property showed groundwater level at about elevation 7.4m geodetic. Based on the available data, it appears that if the parkade excavation stays above an elevation of roughly 7m, groundwater control during construction could be handled by conventional sump and pumps if the excavation proceeds during the summer months.
3. **Flood Design:** As discussed earlier, NCH report dated April 25, 2013 from the adjacent site indicate that the 1:50 year flood elevation is 7.6m geodetic, and that the 1:200 year flood construction level (FCL) is in the range of 8.3m to 9.0m geodetic. If the parkade is set below design flood elevations, the parkade should be tanked and designed to resist the buoyancy forces and hydrostatic pressure up against the parkade walls. Where there is not sufficient buoyancy resistance from the dead weight of the structure, the parkade should be designed to allow water to enter the parkade when the flood/groundwater level reaches a certain threshold elevation. Alternatively, tie-down anchors can be used to resist the uplift forces.

The proposed parkade slab elevation will depend on the factors as discussed above; however, other factors, such as, economics and functionality will also govern. If tanking of the parkade foundation is not desired, the proposed parkade should be established at an elevation of 7.6m geodetic or higher. In addition, a network of under-slab and perimeter drainage pipes should be installed and connected to a pump system. This system would help to keep the water level down in the event that the water level rises to higher than the underside of the parkade slab. However, the drainage system will not likely be capable of drawing water levels sufficiently down in event of a flood level with a return period of 1:50 years or higher; see Item 3 above regarding Flood Design.

To allow for the parkade floor slab to be established at as high as possible, raising the exterior grades around the proposed parkade could be considered. Based on the current test holes, soft compressible soils were not present at depth. As such, raising the site grade around the perimeter of the parkade could be done without significant adverse impacts on the building. Note that localized soft compressible zones may exist, and, hence, as a precautionary measure filling of the

perimeter should be done as early as possible and monitored for potential settlement. It is likely that most of the excavated material from the excavation could be used as site grade fill. Note, however, that the soft silt such as those encountered at BH13-01 should not be used unless some form of aeration (i.e., drying) duration is allowed. Where required, retaining wall could be used at the site perimeters to allow site grade increase without encroachment onto the neighboring properties.

The following sections outline recommendations for subgrade preparation, foundation design and drainage.

5.2 Subgrade Preparation & Excavation

Site preparation should include removal of all existing structures and utilities from the site followed by stripping all remaining topsoil, vegetation, existing fills and soft silt to expose the native compact to dense soils below the building area.

It is anticipated that conventional excavation equipment could be used to excavate the soils encountered within the test holes completed at the site. Large boulders could be encountered which may require splitting and/or blasting for removal. Some groundwater flow should be expected and should be controlled by appropriate means and methods. Pumping from sumps and ditches may be feasible provided that the basement excavation does not extend significantly below the water table.

The exposed subgrade should be reviewed by the Geotechnical Engineer. Any soft/disturbed soils identified during the subgrade review should be over-excavated and replaced with compacted structural fill for slab areas or concrete for footing areas (or the footings could be lowered). Prior to placement of footings, the subgrade should be compacted to at least 95 percent of the Modified Proctor Dry Density within the upper 0.3m.

Temporary excavation slopes should be planned no steeper than 1H:1V (horizontal: vertical) within the compact to dense sand and gravel layer. Flatter slopes may be necessary where excavation slopes will remain for an extended period of time or where groundwater seepage is encountered.

A detailed excavation design and drawings can be provided by **exp** if required.

5.3 Structural Fill

Structural fill used to restore or increase grade below slab areas should consist of sand and gravel or sand with less than about 5 percent fines content (percent passing the No. 200 sieve) placed in lifts with each lift compacted to at least 95 percent of the Modified Proctor Dry Density. Compaction testing should be completed on all structural fill to confirm that the compaction requirements have been met.

The final selection of structural fill type by the contractor should be based on weather conditions and the ability for the material to meet compaction requirements at the time of placement. This may require using a cleaner material for wet weather construction. It is possible that some of the excavated material could be used as structural fill, subject to review by the Geotechnical Engineer during construction.

