WeaverTech
Science - Construction - Engineering

Weaver Technical Corp.
Unit 3 – 431 Mountain Hwy
North Vancouver BC V7J 2L1
Phone: (250) 816 8085

Memorandum

Date: July 12, 2022

Attention:
Tina Lu, Assistant Building Official, City of Port Moody

c.c. Satinder Wahlla, Westridge Engineering

Re: 2304 Henry St Ditching Assessment and Culvert Works – V4

Introduction and Project Scope of Works

Westridge Engineering is undertaking the re-development of the property at 2304 Henry St, Port Moody (PID: 011-463-431). The re-development entails the subdivision of the subject property and construction of two laneway houses on the north side of the property. An approximate 14 m closed bottom culvert (PVC pipe) exists within the ditch. To provide access to the units from the rear of the properties, it is proposed the existing culvert be removed and two 3.7 m-wide open bottom culverts will be installed (Figure 1 and Figure 2). Detailed engineered drawings of the subdivision and driveways are provided in Appendix A.

This report assesses the watercourse (ditch) and its current classification as a Class B watercourse. It includes an assessment of the physical characteristics and habitat within the ditch in relation to a re-classification. In addition, the report provides a discussion of the proposed works and describes appropriate mitigation and habitat enhancement (compensation) measures required by the City of Port Moody to facilitate permitting of the proposed works. Details used in this assessment are based on the information provided from Westridge Engineering and the developer (Satinderjit Wahlla), details of the ditch from the Chines Stormwater Management Plan, communications with the City of Port Moody staff, and information gathered during site visits completed on October 17th, 2019, and March 14th, 2022.

A Riparian Areas Assessment (RAA; file # 7583) has been completed and submitted on April 12, 2022, to the province for review (Appendix B). A 2 m Streamside Protection and Enhancement Area (SPEA) was prescribed to be established from the Top of Bank (TOB) following the Riparian Areas Protection Regulation (RAPR). The assessment is currently waiting review and approvals will be provided once received. In addition, a Development Variance Permit (DVP) application was submitted to the City with the request to reduce the City's 5 m riparian setback to the 2 m

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SPEA required under the RAPR. A planting plan has been developed by a Landscape Designer (Appendix C).

Figure 1. Overview map of the proposed culvert replacement along Hope St associated with the property 2304 Henry St. The 14 m closed bottom culvert will be removed and be replaced with two 3.7 m open bottom culverts.

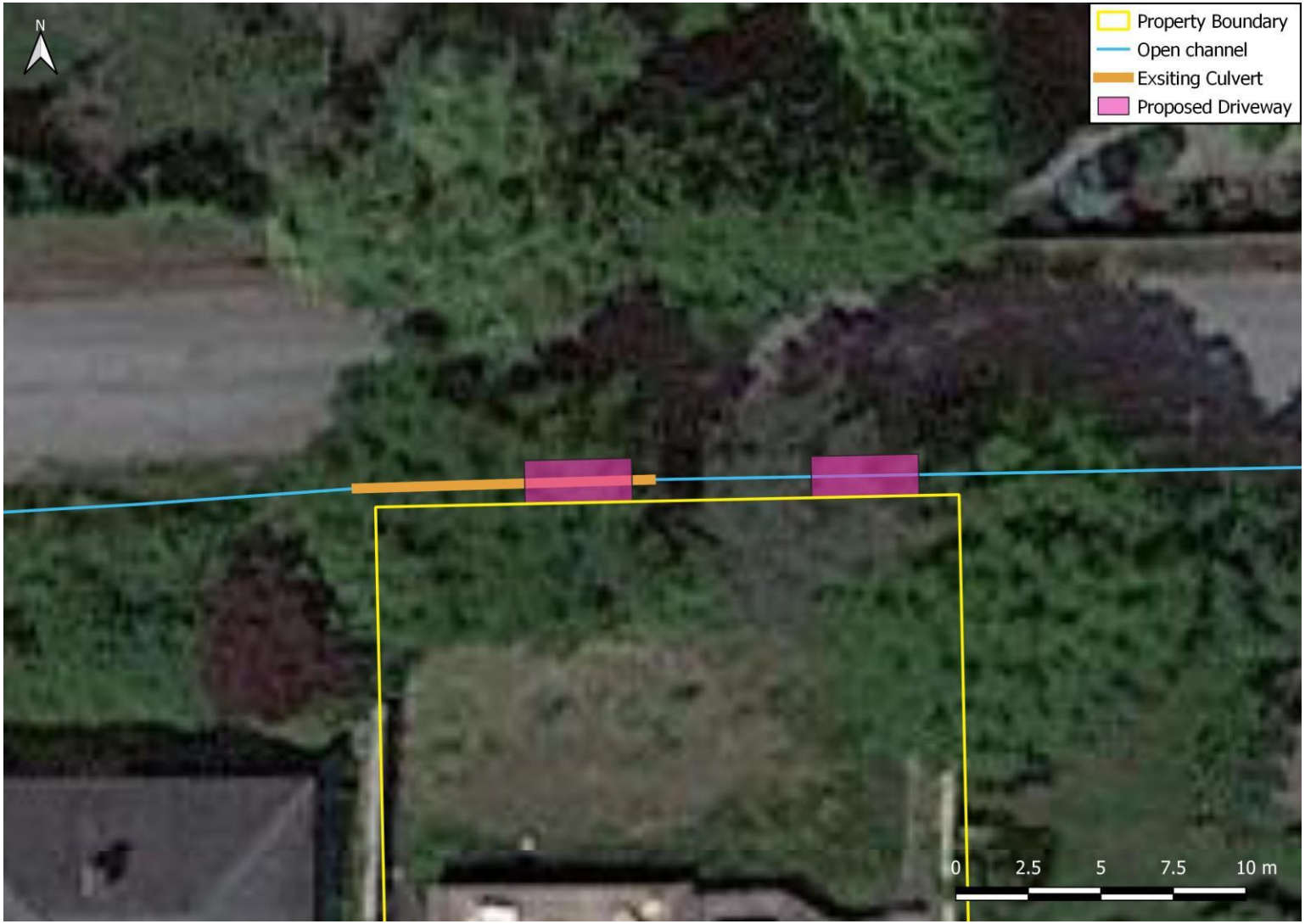


Figure 2. Looking at the subject ditch at 2304 Henry St (Hope St). The existing 14 m culvert (yellow), the open ditching (blue), the two proposed 3.7 m open bottom culverts (green), the proposed TOB's (orange), and the 2 m SPEA to be regraded and replanted.

Ditch Watercourse Current Classification

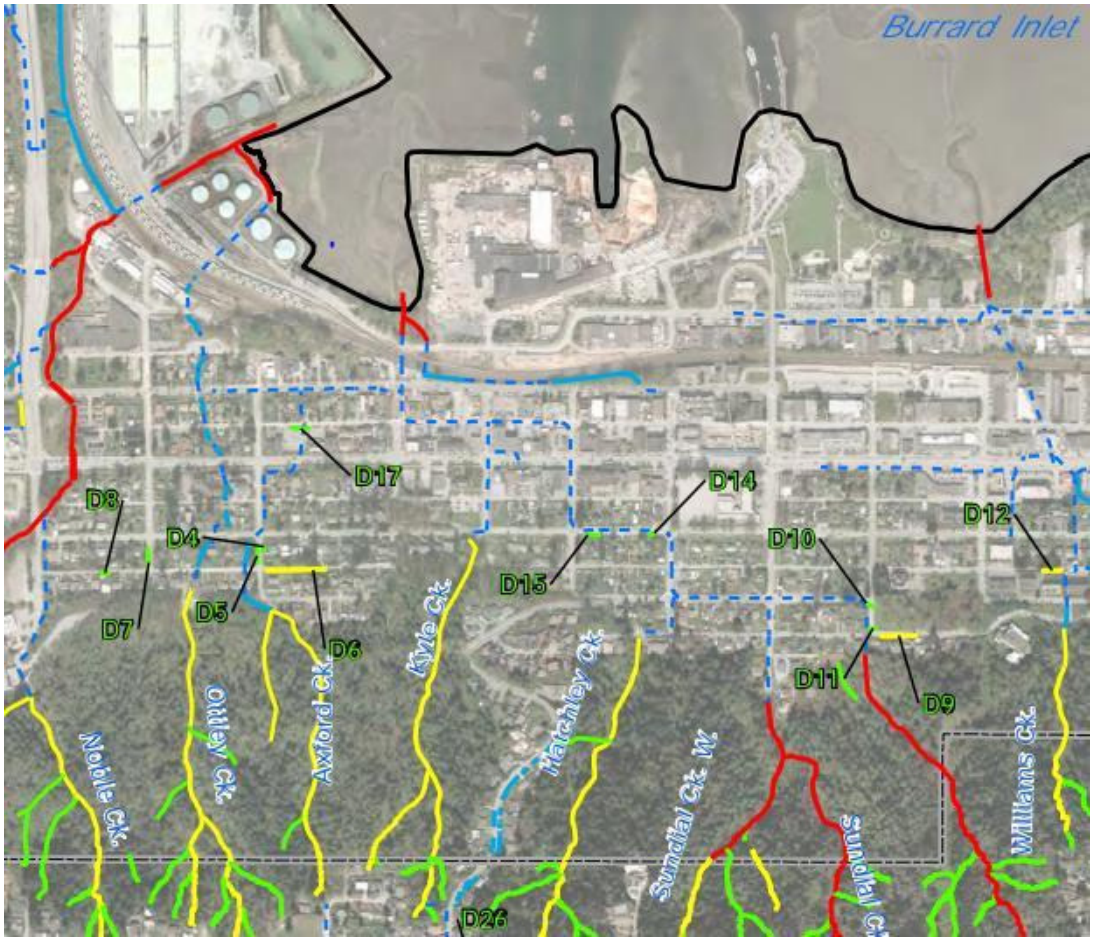
The subject ditch runs along the tenth block of Hope Street. The ditch terminates at the corner of Hope St and Elgin St where in enters a storm water drain (SDNIN-01485). It was determined through communications with the City of Port Moody staff that flows from the ditch cross Elgin St and enter an open section of Axford Creek kitty corner to the subject ditch.

Within the Chines Integrated Stormwater Management Plan (ISMP), the subject ditch is labelled, ditch D6 (Figure 3), and classified as a Class B watercourse. The definition of a Class B watercourse is a "*non-fish bearing (Permanent) and Non-fish-bearing (Non-permanent): Watercourse that are significant or potentially significant source of food and nutrients to downstream fish populations;*" (Chines ISMP, 2016).