5.4 Foundation Design

Conventional spread and strip footings may be used for support of the proposed building. We recommend a maximum allowable bearing pressure of 150 kPa. be used in design for the proposed building for footings placed on the dense to very dense sand and gravel. Allowable bearing pressures may be increased by 33 percent for seismic and wind loads. The factored ultimate bearing resistance may be taken as 1.5 times the allowable bearing pressure.

Strip footings should be at least 0.45m in width with pad footings having a minimum dimension of 0.9m. For confinement and frost protection, all footings should be located a minimum of 0.45m below the slab-on-grade elevation or the adjacent exterior grade (whichever is lower).

Where footings must be stepped, they should be positioned to lie below a line which rises at a slope of 2H: 1V from the toe of the lower excavation. In addition, utilities and other below grade installations should be set back from the gradient line. A copy of the mechanical drawings should be forwarded to **exp** to allow review of the details of any deep sumps positioned close to footing areas.

Depending on weather conditions, it may be necessary to protect the subgrade at footing locations by delaying detailed excavation of footings until immediately prior to placement of forms and concrete.

Field reviews should be carried out by the Geotechnical Engineer following subgrade preparation and prior to placement of structural fills, forms, or concrete to confirm the soil bearing pressure used for design, and that the subgrade preparation is adequate.

5.4.1 Seismic Foundation Design

The design should be completed following the recommendations of the 2012 British Columbia Building Code. The following seismic data, based on interpolation from the Natural Resources Canada web page, are applicable:

Near Surface Firm Ground Response Spectra for Firm Ground

Period (seconds)	S _a (g)
0.2	0.91
0.5	0.62
1.0	0.33
2.0	0.170
PGA	0.45

Based on the exploration completed, **exp** recommends the site be classified as Site Class D in accordance with Table 4.1.8.4.A. The acceleration and velocity based site coefficients are as follows: Fa = 1.1 (based on Table 4.1.8.4.B) and Fv = 1.17 (Table 4.1.8.4.C). The Firm Ground Peak Ground Acceleration (PGA) for this site is 0.45g.

Based on the testhole results and on published geological information, it is possible that limited lenses and layers of saturated sand or sand and gravel could occur at depth. Due to the coarse nature of the deposit and the localized nature of these lenses, impact on the support and performance of the proposed building is expected to be minimal. For design purposes, vertical displacements of 50 to 75mm and horizontal displacements of 0.25 to 0.30m should be considered possible during the design earthquake.

5.5 Slab-on-Grade, Underslab Drainage, and Perimeter Drainage

If a perimeter and underslab drainage system is required (i.e., not using a tanked foundation option), a 150mm (6 inches) diameter perforated PVC pipe should be placed along the exterior perimeter of the parkade and at all steps in the structure. The drain should be surrounded by a minimum 150mm (6") thick layer of clear crushed gravel in turn covered by a 150mm (6") thick layer of birdseye gravel. The invert of the drain should be placed a minimum of 150mm (6 inches) below the underside of the slab-on-grade floor. The underslab drainage system should consist of minimum 150mm (6") diameter perforated PVC pipes placed at 10m on-center and should be installed within the clear crushed underslab drainage layer, with a minimum 50mm of clear crushed gravel located below the invert of the drains. It is recommended that the roof drainage system be separate from the perimeter footing drain system. The drainage system should be drained by gravity to the city storms or a sump pump.

Elevator pits and other below grade facilities should be designed to be waterproof.

Prior to slab-on-grade construction, the subgrade should be prepared and reviewed as described above. All fill placed below the slab-on-grade should be placed as structural fill with each lift compacted to at least 95 percent of the modified Proctor maximum dry density. In-place density testing as the fill is placed will be required.

It is recommended that floor slabs be underlain with a minimum 100mm thick layer of 19mm x 10mm clear crushed gravel compacted with vibratory equipment to a dense condition. This drainage layer should be hydraulically connected to the underslab drains. Minimum 6mil polyethylene sheeting should be provided beneath the slab-on-grade to reduce dampness in moisture sensitive areas.

5.6 Perimeter Backfill

The foundation walls of the parkade should be designed for lateral pressures, which would be applied by the backfill placed against the outside of the wall and possible traffic surcharges. The design lateral earth pressure may vary somewhat depending on the method of construction, the nature of the backfill soils and, in particular, on the amount of compaction of the backfill against the wall. Free draining granular fill should be used so no build-up of hydrostatic pressure occurs on the outside of the wall. The attached Figure 2 provides recommendations for lateral pressures on walls. Due to the potential of flooding, hydrostatic pressure should be included in the design which is in addition to that shown in Figure 2. The hydrostatic pressure should be combined with the static condition only, not seismic.

If backfill is to be placed in a V-shaped cut between the building and a temporary excavation slope face where the use of conventional compaction equipment is feasible, the backfill materials should consist of free-draining materials such as clean sand or sand and gravel containing less than 5 percent fines (passing the No. 200 sieve). The granular backfill should be compacted in maximum

200mm (8 inches) lifts using vibratory equipment to achieve at least 95 percent of the Modified Proctor Maximum Dry Density.

Where the backfill area is confined and the use of conventional compaction equipment is not feasible, birdseye gravel should be used as backfill. The birdseye gravel should be placed in lifts and compacted using a concrete vibrator and water.

5.7 Geotechnical Field Review

The following geotechnical field reviews will be required to document that the recommendations of this geotechnical report are followed:

- confirm adequacy of stripped/excavated subgrade in structural areas;
- review of excavation slopes and/or excavation shoring;
- density testing of any required structural and perimeter fill including sub-slab fill;
- review of excavated footing subgrade to confirm allowable bearing pressure; and,
- review of perimeter backfill and perimeter and underslab drains.

6.0 CLOSURE

Please be advised that the contents of this report are based on **exp**'s understanding of the proposed development as described in this report. If during construction the soil conditions are noted to be different than those described in this report, **exp** should be notified promptly and the recommendations on the geotechnical aspects of the proposed development reviewed and adjusted accordingly. Also note that this report was prepared for the exclusive use of Anthem Properties and their designated consultants and agents, and may not be used by other parties without written consent of **exp** Services Inc. Following development of project drawings, they should be forwarded to **exp** for our review and to determine if the recommendations contained within this report require modification.

Exp's "Interpretation & Use of Study and Report" is attached. These instructions form an integral part of this report and should be included with any copies of this report.

exp Services Inc.

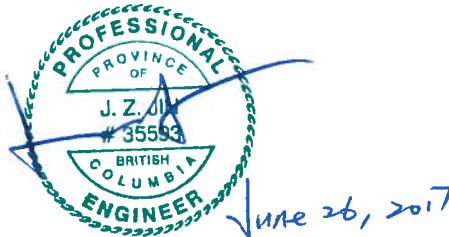
Anthem Maplewoods Development LP - Geotechnical Exploration Report
Maplewood West Properties, North Vancouver, BC
Reference No.: VAN-00213089-A0
June 26, 2017

If you have any questions regarding the contents of this report, please call the undersigned.

Sincerely,

exp Services Inc.

Reviewed by:



Jianzhong (James) Jin, M.Eng., P.Eng.
Geotechnical Engineer

Kai-Sing Hui, P.Eng.
Manager, Geotechnical Discipline

Enclosures: Interpretation & Use of Study and Report
Figure 1 – Testhole Location Plan
Figure 2 – Lateral Pressure for Basement Wall Design
Borehole Logs – BH13-01 to -03

cc: Brennan Finley, Development Coordinator, Anthem Properties,
email: BFinley@anthemproperties.com

KSH:ksh

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INTERPRETATION & USE OF STUDY AND REPORT

1. STANDARD OF CARE

This study and Report have been prepared in accordance with generally accepted engineering consulting practices in this area. No other warranty, expressed or implied, is made. Engineering studies and reports do not include environmental consulting unless specifically stated in the engineering report.

2. COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment are a part of the Report which is of a summary nature and is not intended to stand alone without reference to the instructions given to us by the Client, communications between us and the Client, and to any other reports, writings, proposals or documents prepared by us for the Client relative to the specific site described herein, all of which constitute the Report.

IN ORDER TO PROPERLY UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. WE CANNOT BE RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT.

3. BASIS OF THE REPORT

The Report has been prepared for the specific site, development, building, design or building assessment objectives and purpose that were described to us by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the document are only valid to the extent that there has been no material alteration to or variation from any of the said descriptions provided to us unless we are specifically requested by the Client to review and revise the Report in light of such alteration or variation.