The classification of the ditch was based of a site assessment. A description of the assessment is as follows;

"D6 is located on Hope Street, east of Elgin Street. The substrate consisted of sand and fines, with organics. A low volume of water was in the channel (i.e., 3 cm depth, 0.4 m wetted width) at the time of the survey which was draining into a concrete culvert at the east end of D6 (i.e., the corner of Hope and Elgin Street). Based on existing watercourse mapping, it is likely that flows enter an adjacent, partially culverted watercourse to the west via pipes. The observed riparian vegetation consists of roadside grass, as well as shrubs and trees along the opposite bank that provided approximately 20% canopy closure. This watercourse was considered to be Class B based on its proximity to an adjacent watercourse, the presence of substrate and flows, and observed amount of riparian vegetation."

Figure 3. City of Port Moody watercourses as defined in (Chines ISMP). The subject ditch, labelled as D6, is defined as Class B stream providing a significant source of food and/or nutrients to downstream fish bearing waters.



Ditch Re-classification

There are three factors that will be discussed here regarding re-classification of the subject ditch. These include; 1) An assessment of the physical stream characteristics, 2) An assessment of flow contribution based on the extent of the ditch's drainage area, and 3) An assessment of the fish habitat downstream of the ditch.

Physical Stream Characteristics

A site visit was completed on October 17, 2019, by Weaver Technical staff, to assess the ditch and the potential impact the proposed works. The physical characteristics of the subject ditch were observed as a shallow channel (ditch) with no defined substrate. A channel bed was present; however, it is the result of ditching. No bed materials were observed. The bank vegetation consists of grasses, Creeping buttercup (*Ranunclus repens*), and English Ivy (*Hedera*

helix). Along with a few ornamental trees and a cedar hedge along the property boundary upland of the ditch (Figure 4 and Figure 5).

The physical characteristics of the ditch observed mimic the description of a Class C watercourse; "*Class C ditches typically have shallow banks with grass growing throughout their bed and banks, and have no defined channel bed or substrate and no evidence of sustained flow. Cover by riparian vegetation is often limited or absent."*

Fore reference, an appropriate example of a Class B watercourse is observed within Axford Creek (Figure 3). This section of Axford Creek is depicted in Figure 6 and presents a well-defined stream channel with distinct gravel and cobble channel bed . The image was taken from the Chines ISMP, at a location ~90 m upstream of where the subject ditch enters the Stormwater Management System/Axford Creek (Chines ISMP). Information regarding the riparian habitat at this site was also provided and is defined as a "climax deciduous forest type" that is "dominated with red alder with western red cedar and western hemlock". These details support the classification of Axford Creek as a Class B watercourse both in stream characteristic and the riparian vegetation present.

The subject ditch, as observed, does not fit the definition of a Class B stream based on physical characteristics and riparian vegetation as described above. This is supported by the comparison to the upper sections of Axford Creek, a properly classified Class B watercourse, adjacent to the subject ditch.

Extent of Flow Contribution

The subject ditch, regarding flows, is consistent with the following definition of a Class C watercourse in that "*they are designed for the conveyance of storm water and are typically dry 48-72 hours following a significant rainfall event"* (COS, 2011).

A small amount flow was present in the ditch on the day of the assessment. This was the result of very heavy rain which occurred at the time of the assessment and the ~ 38 mm of rain had fallen over the previous 48 hours [The Port Moody Glenayre Weather Station reported 37.8 mm of rain over October 15-16, 2019 (GOC)]. The observed water depth was 0.07 m and the average wetted width was 0.17 m, at the location of the property. The ditch was determined to be ~100 m in length and the proposed works start ~80 m upland of the property. The catchment area for the ditch was calculated to be ~ 0.66 Ha (Figure 7). Based on the observations of a steep gradient (~20%), the narrow channel, and the limited catchment area it is unlikely that the subject ditch retains any water longer then 48-72 hours after a heavy rain event like the one observed. Therefore, the ditch cannot be expected to be a significant source of flow (or food and/or nutrients) to downstream waters.

Downstream Habitat Evaluation

The fish habitat within Axford Creek below Ditch D6 should be classified as little to none. Axford Creek becomes culverted once it exists Chines Park at the South end of and enters a residential area, with the exception of a ~45 m section running through the property at 2231 St. George St. Axford Creek, remains culverted for ~ 600 m, running North to St Johns Street and continues in a zigzagged pattern along St Johns St and Clarke St until it enters a culverted section of Kyle Creek. This location is ~ 90 m from the confluence of Kyle Creek and Burrard Inlet at the North end of Queens St. Fish are not expected to occur within the stormwater system with the possible exception of the short section at the outlet of Kyle Creek.

This description is supported through the work defined with the Chines ISMP. Within the assessment, both Axford Creek and Ottly Creek are defined as "no fish present" waterbodies. In addition, fish sampling on Axford Creek was completed in September, 2016 as a part of a fish salvage by Envirowest Consultants (Report: Salvage Stoney Creek – 2016; ID 51966). No fish were captured in Axford Creek. No other information on fish presence could be located for these two streams.

It is therefore arguable that based on the amount fish habitat or lack there of downstream of the subject ditch, the current Class B classification does not meet the criteria of a "*watercourse that provides a significant contribution of food or nutrients to downstream areas supporting or potentially supporting fish populations*".

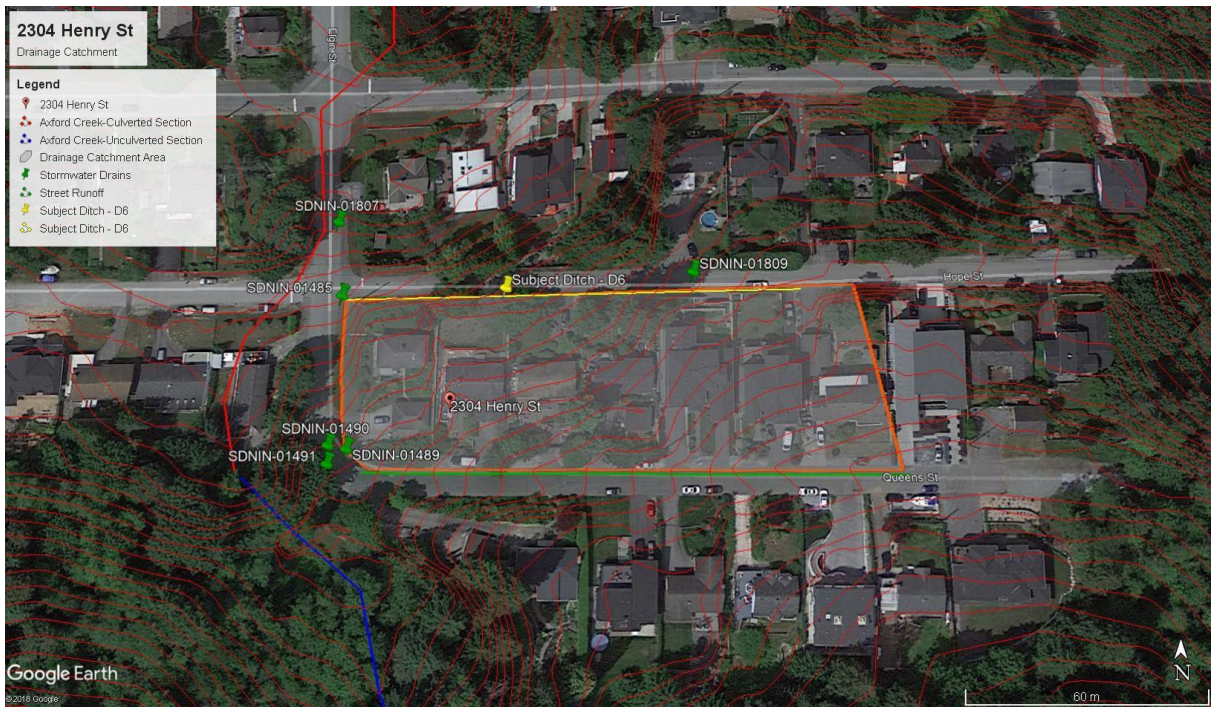
Based on the above criteria it is the assessor's judgement that the subject ditch does not meet the criteria of a Class B watercourse and should be re-designated as a Class C waterbody. Even if the designation is not changed the proposed works associated with the culvert upgrade and enhancement (assessed in the next section) are not expected to result in any harm to fish or fish habitat.

Figure 4. Looking upland at the subject ditch on Hope St. upstream of the proposed driveway culvert crossings. The northeastern property corner is pictured as the white pin.

Figure 5. Looking downhill at the subject ditch on Hope St. The proposed 3.7 m open bottom culverts will occur between the two white pins pictured.

Figure 6. Looking upstream at the Class B (important fish food and nutrient stream) portion of Axford Creek. The location is ~ 80 m upstream of the location where the Ditch D6 is located and the location just prior to where Axford Creek becomes culverted. Photograph taken from the Chines ISMP.

Figure 7. Topographical map of the area and the outlined drainage catchment area for the Subject ditch.



Potential Impacts and Appropriate Compensation

As stated above, no impacts are expected as a result of the proposed works. In opposition, a net gain of habitat is expected as a result of the removal of the 14 m of closed culvert, installation of two 3.7 m open bottom culverts (total of 7.4 m), and enhancement of the ditch's channel (compensation). The open bottom culvert should be a minimum of 300 mm diameter and be sized to prevent impact to adjacent properties based on run off conditions from 1:100 year storm events in accordance with the City of Port Moody, Bylaw 2831.

Ideal enhancement would improve the channel by a number of means such as stability, velocity, habitat, and removal of invasive plant species. Suggested enhancement should consist of lining the channel with gravel to act as flow baffling to reduce run off velocities (< 1.2 m/s) and to provided both channel stability. Enhancement should also include planting of native vegetation along the banks of the newly exposed channel to further increase stability. Prior to planting, it is recommended that the English Ivy and any other invasive plant species be removed from within the proper boundaries to help the establishment of the native vegetation.

As a result of the proposed works a total of 6.6 m of daylighted stream will be established along with the addition of high value native vegetation. This combined with the culvert type changing from a closed bottom to an open bottom style will result in an overall net improvement to downgradient fish habitats.