4. USE OF THE REPORT

The information and opinions expressed in the Report, or any document forming the Report, are for the sole benefit of the Client. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION THEREOF WITHOUT OUR WRITTEN CONSENT. WE WILL CONSENT TO ANY REASONABLE REQUEST BY THE CLIENT TO APPROVE THE USE OF THIS REPORT BY OTHER PARTIES AS "APPROVED USERS". The contents of the Report remain our copyright property and we authorize only the Client and Approved Users to make copies of the Report only in such quantities as are reasonably necessary for the use of the Report by those parties. The Client and Approved Users may not give, lend, sell or otherwise make the Report, or any portion thereof, available to any party without our written permission. Any use which a third party makes of the Report, or any portion of the Report, are the sole responsibility of such third parties. We accept no responsibility for damages suffered by any third party resulting from unauthorised use of the Report.

5. INTERPRETATION OF THE REPORT

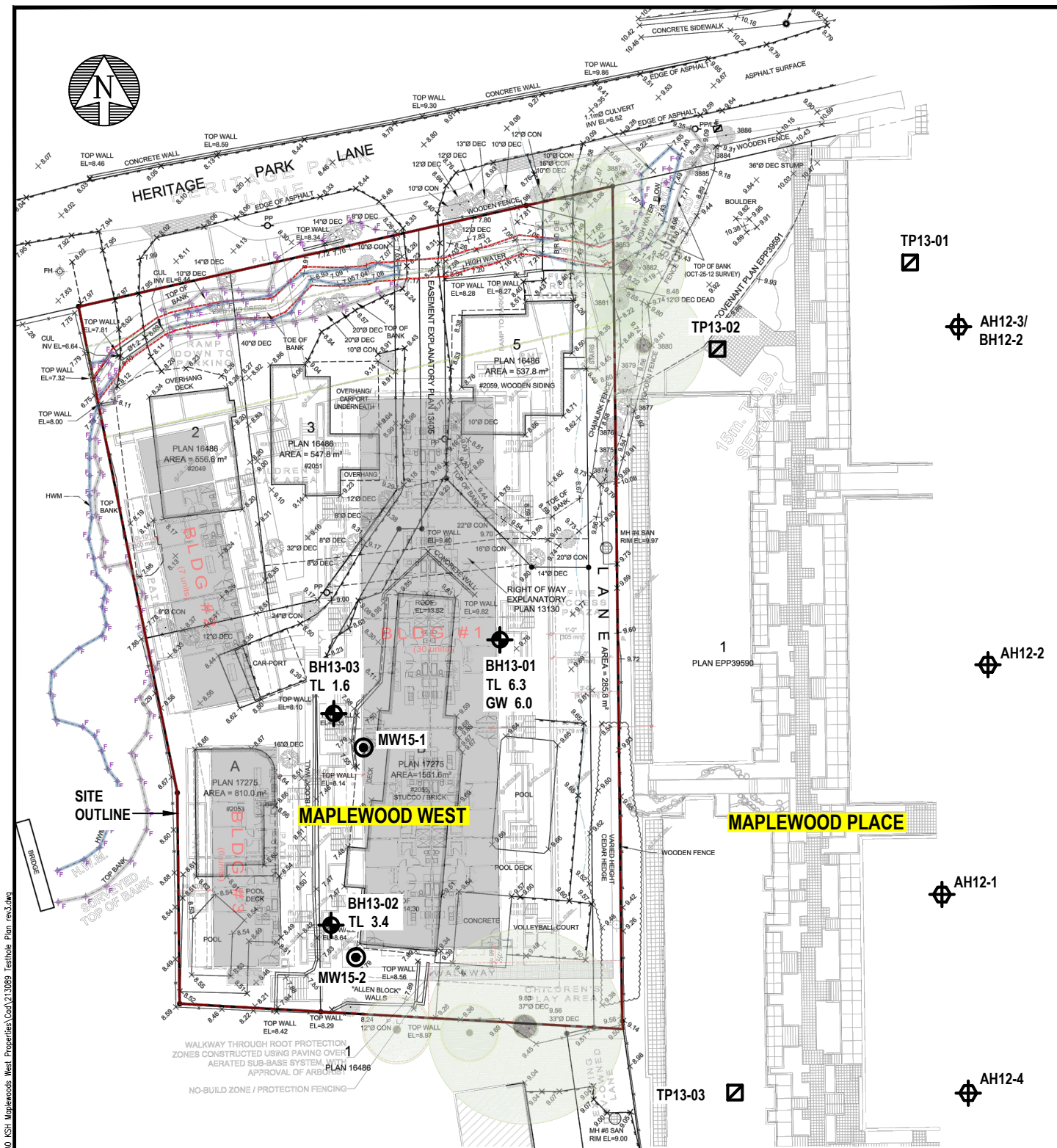
- a. Nature and Exactness of Descriptions: Classification and identification of soils, rocks, geological units, contaminant materials, building envelopment assessments, and engineering estimates have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors are judgmental in nature and even comprehensive sampling and testing programs, implemented with the appropriate equipment by experienced personnel, may fail to locate some conditions. All investigations, or building envelope descriptions, utilizing the standards of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarising such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and all persons making use of such documents or records should be aware of, and accept, this risk. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. Where special concerns exist, or the Client has special considerations or requirements, the Client should disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.
- b. Reliance on Provided information: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to us. We have relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, we cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in the report as a result of misstatements, omissions, misrepresentations or fraudulent acts of persons providing information.
- c. To avoid misunderstandings, **exp** Services Inc. (**exp**) should be retained to work with the other design professionals to explain relevant engineering findings and to review their plans, drawings, and specifications relative to engineering issues pertaining to consulting services provided by **exp**. Further, **exp** should be retained to provide field reviews during the construction, consistent with building codes guidelines and generally accepted practices. Where applicable, the field services recommended for the project are the minimum necessary to ascertain that the Contractor's work is being carried out in general conformity with **exp's** recommendations. Any reduction from the level of services normally recommended will result in **exp** providing qualified opinions regarding adequacy of the work.