Working in and About a Class C Stream

Class C streams do not require specific protection of fish habitat under the Bylaw 2831. However, Best Management Practices (BMPs), *Standards and Practices for Instream Works*, should be followed during construction activities. Works should include erosion and sediment control measures to prevent any sediment laden material from entering the stormwater system downstream.

Regarding the *Water Sustainability Act* (WSA) and Regulations, the proposed works fall under the Authorized Changes within Part 3, Section 39 (1) of the *Act* with respect to the installation, maintenance, or removal of a culvert if the following conditions are met:

(i) *the equipment used for site preparation, or for installation, construction, maintenance or removal of the culvert, is situated in a dry stream channel or operated from the top of the bank;*

(ii) *if the stream is fish-bearing, the culvert allows fish in the stream to pass up or down stream under all flow conditions;*

(iii) *the culvert inlet and outlet incorporate measures to protect the structure and the stream channel against erosion;*

(iv) *debris can pass through the culvert;*

(v) the installation, maintenance or removal of the culvert does not destabilize the stream channel;

(vi) the culvert and its approach roads do not produce a backwater effect or increase the head of the stream;

(vii) the culvert capacity is equivalent to the hydraulic capacity of the stream channel or is capable of passing the 1 in 200 year maximum daily flow without the water level at the culvert inlet exceeding the top of the culvert;

(viii) the culvert has a minimum equivalent diameter of 600 mm;

(ix) if the culvert has an equivalent diameter of 2 m or greater, or has a design capacity to pass a flow of more than 6 m3 per second, the culvert is designed by an engineering professional and constructed in conformance with that design;

(x) the culvert is installed in a manner that permits the removal of obstacles and debris within the culvert and at the culvert ends;

(xi) if the changes in and about the stream are related to a right of way, the stream channel, except the portion within the right of way, is not altered;

(xii) embankment fill materials do not, and are unlikely to, encroach on culvert inlets and outlets; (xiii) the culvert has a depth of fill cover that is at least 300 mm or as required by the culvert manufacturer's specifications;

(xiii) the maximum fill heights above the top of the culvert do not exceed 2 m;

(xiv) the culvert is made of materials that meet the applicable standards of the Canadian Standards Association;

A Notification of an Authorized Change was submitted on December 6th, 2019 (Tracking Number 100303792). Works were planned to occur between August 1, 2020, and September 30, 2021. It is recommend that a Notification be resubmitted to FrontCounter once development approvals have been received by the City.

In addition, works are required follow the Terms and Conditions for changes in a stream for the Lower Mainland Region (MOE, 2006b). Similarly, works should be completed during a Window of Least Risk, August 1st to September 15th (MOE, 2006a). However, as the ditch is determined to be dry through most of the year, no harm to fishes is expected if construction activities avoid conducting works during or immediately prior to forecasted periods of heavy rain.

Summary

The proposed removal of a 14 m closed bottom culvert and installation of two, 3.7 m-long open bottom culverts (total 7.4 m), to provide road access from Hope St to the property, is not expected to result in any harm to fish or fish habitat. Enhancement of the ditch through the removal of the closed bottom culvert, the addition of gravel swales, and planting of native vegetation within the 2 m SPEA is expected to improve the habitat value within the subject ditch.

The ditch, under its current classification (Class B, significant food and nutrient stream) requires permitting by the City of Port Moody and based on the works requires a submission of a Notification of an Authorized Change under the WSA.

Based on the assessment of the ditch and accounting for the proposed works, it is suggested that the City of Port Moody take one of two approaches; 1) provide approval based on the ditching assessment and re-classification of the subject ditch to a Class C watercourse or 2) grant a variance to the Community Plan Bylaw that restricts the culverting of Class B watercourses thereby allowing the works to proceed on condition of approvals from the RAPR and WSA submissions.

For any questions regarding the content of this letter please contact the undersigned.

Regards,

Arin Yeomans-Routledge R.P.Bio., B.Sc.

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References

Bylaw 2831. City of Port Moody Subdivision and Development Servicing Bylaw, 2010. Accessed November 5, 2019. https://www.portmoody.ca/en/business-and-development/resources/Documents/Subdivision-and-Development-Servicing-Bylaw.pdf

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GOC Government of Canada Historical Weather Data for Port Moody Glenayre Weather Station. Accessed October 23, 2019. https://climate.weather.gc.ca/climate_data/daily_data_e.html?hlyRange=%7C&dlyRange=1970-11-01%7C2019-10-21&mlyRange=1970-01-01%7C2007-02-01&StationID=834&Prov=BC&urlExtension=_e.html&searchType=stnName&optLimit=yearRange&StartYear=1840&EndYear=2019&selRowPerPage=25&Line=1&searchMethod=contains&Month=10&Day=22&txtStationName=port+moody&timeframe=2&Year=2019

COS. 20011. City of Surrey Engineering Department. A General Guide to Construction over or Near Watercourses. Accessed November 13, 2019. https://www.surrey.ca/files/ConstructionNearWatercourses.pdf

MOE. 2006a. Ministry of Environment, Terms and Conditions for changes in a stream specified by the Habitat Officer. Ministry of Environment, Lower Mainland Region. Accessed November 13, 2019. https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/working-around-water/terms_conditions_low_main.pdf

MOE. 2006b. Ministry of Environment, Guidelines for Reduced Risk Instream Work Windows Ministry of Environment, Lower Mainland Region. Accessed November 13, 2019. https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/working-around-water/work_windows_low_main.pdf

Report: Salvage Stoney Creek - 2016; SU16-225185j. Fish salvages in unnamed streams (aliases Hatchley Creek, Dallas Creek, Goulet Creek, West Sundial Creek, Noble Creek, Axford Creek, Kyle Creek) and Stoney Creek (00000LFRA; 100-020100-56600) using dip netting and electrofishing. Accessed November 13, 2019. http://a100.gov.bc.ca/pub/acat/public/viewReport.do?reportId=51966

Water Sustainability Regulation. B.C. Reg.36/2016. Accessed on November 5, 2019. http://www.bclaws.ca/civix/document/id/crbc/crbc/36_2016

Appendices

Appendix A – Site Plan with the proposed driveways/culverts and SPEA

Appendix B – Riparian Areas Assessment Report

Appendix C - Landscape Design Plan

Appendix A

Site Plan with the proposed driveways/culverts and SPEA

LEGEND

EXISTING	PROPOSED	
		PROPERTY LINE
50.00	50.00 50.00	GROUND ELEVATION (M: TO MEET EX EL)
		CONTOUR
		EDGE OF PAVEMENT
		CURB & GUTTER
		SIDEWALK (ASPHALT)
		SIDEWALK (CONCRETE)
		ROAD SIGN BOARD
		SANITARY SEWER, MANHOLE & CONNECTION INSPECTION CHAMBER
		STORM SEWER, MANHOLE & CONNECTION INSPECTION CHAMBER
		CATCH BASIN–TOP & SIDE INLET
		LAWN BASIN(D) BY DEVELOPER
		LAWN BASIN(B) BY BUILDER
		SWALE (BY DEVELOPER)
		SWALE (BY BUILDER)
		DITCH
		DIRECTION OF SURFACE DRAINAGE
		BLOW OFF
		WATER VALVE
		WATERMAIN & CONNECTION SERVICE
		HYDRANT
		STREET LIGHT U/G DUCT
		ORNAMENTAL STREET LIGHT–DAVIT
		UTILITY POST
		TREES
		HEDGE
		TREES TO REMAIN WITH TREE PROTECTION FENCE
U/G		SERVICES UNDER GROUND
		MILL AND OVERLAY 38mm ASPHALT
G	G	GAS MAIN
		100YR MAJOR FLOW ROUTE SURCHARGED
		100YR MAJOR FLOW ROUTE IN PIPE
MBE=57.49		M.B.E.

DEVELOPER'S NOTES:

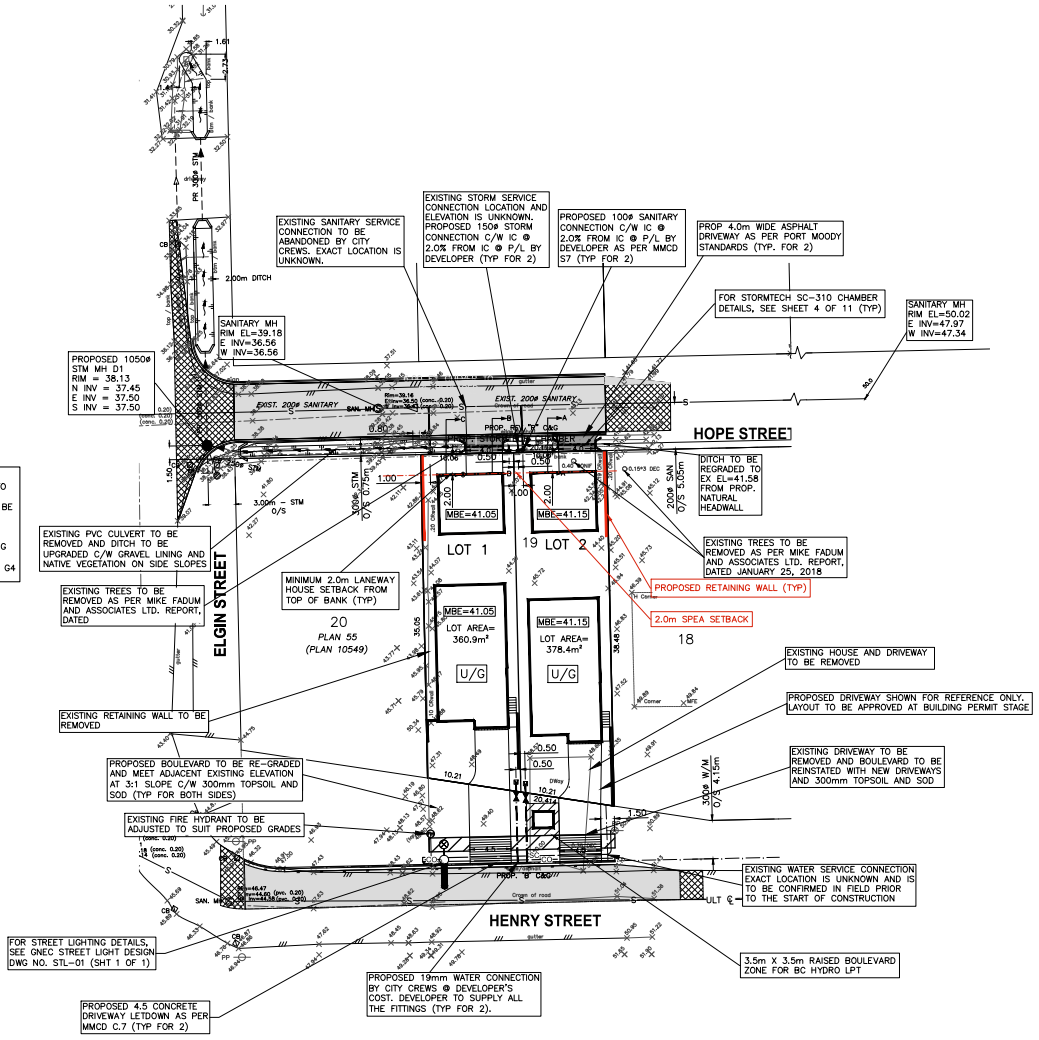
1) FOR LOT 1 AND 2, PROPOSED 100ø PVC SDR28 SANITARY CONNECTION TO BE INSTALLED BY DEVELOPER.
2) FOR LOT 1 AND 2, PROPOSED 150ø PVC SDR28 STORM CONNECTION TO BE INSTALLED BY DEVELOPER.
3) FOR LOT 1, PROPOSED 19MMØ WATER SERVICE CONNECTIONS TO BE INSTALLED BY THE CITY FORCES. BUILDER TO INSTALL METER BOXES AND SETTERS, WATER OPERATIONS SUPPLY & INSTALL METERS UNDER PLUMBING PERMIT @ BUILDER'S COST.
4) ▨ – CITY PAVEMENT CUT AND RESTORATION TO APPLY AS PER MMCD G4