6.0 ALTERNATE REPORT FORMAT

When **exp** submits both electronic file and hard copies of reports, drawings and other documents and deliverables (**exp's** instruments of professional service), the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by **exp** shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancy, the hard copy versions shall govern over the electronic versions. Furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed version archived by **exp** shall be deemed to be the overall original for the Project.

The Client agrees that both electronic file and hard copy versions of **exp's** instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except **exp**. The Client warrants that **exp's** instruments of professional service will be used only and exactly as submitted by **exp**.

The Client recognizes and agrees that electronic files submitted by **exp** have been prepared and submitted using specific software and hardware systems. **Exp** makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.



LEGEND



MW15-1 MONITORING WELL (2015)



BH13-01 TL 6.3 GW 6.0 TESTHOLE LOCATION (2013), APPROX. TOP OF TILL-LIKE ELEVATION (m), APPROX. GROUNDWATER ELEVATION (m), APPROX.



TP13-03 TEST PIT LOCATION (2013), APPROX.



AH12-2 AUGERHOLE/BOREHOLE LOCATION (2012), APPROX.

REFERENCE SITE PLAN FROM EKISTICS ARCHITECTURE, 2017-05-18, ISSURE 8 AND TOPO PLAN FROM BENNETT LAND SURVEYING LTD. DATED 2014-05-23

0 1:600 25

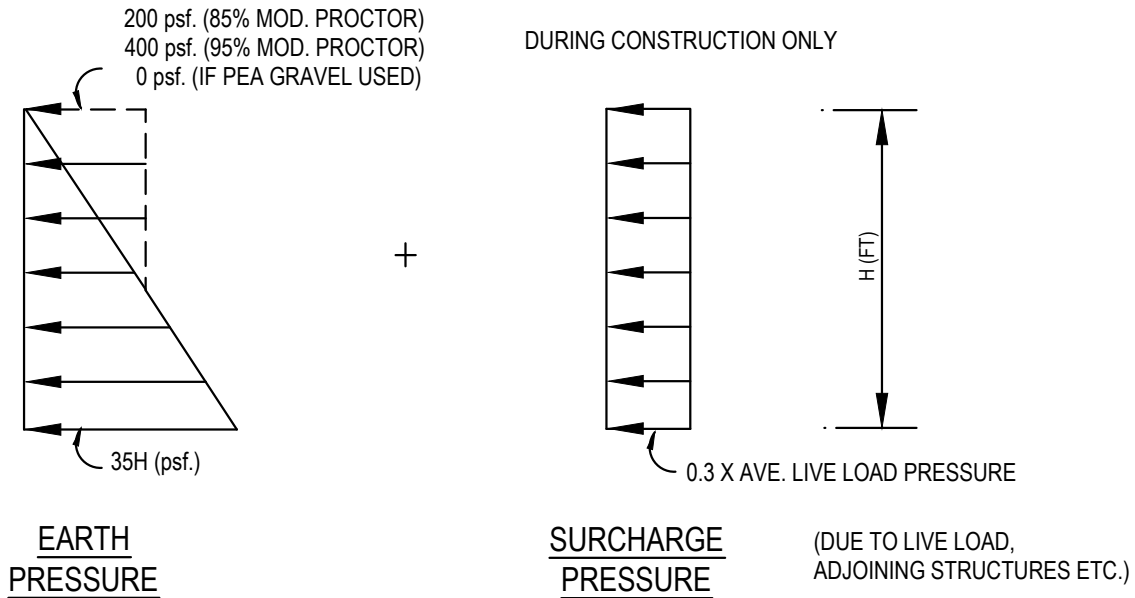


CLIENT
Anthem Maplewoods Development LP
PROJECT
Maplewood West Townhomes-2049, 2051, 2053, 2055 & 2059 Heritage Park Lane, North Vancouver District, B.C.
PROJECT NO.
VAN-00213089-A0
DFT. MG
DSGN. DGS
CHK. KSH

TITLE:
Testhole Location Plan
DATE
2017-06-21
SCALE:
1:600
DWG NO.
Figure 1

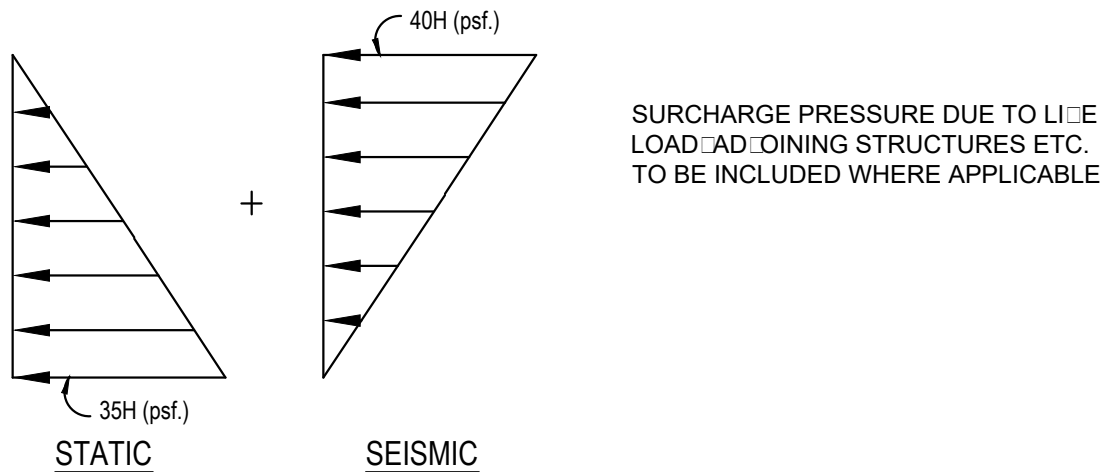
LATERAL LOADINGS ON FOUNDATION WALLS

CASE 1: STATIC CONDITIONS



□ DUE TO POTENTIAL OF FLOODING □ THE FOUNDATION WALLS SHOULD BE DESIGNED FOR H₂OSTATIC PRESSURE □ THIS WOULD BE ADDITIONAL TO THE EARTH PRESSURE.

CASE 2: STATIC + SEISMIC (WHERE APPLICABLE)



ASSUMPTIONS:

- TOP OF WALL FREE TO ROTATE 0.2% OF WALL HEIGHT
- LEVEL FREE DRAINING BACKFILL MATERIAL
- NO WATER PRESSURE BUILD-UP BEHIND WALL
- HORIZONTAL GROUND ACCELERATION = 0.45g
- BACKFILL UNIT WEIGHT = 120 pcf.