EX TREES TO REMAIN OR REMOVED AS PER APPROVED ARBORIST REPORT.

SCOPE OF THE PROPOSED WORKS MAY VARY BASED ON THE DETAILED DESIGN AND AS PER THE REQUIREMENTS FROM VARIOUS CONSULTANTS & CITY COMMENTS.

LOT SERVICE CONNECTION TABLE

LOT NO.	STM IC INV EL/DEPTH	SAN IC INV EL/DEPTH	WATER CONNECTION METER NO.	NOTE
LOT 1	40.40/0.32	37.75/2.09	WM–2A	PROVIDE PROTECTIVE CONCRETE SLAB AS PER MMCD DWG G–7 ON THE STORM PIPE WHERE COVER IS LESS THAN 1.0m
LOT 2	40.40/0.40	39.00/1.85	WM–2A	



CITY WATER WORKS NOTES:

1. THE DEVELOPER SHALL SUPPLY ALL MATERIALS AND FITTINGS REQUIRED FOR THE TIE–IN OF THE NEW WATER MAINS BY THE CITY.
2. ALL NEW WATER MAINS, AT TIE–IN POINTS, ARE TO BE CAPPED 1.5M FROM THE EXISTING WATER MAIN. THE PROPOSED WATER MAIN IS TO BE SET AT THE LINE AND GRADE TO MEET THE EXISTING WATER MAIN.
3. TIE–INS TO EXISTING WATER MAINS AND FINAL TESTING AND CHLORINATION OF NEW MAINS IS TO BE PERFORMED BY THE CITY AT THE DEVELOPER'S COST.
4. ALL DOMESTIC SERVICE CONNECTIONS WILL BE A MINIMUM OF 25MM DIAMETER UNLESS OTHERWISE SPECIFIED.
5. WHERE 100MM DIAMETER PIPE IS USED IT WILL BE DUCTILE IRON (D.I.) AND SHALL CONFORM TO THE CITY SPECIFICATIONS.
6. NO MCAVITY FITTINGS OR VALVES ETC. ARE TO BE USED.
7. NO CAST IRON VALVES ON FITTINGS.
8. THE CITY OF PORT MOODY WATER DISTRIBUTION SYSTEM IS TO BE PROTECTED DURING ALL CONSTRUCTION ACTIVITY ASSOCIATED WITH THIS PROJECT.
9. ENSURE THERE ARE NO CONFLICTS WITH THE PROPOSED WATER SERVICE CONNECTIONS REGARDING ANY STRUCTURES, FENCES, OR PLANNED LANDSCAPING. DAIGLE BOXES @ PROPERTY LINE AND METER BOXES INSIDE PRIVATE PROPERTY MUST BE INSTALLED ACCORDING TO CITY OF SURREY STANDARDS AND ACCESSIBLE BY WATER OPERATION'S STAFF.

CITY SANITARY SEWER AND STORM SEWER NOTES:

1. UNLESS PRIOR APPROVAL IS GIVEN TO THE DEVELOPER BY THE CITY, TIE–INS AND CONNECTIONS TO EXISTING SANITARY SEWERS ARE TO BE PERFORMED BY THE CITY AT THE DEVELOPER'S COST.
2. ALL SERVICE CONNECTIONS SHALL BE MADE TO THE MAIN WHEREVER POSSIBLE. SHOULD A CONNECTION HAVE TO BE MADE TO A MANHOLE, THE CONNECTION INVERT SHALL BE AT THE SAME ELEVATION AS THE CROWN OF THE HIGHEST SEWER MAIN.
3. ALL MANHOLES ARE TO BE A MINIMUM OF 1050 MM DIAMETER UNLESS OTHERWISE NOTED.
4. ALL SANITARY SEWER ARE TO BE A MINIMUM 100 mm DIAMETER. AND STORM SEWER SERVICE CONNECTIONS ARE TO BE A MINIMUM 150 mm DIAMETER.
5. ALL GRANULAR PIPE BEDDING SHALL BE TYPE 1 ONLY AS PER THE CITY SPECIFICATIONS.
6. ALL EXISTING SANITARY SEWER SERVICE CONNECTIONS TO BE PRE–PLUGGED BY THE MANUFACTURER.
7. CONTRACTOR IS TO VIDEO TEST ALL EXISTING STORM AND SANITARY MAINS & CONNECTIONS AND PROVIDE RESULTS TO THE ENGINEER. THE ENGINEER IS TO TO PRE–APPROVE THE TESTING COMPANY.
8. ALL CONNECTIONS TO NEW STORM AND SANITARY MAINS IS TO BE BY DEVELOPER.

MINIMUM 300mm ABSORBANT TOPSOIL ON ALL PERVIOUS AREAS :

MINIMUM 300mm OF "ABSORBENT SOILS" ARE TO BE INSTALLED IN THE FRONT AND REAR YARDS OF ALL THE LOTS BY THE OWNERS. SOILS SHALL CONSIST OF THE FOLLOWING GROWING MEDIUMS AND SHALL BE COMPRISED AS FOLLOWS:

PERCENT OF DRY WEIGHT OF MATERIAL		TOTAL GROWING MEDIUM
GRAVELS	(LARGER THAN 2 MM BUT SMALLER THAN 40 MM)	0 –5%
SAND:	(LARGER THAN .05 MM BUT SMALLER THAN 2 MM)	60 – 80%
SILTS:	(LARGER THAN 0.002 MM BUT SMALLER THAN 0.05 MM)	0 – 25%
CLAY	(SMALLER THAN 0.002 MM)	0 – 5%

EITHER ABSORBENT SOILS SPECIFIED ABOVE OR ¾" PIT RUN GRAVEL IS PERMITTED ALONG THE SIDES OF THE HOUSES ON ALL LOTS. TO BE VERIFIED BY BUILDING DESIGN GUIDELINES CONSULTANT

BUILDING GUIDELINES TO INCLUDE A CLAUSE FOR INSTALLATION OF MINIMUM 300mm THICKNESS OF ABSORBENT TOPSOIL IN OFFSITE BOULEVARD AREA BY THE DEVELOPER AND IN LANDSCAPE AREAS OF EACH LOT BY OWNER/BUILDER.

EXISTING UTILITIES INFORMATION SHOWN ON THIS DRAWING IS COMPILED FROM DIVERSE SOURCES, AND MAY NOT BE COMPLETE OR ACCURATE. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXPOSE AND CONFIRM THE LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES IN THE FIELD, IF ANY CONFLICT OF DISCREPANCY OCCURS, CONTRACTOR SHALL ADVISE AND NOTIFY ENGINEER-OF-RECORD.

ALL DIMENSIONS ARE IN METRES
ALL PIPE SIZES ARE IN MILLIMETRES

REVISIONS	DESCRIPTION	BY	DATE	APPROVED
7	REFERENCE	ZD	16 JUN 2022	DK
6	RE–ISSUED FOR CONSTRUCTION	ZD	17 MAR 2022	DK
5	RE–ISSUED FOR CONSTRUCTION	ZD	11 FEB 2022	DK
4	ISSUED FOR CONSTRUCTION	ZD	27 AUG 2021	DK
3	ISSUED FOR FOURTH SUBMISSION	ZD	14 JAN 2021	DK

BENCHMARK:
ELEVATIONS ARE GEODETIC AND BASED ON CITY OF PORT MOODY MONUMENT 80H3230. ELEVATION = 37.777m (CVD28GVRD 2018)

LEGAL DESCRIPTION:
LOT 19, BLOCK 10, DISTRICT LOT 202, GROUP 1, NEW WESTMINSTER DISTRICT PLAN 55

Westridge Engineering & Consulting Ltd.
SUITE 215, 12992 – 76 Avenue, Surrey, BC V3W 2V6
TEL: (604) 789 – 9520
info@westridgeengineering.ca