NOTE □ ALL LOADS ARE UNFACTORED.



CLIENT Anthem Maplewoods Development LP	
PROJECT Maplewood West Townhomes-2049, 2051, 2053, 2055 & 2059 Heritage Park Lane, North Vancouver District, B.C.	
PROJECT NO. VAN-00213089-A0	DFTR. MG
DSGN. DGS	CHK. KSH

TITLE: Lateral Pressure for Basement Wall Design		
DATE 2017-06-21	SCALE: NTS	DWG NO. Figure 2



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RECORD OF BOREHOLE : BH13-01

PAGE 1 OF 1

CLIENT Anthem Maplegroves Development LP

PROJECT NUMBER VAN-00213089-A0

DRILLING DATE 13-06-10 to 13-06-10

DRILLING CONTRACTOR Sonic Drilling Ltd.

DRILLING METHOD Sonic

LOGGED BY DGS CHECKED BY KSH

PROJECT NAME Maplegroves West Properties

PROJECT LOCATION 2051, 2053 and 2055 Mount Seymour Parkway, North Vancouver, BC

BOREHOLE LOCATION N: 5461905 E: 498649

ELEVATION 9.80 m

GROUND WATER LEVELS: ▽ AT TIME OF DRILLING ---

▽ 36hrs AFTER DRILLING 3.8m

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. DEPTH (m)	SAMPLES			SPT N VALUE BLOWS/0.3m	FINES CONTENT (%)	WELL DIAGRAM						
				NUMBER	TYPE	RECOVERY %	▲	□							
							20	40		60	80	20	40	60	80
							DYNAMIC CONE BLOWS/0.3m	PLASTIC & LIQUID LIMIT MOISTURE CONTENT							
						PL	MC	LL							
							20	40	60	80					
		ASPHALT, 50mm	9.7												
		GRAVEL, some sand, trace silt, grey-light brown-black, damp, (compact) gravel is large and angular (FILL)	0.1	S1	SC				11						
		SAND, light brown, damp, (compact) well graded (FILL)	0.2												
		SILT, some sand, trace gravel, wood remains, roots and rootlets, dark brown, dry, (very soft to soft)	0.3												
		-red rust staining at 1.5m	0.5												
		-black 25mm seam at interface		S2	SC				29						
			8.0	SPT1	SPT	67	▲	1							
		SILTY SAND to SILT & SAND, occasional root remnants, light brown with rust seams, damp, (compact to dense) sand is fine grained	1.8												
				S3	SC				32						
			6.9												
		SAND, trace silt, cobbles, light brown, moist, (compact to dense) coarse grained	2.9												
		-seam of fine sand at 3m		SPT2	SPT										
		SPT2 - 9/16 blows for 50mm	6.3	S4	SC				10						
		-grading to gravel by 3.5m	3.5	S5	SC				8						
		SILT, some sand, some gravel, occasional small cobbles, light brownish grey, occasional rust stains, dry, (hard) (TILL-LIKE)													
		-apparent layers of water bearing sand, gravel and cobbles encountered from 3.5m to EOH		S6	SC				5						
		SPT3 - 27 blows/bouncing		S7	SC				8						
				SPT3	SPT										
				S8	SC				8						
		-grading to SANDY SILT, some gravel by 6.1m													
				S9	SC				7						
		SPT4 - practical refusal		SPT4	SPT										
				S10	SC				7						
			0.7												

</

Bottom of hole at 9.1m.



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RECORD OF BOREHOLE : BH13-02

PAGE 1 OF 1

CLIENT Anthem Maplewoods Development LP
PROJECT NUMBER VAN-00213089-A0
DRILLING DATE 13-06-10 to 13-06-10
DRILLING CONTRACTOR Sonic Drilling Ltd.
DRILLING METHOD Sonic
LOGGED BY DGS CHECKED BY KSH

PROJECT NAME Maplewoods West Properties
PROJECT LOCATION 2051, 2053 and 2055 Mount Seymour Parkway, North Vancouver, BC
BOREHOLE LOCATION N: 5461866 E: 498639
ELEVATION 7.50 m
GROUND WATER LEVELS: ▽ AT TIME OF DRILLING ---
▽ AFTER DRILLING ---