SEAL

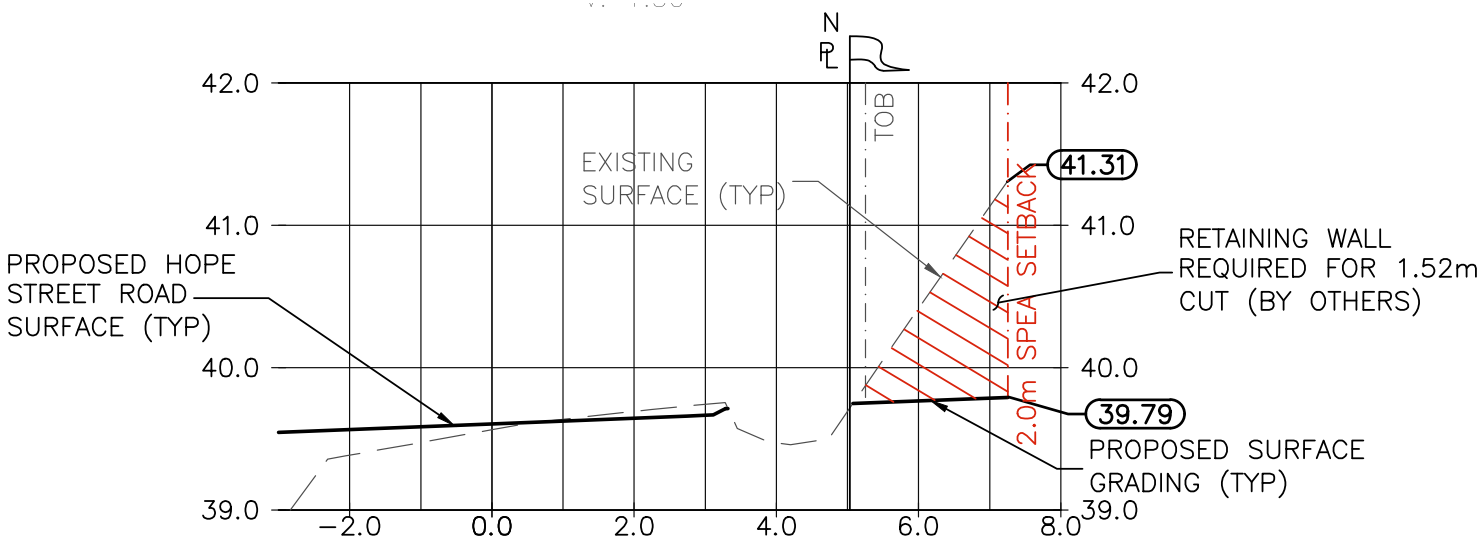
TITLE: KEY PLAN

DEVELOPER:
ROZITA RAZI
778–895–0110

2 LOT SUB–DIVISION AT
2304 – HENRY STREET,
PORT MOODY, BC

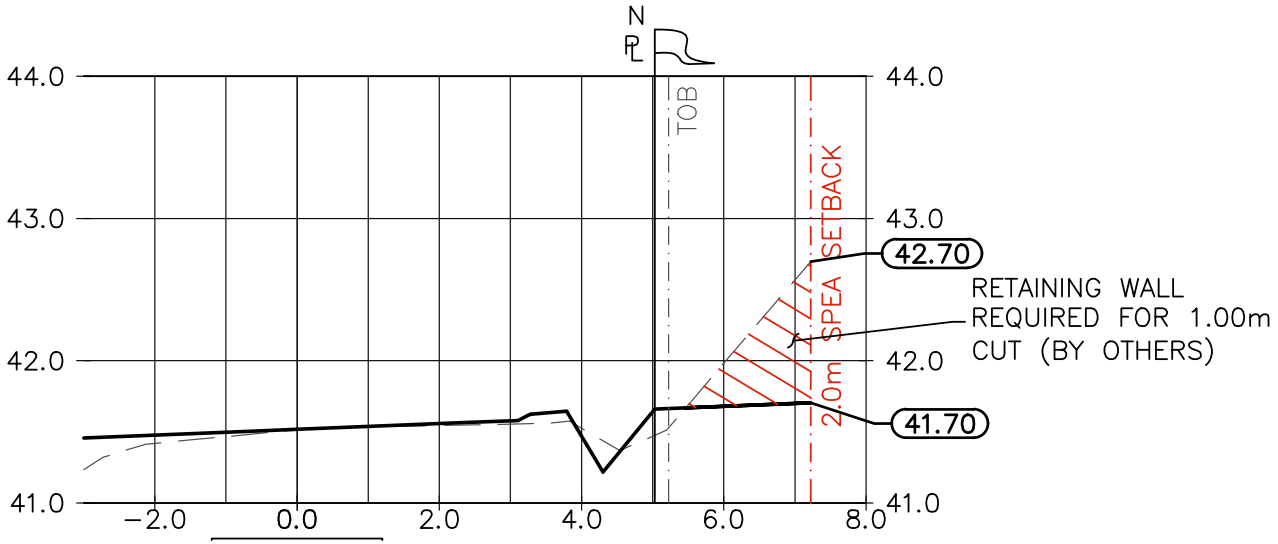
SCALE: 1:250	DATE 31 MAY 2018
DRAWN ZD / CHECKED DK	
DESIGNED DKAJAL / CHECKED	CONTRACT
P.W. P.U.	DESIGN
APPROVED D. KAJAL	DESTROY ALL PRINTS BEARING PREVIOUS NUMBERS

MUNICIPAL PROJECT NO. 6700–20–177
DRAWING NUMBER WEL–2018–C601
SHEET 2 OF 11
REVISION 7



RETAINING WALL SECTION ALONG WEST PROPERTY LINE

H: 1:100
V: 1:50



RETAINING WALL SECTION ALONG EAST PROPERTY LINE

H: 1:100
V: 1:50

Appendix B

Riparian Areas Assessment Report

Conditions and Impacts Assessment Report

Date: 2022-04-12

I. Primary QEP Information

First Name	Arin	Middle Name		
Last Name	Yeomans-Routledge			
Designation	R.P.Bio.	Company: Weaver Technical		
Registration #	2645	Email: arin@weavertechnical.com		
Address	Unit 228A – 2270 Cliffe Ave			
City	Courtenay	Postal/Zip	V9N 2L4	250-816-8085
Prov/state	BC	Country	Canada	

II. Secondary QEP Information (use **Form 2** for other QEPs)

First Name		Middle Name	
Last Name			
Designation		Company	
Registration #		Email	
Address			
City		Postal/Zip	Phone #
Prov/state		Country	

III. Developer Information

First Name	Satinderjit	Middle Name	
Last Name	Wahlla		
Company	Wahlla Realty		
Phone #	778-895-0110	Email: realtywahlla@gmail.com	
Address	16351 91a		
City	Surrey	Postal/Zip	V4N 5S5
Prov/state	BC	Country	Canada

IV. Development Information

Development Type	Construction:Two Single family dwellings		
Area of Development (ha)	0.02	Riparian Length (m)	19
Lot Area (ha)	0.08	Nature of Development	Redevelopment
Proposed Start Date	2022-06-01	Proposed End Date	2023-06-31

V. Location of Proposed Development

Street Address (or nearest town)	2304 Henry St.						
Local Government	City of Port Moody			City	Port Moody		
Stream Name	N/A						
Legal Description (PID)	PID 011-463-431			Region	2 – Lower Mainland		
Stream/River Type	Stream			DFO Area	South Coast		
Watershed Code	Unnamed Stream, (Alias Axford Creek)						
Latitude	49	16	29.58	Longitude	122	51	40.10

Table of Contents for Assessment Report

Section 1. Description of Fisheries Resources Values and a Description of the Development proposal

(Provide as a minimum: Species present, type of fish habitat present, description of current riparian vegetation condition, connectivity to downstream habitats, nature of development, specific activities proposed, timelines)

Introduction

This assessment reviews the riparian and aquatic habitats present on the property associated with the address 2304 Henry Street (PID: 011-463-431) and legal description LOT 19, BLOCK 10, PLAN NWP55, DISTRICT LOT 202, NEW WEST DISTRICT. SPEA boundaries have been established around the water feature bordering the property.

The subject water feature is a small, human-constructed drainage running along the south side of Hope Street. The ditch is partially open but contains section of culverted area. This includes a 14 m-long PVC culvert that exists within the lower portion of the ditch that fronts the subject property (see photos below). The channel reopens and continues west along Hope Street. At which point if enters a storm drain at the corner of Hope Street and Elgin Street. From there, water flows through approximately 650 m of stormwater culverts and discharges to Kyle Creek estuary and then to Burrard Inlet.

A pair of field assessments of the property and water features were conducted on October 17th, 2019, and again on March 14, 2022.

Proposed Project

The proposed project on the subject lot involves demolishing the existing dwelling and subdividing for the purpose of redevelopment and construction of two new lots with two residence each. The redevelopment will include construction of two new driveway accesses with 3.7 m long open bottom culverts through the subject ditch (along Hope Street). This will require the removal and daylighting of the existing 14-m long culvert. The removal of the existing culvert and replacement of two smaller open bottom culverts will result in an expected gain of 6.6 m of open ditch channel. Following works, all un-utilized areas on the SPEA be enhanced through the removal of all invasive plants (i.e., English Ivy removal) and revegetation with native plant species. works shall also include the immediate seeding of all exposed soils with a native grass mix prior to planting.

Please see attached design drawings for proposed works, including culvert designs located on page 3.

Watercourses and Habitat Features

Hope St. Ditch

This is a small, narrow drainage ditch constructed along the south side of Hope Street for the conveyance of road runoff and property stormwater. The channel is entirely confined to the roadside and supports minor growth of instream vegetation (grasses). The ditch originates approximately 100 m east of the subject property at the top of a hill and near the end of Hope St. Water flows west along Hope St. and enters the 14 m long PVC culvert near the northeast property corner. Water is conveyed through the culvert and discharges near the northwest property corner. The channel continues west to a catch basin at the

intersection with Elgin St. approximately 25 m downstream. Water then proceeds north through stormwater culverts and discharges into Kyle Creek estuary and Port Moody Arm.

Water was observed within the open channel section (1-3 cm of depth), and supports a mixture of instream substrates including gravel, fines and organic material (see photos below). Stormwater outlet pipes from the subject property and downgradient property were observed discharging into the ditch during both field visits, this water comprised of 30-40% of flow within the channel downstream of the property. Additionally, a reach of the ditch immediately upstream of the property was observed to be recently altered for landscaping purposes. Varying sizes of cobble and gravel have been added to the channel up to the property boundary. There was no evidence of the new substrates being carried downstream by heavy stream flows, indicating limited flows during high water events.

Riparian Vegetation:
Riparian vegetation of the watercourse is restricted to the left bank only as the right bank is entirely paved for Hope St. The left bank fronting the property supported mature mixed growths of invasive English Ivy (*Hedra helix*) and native Western Red Cedar (*Thuja plicata)*. The Ivy was observed growing within portions of the open channel and on the backfilled terrain over the existing culvert. Additional riparian plant observations include Sword Fern (*Polystichum munitum),* Shore Pine (*Pinus contorta),* and an unidentified ornamental deciduous tree. See photos below.

Fish Presence:
There is no fish presence within the subject watercourse. During both field assessments, no perennial habitat could be identified as the entire watercourse is known to dry completely during the summer and does not support perennial pool habitat for resident fish populations. The ditch is not accessible from downstream habitats. A 650 m stormwater culvert network between fish bearing waters and the subject ditch serves as a barrier. Additionally, the subject ditch enters a small, grated catch basin at the corner of Elgin St. and Hope St., which is impassable to fish.

Overall, the assessment determined there is no habitat available for a resident fish population to be sustained within the ditch or within upgradient ditching. This, coupled with the determination of no fish access from downstream fish bearing watercourses due to the extensive storm water infrastructure, the signing QEP has concluded a non-fish bearing status.

Section 2. Results of Riparian Assessment (SPEA width)

Assessed Water Features

Hope Street Ditch

Date: 2022-04-12

Description of Water bodies involved (number, type) 1, Ditch

Stream	
Wetland	
Lake	
Ditch	X
Number of reaches	1
Reach #	1

Channel width and slope and Channel Type

	Channel Width(m)	Gradient (%)
starting point	~~0.7~~	
upstream	1.1	6%
	~~1.2~~	
	1.0	
	0.8	
	1.0	
downstream	0.9	4%
	0.9	
	0.9	
	1.2	
	1.1	
Total: minus high /low	8.9	
mean	0.98	5%

	R/P	C/P	S/P
Channel Type	X		

I, Arin Yeomans-Routledge, hereby certify that:
a) I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the *Riparian Areas Protection Act*;
b) I am qualified to carry out this part of the assessment of the development proposal made by the developer Satinderjit Wahlla.;
c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and
d) In carrying out my assessment of the development proposal, I have followed the technical manual to the Riparian Areas Protection Regulation.

Site Potential Vegetation Type (SPVT)

	Yes	No	
SPVT Polygons		X	Tick yes only if multiple polygons, if No then fill in one set of SPVT data boxes

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		LC	SH	TR
	Polygon No: 1 of 1			
	SPVT Type			X

Method employed if other than TR
n/a

Zone of Sensitivity (ZOS) and resultant SPEA

Segment No:	1 of 1	If two sides of a stream involved, each side is a separate segment. For all water bodies multiple segments occur where there are multiple SPVT polygons

LWD, Bank and Channel Stability ZOS (m)	n/a						
Litter fall and insect drop ZOS (m)	2 m						
Shade ZOS (m) max	2 m	South bank	Yes	X	No		
Ditch	X						
Ditch Fish Bearing	Yes		No	X	If non-fish bearing insert no fish bearing status report	n/a	
SPEA maximum	**2 m**						

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c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and

d) In carrying out my assessment of the development proposal, I have followed the technical manual to the Riparian Areas Protection Regulation.

Section 3. Site Plan

Map 1: Overview map of the property, watercourse, and Setbacks.

Map 2: Overview connectivity map of the subject watercourse to downstream fish bearing habitat. Arrows indicate flow direction.

Map 1. Overview map of the property, watercourse, and Setbacks.

Map 2. Overview connectivity map of the subject watercourse to downstream fish bearing habitat. Arrows indicate flow direction.

Section 4. Measures to Protect and Maintain the SPEA

This section is required for detailed assessments. Attach text or document files, as need, for each element discussed in Part 4 of the RAPR. It is suggested that documents be converted to PDF *before* inserting into the assessment report. Use your "return" button on your keyboard after each line. You must address and sign off each measure. If a specific measure is not being recommended a justification must be provided.

1. Danger Trees	No danger trees were observed within the SPEA. The area adjacent to the SPEA is to be regraded for new driveway accesses and all vegetation is to be cleared. As such, no danger trees will be present.

I, Arin Yeomans-Routledge , hereby certify that:

a) I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the Riparian Areas Protection Act;
b) I am qualified to carry out this part of the assessment of the development proposal made by the developer Satinderjit Wahlla
c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and in carrying out my assessment of the development proposal, I have followed the technical manual to the Riparian Areas Protection Regulation.

2. Windthrow	No windthrow assessment has been completed for this development. The stand of trees along the north property boundary adjacent to the ditch are to be removed for the new driveway accesses. The existing trees and vegetation across the road is mature and appears to be windfirm.

I, Arin Yeomans-Routledge , hereby certify that:

d) I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the Riparian Areas Protection Act;
e) I am qualified to carry out this part of the assessment of the development proposal made by the developer Satinderjit Wahlla
f) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and in carrying out my assessment of the development proposal, I have followed the technical manual to the Riparian Areas Protection Regulation.

3. Slope Stability	The upland slope is to be redeveloped for a pair of laneway townhouses. As such, the slope will be graded and engineered to be stable for construction. The remaining surfaces are to be paved or revegetated following conclusion of the project.

I, Arin Yeomans-Routledge , hereby certify that:

a) I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the Riparian Areas Protection Act;
b) I am qualified to carry out this part of the assessment of the development proposal made by the developer Satinderjit Wahlla
c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and in carrying out my assessment of the development proposal, I have followed the technical manual to the Riparian Areas Protection Regulation.

4. Protection of Trees	No trees are to be retained as part of the proposed project. As such, no tree protection measures will not be implemented.

I, Arin Yeomans-Routledge , hereby certify that: g) I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the Riparian Areas Protection Act; h) I am qualified to carry out this part of the assessment of the development proposal made by the developer Satinderjit Wahlla i) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and in carrying out my assessment of the development proposal, I have followed the technical manual to the Riparian Areas Protection Regulation.	
5. Encroachment	As the ditch is a maintain drainage structure, it is expected that vegetation clearing will be completed within channel and parts of the SPEA to ensure convenance of storm waters. As such, periodic encroachment is expected to occur. Native plants species will be planted on un-utilized portions of the property to address SPEA encroachment.
I, Arin Yeomans-Routledge , hereby certify that: a) I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the Riparian Areas Protection Act; b) I am qualified to carry out this part of the assessment of the development proposal made by the developer _Satinderjit Wahlla c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and in carrying out my assessment of the development proposal, I have followed the technical manual to the Riparian Areas Protection Regulation.	
6. Sediment and Erosion Control	There are minor concerns that the works may result in sediment laden waters entering downstream ditching if extreme rainfall occurs during the proposed works. As such, the following measures are prescribed: ● Works are to occur during dry periods. ● Works should not be started within 5 days of forecasted heavy rains (30 mm). ● A sediment control barrier should be installed downgradient of the works prior to excavations and above the High Water Mark. ● Stockpiled soils are to be covered if left exposed for more then 24 hrs. ● A native grass seed is to be applied to disturbed areas immediately post works. ● Planting of all non occupied areas (outside of the driveways) with native plants (i.e., shrubs). ● If any turbid waters are observed exiting the work area, a QEP is to be contacted immediately to assess and prescribe additional mitigation measures.
I, Arin Yeomans-Routledge hereby certify that: a) I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the Riparian Areas Protection Act; b) I am qualified to carry out this part of the assessment of the development proposal made by the developer Satinderjit Wahlla c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and in carrying out my assessment of the development proposal, I have followed the technical manual to the Riparian Areas Protection Regulation.	
7. Stormwater Management	Removal of the existing 14 m culvert and replacement with two smaller open bottom culverts has been proposed. This will result in a gain of open channel. The ditch will be re-constructed to its previous form once upon completion of the culvert replacement. All works are to be reviewed and approved by the City of Port Moody Engineering department.

I, Arin Yeomans-Routledge hereby certify that:

a) I am a qualified environmental professional, as defined in the Riparian Areas Protection Regulation made under the Riparian Areas Protection Act;
b) I am qualified to carry out this part of the assessment of the development proposal made by the developer Satinderjit Wahlla
c) I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and in carrying out my assessment of the development proposal, I have followed the technical manual to the Riparian Areas Protection Regulation.

8. Floodplain Concerns (highly mobile channel)	N/A

I, Arin Yeomans-Routledge, hereby certify that:

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b. I am qualified to carry out this part of the assessment of the development proposal made by the developer Satinderjit Wahlla;
c. I have carried out an assessment of the development proposal and my assessment is set out in this Assessment Report; and In carrying out my assessment of the development proposal, I have followed the assessment methods set out in the Minister's technical manual to the Riparian Areas Protection Regulation.

Section 6. Photos

Figure 1. Panoramic view of the ditch bordering the north property boundary (white peg). Existing culvert indicated by green line and flow direction in blue. Photograph collected 14-March-2022.

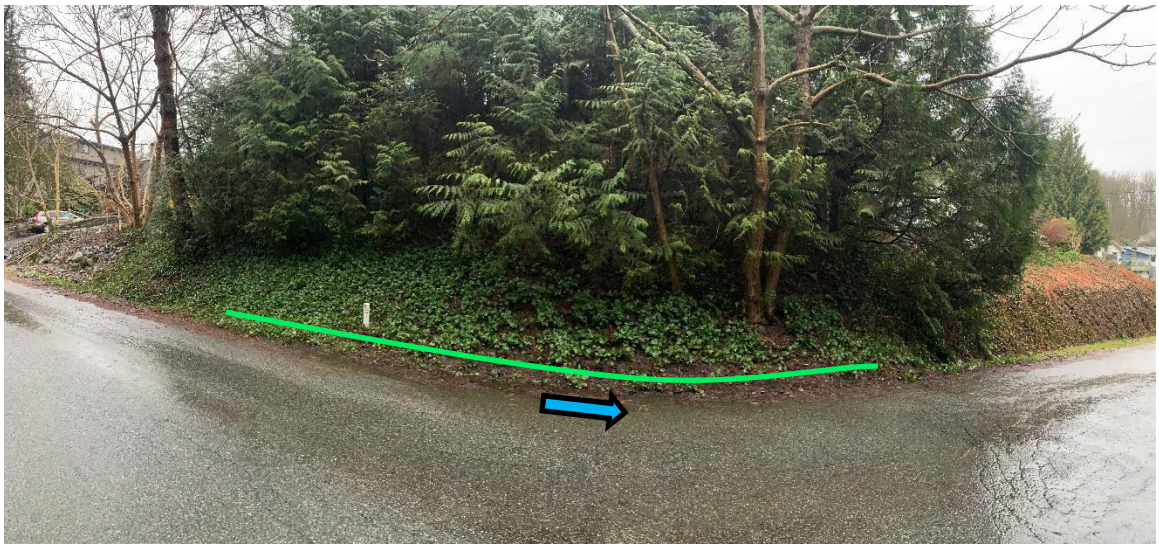


Figure 2. View of open channel (blue) adjacent to Hope St., existing culvert (green) and top of bank (orange) at the northeast property corner. Photograph collected 14-March-2022.