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. DEPTH (m)	SAMPLES			SPT N VALUE BLOWS/0.3m ▲	FINES CONTENT (%) □
				NUMBER	TYPE	RECOVERY %	DYNAMIC CONE BLOWS/0.3m └─┘	PLASTIC & LIQUID LIMIT MOISTURE CONTENT PL MC LL
1		ASPHALT, 50mm SILTY SAND & GRAVEL, brown with black and rust inclusions, damp, (compact to dense) gravel is sub-rounded to rounded -soft layer at 1.17m for 50mm -becomes light brownish grey with cobbles @ 1m -becomes some silt by 1.2m	7.4 0.1	S11	SC			13
			5.8	S12	SC			6
2		SAND & GRAVEL, some cobbles, light brownish grey, damp, (compact) sand is coarse and well graded, gravel is sub-rounded to sub-angular	1.7 5.8	SPT1	SPT	38	52	
				S13	SC			1
3				SPT2	SPT	38	58	
4			3.4					
		SILTY SAND to SANDY SILT, some gravel, grey, damp, (hard) (TILL-LIKE)	4.1	S14	SC			8
5								
6				S15	SC			8
			1.4					

Bottom of hole at 6.1m.



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RECORD OF BOREHOLE : BH13-03

PAGE 1 OF 1

CLIENT Anthem Maplegoods Development LP
PROJECT NUMBER VAN-00213089-A0
DRILLING DATE 13-06-10 to 13-06-10
DRILLING CONTRACTOR Sonic Drilling Ltd.
DRILLING METHOD Sonic
LOGGED BY DGS CHECKED BY KSH

PROJECT NAME Maplewoods West Properties
PROJECT LOCATION 2051, 2053 and 2055 Mount Seymour Parkway, North Vancouver, BC
BOREHOLE LOCATION N: 5461904 E: 498642
ELEVATION 8.20 m
GROUND WATER LEVELS: ▽ AT TIME OF DRILLING ---
▽ AFTER DRILLING ---

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. DEPTH (m)	SAMPLES			SPT N VALUE BLOWS/0.3m ▲	FINES CONTENT (%) □
				NUMBER	TYPE	RECOVERY %		
							20 40 60 80	20 40 60 80
							DYNAMIC CONE BLOWS/0.3m └─┘	PLASTIC & LIQUID LIMIT MOISTURE CONTENT PL MC LL
							20 40 60 80	20 40 60 80
1		GRAVEL, angular road crush	7.7					
		ASPHALT, 50mm	0.5					
		SILTY SAND & GRAVEL, dark brown, damp (FILL)	7.7					
		ASPHALT, 50mm	0.5	S16	SC			9
		SILTY SAND & GRAVEL, cobbles, grey, moist-dry, gravel is angular, (compact) (FILL?)	7.5					
		SPT sample - gravel and fractured rock	0.7					
		-appears to be TILL-LIKE material at 1.5m	7.5					
			0.7	S17	SC			3
2		-grades to SANDY GRAVEL, some silt, blackish grey, (compact to dense) angular to sub-rounded	6.4	SPT1	SPT	38	▲ 37	
			1.8					
			6.4					
			5.9					
		SAND, some gravel to gravelly, some silt, cobbles, light brown with rust stains, damp-wet, (compact) sand is coarse grained, gravel is sub-rounded to rounded	2.3	S19	SC			9
3								
				SPT2	SPT	9	▲ 28	
			4.5					
4		-grades to GRAVEL, some sand, trace to some silt by 3.7m	3.7	S20	SC			12
5		SPT3 - abundant rocks and gravel in sampler						
		-poor recovery between 4.5m and 6m, more sand then gravel in sample		SPT3	SPT	38	▲ 23	
6								
				S21	SC			
			2.1					
		SILTY SAND & GRAVEL, grey, pieces of till-like material, moist, (dense)	6.1					
		SPT4 - 6/26 blows for 75mm, bouncing on rock	1.6	SPT4	SPT			
				S22	SC			
			6.6					
		SILTY SAND to SANDY SILT, some gravel, grey, dry, (hard) gravel is angular to sub-angular (TILL-LIKE)	1.6	S23	SC			6
7								
				S24	SC			
8								
				SPT5	SPT	75	▲ 72	7
								8
			0.0					

Bottom of hole at 8.2m.