Figure 3. View of the subject channel facing upstream, depicting surface flow within the channel over the present stream substrates and English Ivy growth crossing the channel. Photograph collected 14-March-2022.

Figure 4. Looking upstream at the subject channel, vegetation growth and instream substrates upstream of the existing culvert during the 2019 field assessment. Photograph collected 17-October-2019.

Figure 5. View of the ditch channel facing upstream from the northeast property corner and existing culvert. Flow direction indicated in blue. Photograph collected 14-March-2022.

Figure 6. View of ditch channel downstream of northwest property corner and existing culvert. Flow direction indicated in blue. Photograph collected 14-March-2022.

Figure 7. View of stormwater entering the catch basin at the southeast corner of Hope St. and Elgin. St approximately 25 m downstream of the property Photograph collected 14-March-2022.

Figure 8. View of the headwaters of the ditch at the top of the hill on Hope St., facing east. An undefined channel supporting minor stormwater flow through vegetation at the foot of the retaining wall was identified here. Photograph collected 8-August-2019.

Section 7. Professional Opinion

Qualified Environmental Professional opinion on the development proposal's riparian assessment.

Date 2022-04-12

1. I/We Arin Yeomans- Routledge, R.P.Bio. B.Sc.

hereby certify that:

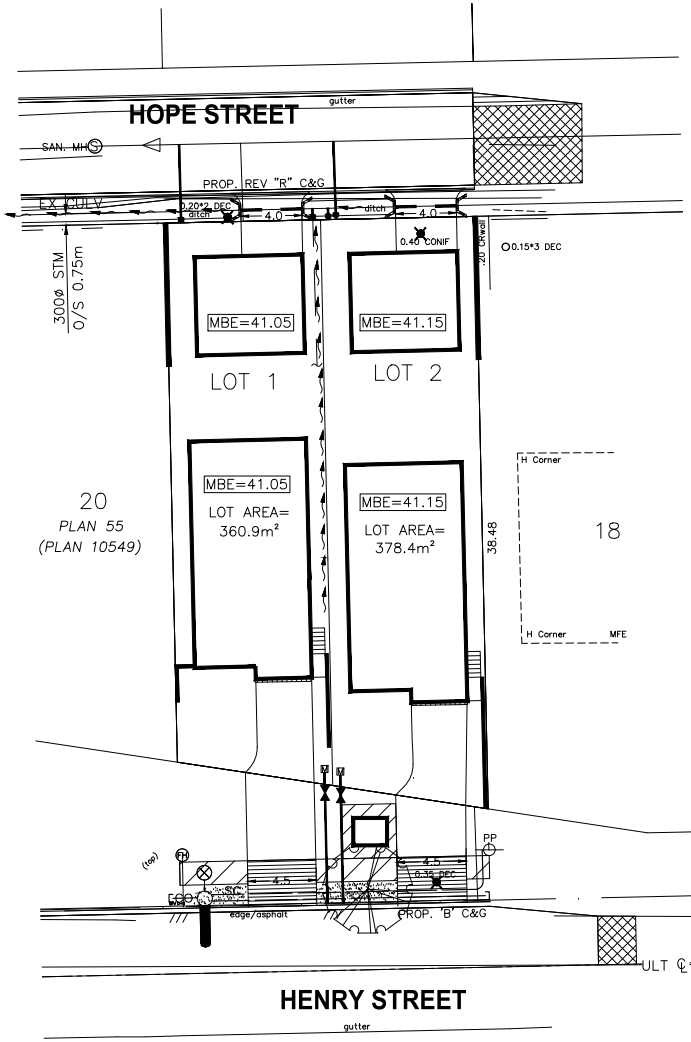
a) I am/We are qualified environmental professional(s), as defined in the Riparian Areas Protection Regulation made under the *Riparian Areas Protection Act*;
b) I am/We are qualified to carry out the assessment of the proposal made by the developer Satinderjit Wahlla, which proposal is described in section 3 of this Assessment Report (the "development proposal"),
c) I have/We have carried out an assessment of the development proposal and my/our assessment is set out in this Assessment Report; and
d) In carrying out my/our assessment of the development proposal, I have/We have followed the specifications of the Riparian Areas Protection Regulation and assessment methodology set out in the minister's manual; AND

2. As qualified environmental professional(s), I/we hereby provide my/our professional opinion that:

a) N/A the site of the proposed development is subject to undue hardship, (**if applicable, indicate N/A otherwise**) and
b) Yes the proposed development will meet the **riparian protection standard** if the development proceeds as proposed in the report and complies with the measures, if any, recommended in the report.

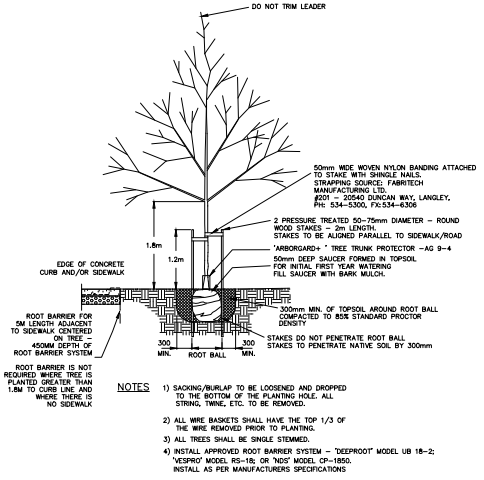
Appendix C

Landscape Design Plan



STREET TREE LIST

KEY	BOTANICAL NAME	COMMON NAME	QTY.	SIZE	SPACING	REMARKS
	MAGNOLIA GALAXY	GALAXY MAGNOLIA	1	6 CM. CAL.	AS SHOWN	B. & B.



NOTES

1) SACKING/BURLAP TO BE LOOSENED AND DROPPED TO THE BOTTOM OF THE PLANTING HOLE. ALL STRING, TWINE, ETC. TO BE REMOVED.
2) ALL WIRE BASKETS SHALL HAVE THE TOP 1/3 OF THE WIRE REMOVED PRIOR TO PLANTING.
3) ALL TREES SHALL BE SINGLE STEMMED.
4) INSTALL APPROVED ROOT BARRIER SYSTEM – 'DEEPROOT' MODEL UB 18-2; 'VESPRO' MODEL RS-18; OR 'NDS' MODEL CP-1850. INSTALL AS PER MANUFACTURERS SPECIFICATIONS

TREE PLANTING DETAIL

Minimum planting clearances for street trees

Infrastructure	Minimum Planting Clearances (measure from the closest points between the tree and infrastructure)
Lamp Posts	6.0 m
Stop Signs and Traffic Signs	6.0 m
Utilities (water, sanitary, storm, gas, communication, hydro)	For new road design, refer to Supplemental Standard Detail Drawings 0.75 m for existing roads that are not being modified.
Hydrants	2.0 m
Manholes, valve boxes	1.2 m
Corners	Minimum 6 sight triangle and clearance as determined by the Stopping Sight Distance (SSD) in Section 1.2.5.2 of the TAC Geometric Design Guide for Canadian Roads
Driveways	2.0 m minimum and clearance as determined by the SSD in Section 1.2.5.2 of the TAC Geometric Design Guide for Canadian Roads
Overhead power lines	As per utility owner
Planting strip area (between sidewalk and curb)	Face of curb – 0.75 m Edge of sidewalk – 0.6 m

ALL MATERIALS AND WORKMANSHIP MUST ADHERE TO:
CITY OF PORT MOODY
LANDSCAPING ON CITY LANDS
'DRAFT' INTERIM SPECIFICATIONS AND STANDARDS
DOCUMENT

ALL PLANT MATERIAL MUST BE PROVIDED FROM CERTIFIED 'DISEASE FREE' NURSERY. ALL PLANT MATERIAL MUST CONFORM TO THE LATEST EDITION OF THE 'BC LANDSCAPE STANDARD' PROVIDE CERTIFICATION UPON REQUEST. ALL LANDSCAPING AND LANDSCAPE MATERIALS TO CONFORM TO THE LATEST EDITION OF THE BCLNA/BCSLA 'LANDSCAPE STANDARDS'

GROWING MEDIUM SHALL HAVE PHYSICAL AND CHEMICAL PROPERTIES AS DESCRIBED IN THE STANDARDS FOR LEVEL 2 AND LEVEL 3 AREAS, EXCEPT FOR AREAS OVER STRUCTURE WHERE THE MEDIUM SHALL CONFORM TO THE REQUIREMENTS FOR LEVEL 1 APPLICATIONS. PROCESSING AND MIXING OF GROWING MEDIUM COMPONENTS SHALL BE DONE OFF-SITE USING A MECHANIZED SCREENING PROCESS. PROPOSED GROWING MEDIUM SHALL BE TESTED BY A RECOGNIZED LABORATORY. THE CONTRACTOR SHALL GUARANTEE THAT THE SOIL SUBMITTED FOR TESTING IS A REPRESENTATIVE SAMPLE TAKEN FROM THE SOIL THAT WILL BE USED AT THE SITE

DATE	REMARKS	NO.
	REVISIONS	

C.KAVOLINAS & ASSOCIATES INC
BCSLA CSLA
2462 JONQUIL COURT
ABBOTSFORD, B.C.
V3G 3E8
PHONE (604) 857-2376

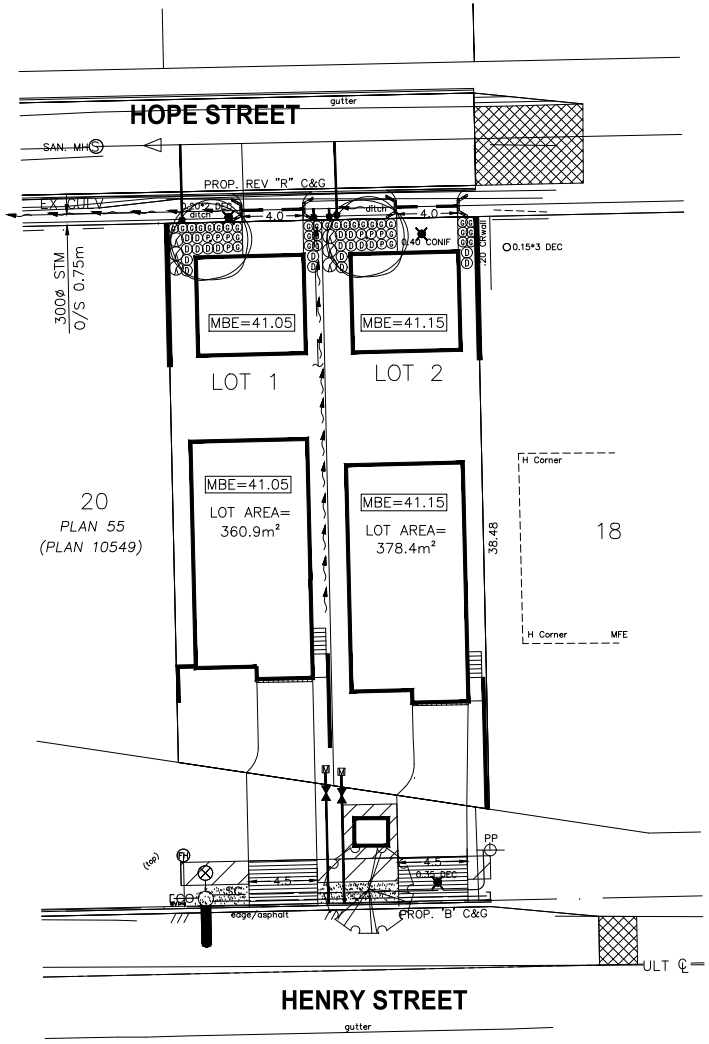
CLIENT
ROZITA RAZI
WESTRIDGE ENGINEERING & CONSULTING LTD.
SUITE #215
12992 – 76 AVENUE
SURREY, B.C.
V3W 2V6

TITLE
PLAN VIEW

PROPOSED
STREET TREE PLAN
2 LOT SUBDIVISION
2304 HENRY STREET
PORT MOODY, B.C.

SCALE 1:150	DATE MAY/22
DRAFT	CHK'D
ENG.	CHK'D
APP'D	AS BUILT

PRINTED	JOB No.
	DRAWING No. ST-1



SPEA SETBACK
PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	QTY.	SIZE	SPACING	REMARKS
·	ACER CIRCINATUM	VINE MAPLE	2	3 METERS	AS SHOWN	
P	POLYSTUCHUM MUNITUM	SWARD FERN	8	#3 POT	65 CM. O.C.	
V	VACCINIUM OVATUM	EVERGREEN HUCKLEBERRY	6	#3 POT	90 CM. O.C.	
D	CORNUS SERICEA	REDTWIG DOGWOOD	20	#3 POT	75 CM. O.C.	WELL BRANCHED
G	GAULTHERIA SHALLON	SALAL	32	#3 POT	65 CM. O.C.	

NOTES / GENERAL

1) PLANT SIZES IN THIS LIST ARE SPECIFIED ACCORDING TO BC LANDSCAPE STANDARD "LATEST EDITION". CONTAINER SIZES ARE SPECIFIED AS PER "CNTA STANDARDS".BOTH PLANT SIZE AND CONTAINER SIZE ARE THE MINIMUM ACCEPTABLE SIZES. SEARCH AND REVIEW MAKE PLANT MATERIAL AVAILABLE FOR OPTIONAL REVIEW BY "LANDSCAPE ARCHITECT" AT SOURCE OF SUPPLY, AREA OF SEARCH TO INCLUDE LOWER MAINLAND AND FRASER VALLEY. "SUBSTITUTIONS" MUST OBTAIN WRITTEN APPROVAL FROM THE "LANDSCAPE ARCHITECT" PRIOR TO MAKING ANY SUBSTITUTIONS TO SPECIFIED MATERIAL. UNAPPROVED SUBSTITUTIONS WILL BE REJECTED. ALLOW A MINIMUM OF FIVE WORKING DAYS PRIOR TO DELIVERY FOR REQUEST TO SUBSTITUTE. SUBSTITUTIONS ARE SUBJECT TO "B.C. LANDSCAPE STANDARD"

ALL PLANT MATERIAL MUST BE PROVIDED FROM CERTIFIED "DISEASE FREE" NURSERY. ALL PLANT MATERIAL MUST CONFORM TO THE LATEST EDITION OF THE "BC LANDSCAPE STANDARD". PROVIDE CERTIFICATION UPON REQUEST. ALL LANDSCAPING AND LANDSCAPE MATERIALS TO CONFORM TO THE LATEST EDITION OF THE BCLNA/BCSLA "LANDSCAPE STANDARDS"

2) MIN. GROWING MEDIUM DEPTHS OVER PREPARED SUBGRADE SHALL BE :

LAWN AREAS	300 mm
GROUND COVER AREAS	450 mm
SHRUB AREAS	450 mm
TREE PITS	300 mm AROUND ROOT BALL

3) GROWING MEDIUM SHALL HAVE PHYSICAL AND CHEMICAL PROPERTIES AS DESCRIBED IN THE STANDARDS FOR LEVEL 2 AND LEVEL 3 AREAS, EXCEPT FOR AREAS OVER STRUCTURES WHERE THE MEDIUM SHALL CONFORM TO THE REQUIREMENTS FOR LEVEL 1 APPLICATIONS. PROCESSING AND MIXING OF GROWING MEDIUM COMPONENTS SHALL BE DONE OFF-SITE USING A MECHANIZED SCREENING PROCESS. PROPOSED GROWING MEDIUM SHALL BE TESTED BY A RECOGNIZED LABORATORY. THE CONTRACTOR SHALL GUARANTEE THAT THE SOIL SUBMITTED FOR TESTING IS A REPRESENTATIVE SAMPLE TAKEN FROM THE SOIL THAT WILL BE USED AT THE SITE.

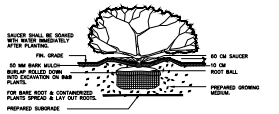
4) ON-SITE OR IMPORTED SOILS SHALL SATISFY THE REQUIREMENTS OF THE STANDARDS FOR GROWING MEDIUM. SOILS SHALL BE VIRTUALLY FREE FROM SUBSOIL, WOOD INCL. WOODY PLANT PARTS, WEED OR REPRODUCTIVE PARTS OF WEEDS, PLANT PATHOGENIC ORGANISMS, TOXIC MATERIALS, STONES OVER 30 MM AND FOREIGN OBJECTS.

5) ALL PLANTING BEDS SHALL RECEIVE MIN. 50 MM BARK MULCH.

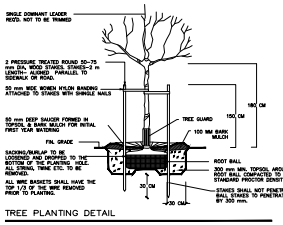
6) PLANT SPECIES AND VARIETIES MAY NOT BE SUBSTITUTED WITHOUT THE APPROVAL OF THE LANDSCAPE ARCHITECT.

7) THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) FULL YEAR FROM THE DATE OF FINAL ACCEPTANCE, UNLESS OTHERWISE SPECIFIED. ALL PLANT MATERIAL NOT SURVIVING, OR IN POOR CONDITION DURING THE GUARANTEE PERIOD SHALL BE REPLACED BY THE CONTRACTOR AT NO EXTRA COST TO THE OWNER.

8) THE CONTRACTOR SHALL CLEAR AWAY FROM THE SITE ALL RUBBISH AS IT ACCUMULATES, AND SHALL, AT THE COMPLETION OF THE WORK, LEAVE THE WORK AND THE SITE THEREOF IN A CLEAN AND PRESENTABLE CONDITION, FREE FROM ALL OBSTRUCTIONS.



PLANTING DETAIL – SHRUBS & GRD. COVER PLANTS
SECTION N.T.S.



TREE PLANTING DETAIL
SECTION N.T.S.

ALL MATERIALS AND WORKMANSHIP MUST ADHERE TO:
CITY OF PORT MOODY
LANDSCAPING ON CITY LANDS
'DRAFT' INTERIM SPECIFICATIONS AND STANDARDS
DOCUMENT

ALL PLANT MATERIAL MUST BE PROVIDED FROM CERTIFIED 'DISEASE FREE' NURSERY. ALL PLANT MATERIAL MUST CONFORM TO THE LATEST EDITION OF THE 'BC LANDSCAPE STANDARD' PROVIDE CERTIFICATION UPON REQUEST. ALL LANDSCAPING AND LANDSCAPE MATERIALS TO CONFORM TO THE LATEST EDITION OF THE BCLNA/BCSLA 'LANDSCAPE STANDARDS'

GROWING MEDIUM SHALL HAVE PHYSICAL AND CHEMICAL PROPERTIES AS DESCRIBED IN THE STANDARDS FOR LEVEL 2 AND LEVEL 3 AREAS, EXCEPT FOR AREAS OVER STRUCTURE WHERE THE MEDIUM SHALL CONFORM TO THE REQUIREMENTS FOR LEVEL 1 APPLICATIONS, PROCESSING AND MIXING OF GROWING MEDIUM COMPONENTS SHALL BE DONE OFF-SITE USING A MECHANIZED SCREENING PROCESS. PROPOSED GROWING MEDIUM SHALL BE TESTED BY A RECOGNIZED LABORATORY. THE CONTRACTOR SHALL GUARANTEE THAT THE SOIL SUBMITTED FOR TESTING IS A REPRESENTATIVE SAMPLE TAKEN FROM THE SOIL THAT WILL BE USED AT THE SITE

DATE	REMARKS	NO.
	REVISIONS	

C.KAVOLINAS & ASSOCIATES INC.
BCSLA CSLA
2462 JONQUIL COURT
ABBOTSFORD, B.C.
V3G 3E8
PHONE (604) 857-2376

CLIENT
ROZITA RAZI
WESTRIDGE ENGINEERING & CONSULTING LTD.
SUITE #215
12992 – 76 AVENUE
SURREY, B.C.
V3W 2V6

TITLE
PLAN VIEW
SPEA SETBACK
LANDSCAPE PLAN
2 LOT SUBDIVISION
2304 HENRY STREET
PORT MOODY, B.C.

SCALE	1:150	DATE	MAY/22
DRAFT		CHK'D	
ENG.		CHK'D	
APPR'D		AS BUILT	

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