

From: [Krista Baronian](#)
To: [Neethu Syam](#); [Anne Berry](#)
Cc: [Parb Rehal](#)
Subject: RE: 1441 Vidal Street - Items to be addressed prior to scheduling Public Hearing
Date: July 5, 2023 10:43:35 AM
Attachments: [image001.jpg](#)
[image002.jpg](#)
[image003.png](#)

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Hi Neethu,

Please find attached our most updated set to reflect the changes you had requested. You can download it via Keystone's server through your previous login details - <https://keystonearch.sharefile.com/d-sc16dfd2520624002917244085140f175>

The below changes are reflected in the attached:

- Added 11 stalls to the P4 level
- Updated stats to match
- Added 4 EV stalls
 - 1 added to visitor (5 total)
 - 3 added to residential (20 total)
- Design rationale updated to match changed number of units and parking levels

As per the other questions, please see below:

1. *An email confirming your commitment to securing fourteen (14) of the 139 dwelling units for a period of **15 years** as having maximum rents set at the average rent for a private apartment in White Rock as indicated by the most current rental market report from Canada Mortgage and Housing Corporation. – Weststone is committed to securing 14 of the 139 dwelling units for a period of 15 years as part of the affordable housing component which will be reflected in our updated draft housing agreement.*
2. *Provide a response to Council's question on rough-in charging for a renter who has an EV but whose parking space does not have an energized outlet. Who would pay for the installation of an Electric Vehicle Charging Station? Would it be the renter or the owner? Typical with any new building, the EV charging station would be installed by the renter and not the developer. The developer, however, is responsible for providing the rough-in's which we are committed to doing for 100% of the stalls within the parkade. In addition, we will ensure that 20 stalls are already equipped with the chargers so this will be on a first come first serve basis. We have found that a lot of individuals who have electric vehicles, tend to purchase the charger at the same time if they are planning on charging their car at home. Furthermore, 5 EV stalls are going to be "visitor" stalls which means that tenants can also use these to charge their cars should they not choose to purchase their own charger. We will also be providing information*

to tenants that will be purchasing chargers to request a rebate from BC Hydro as they can get up to 50% of the cost reimbursed.

Best,

Krista Baronian

Development Manager

WestStone Group



Office: 604.498.1958 ext 108

Fax: 604.498.1959

315 – 13338 Central Ave

Surrey BC V3T 0M3

From: Krista Baronian

Sent: Tuesday, July 4, 2023 1:13 PM

To: 'Neethu Syam' <NSyam@whiterockcity.ca>; 'Anne Berry' <ABerry@whiterockcity.ca>

Cc: Parb Rehal <parb@wsgroup.ca>

Subject: RE: 1441 Vidal Street - Items to be addressed prior to scheduling Public Hearing

Hi Neethu,

Hope you all had a great long weekend!

Just following up on the below request of having our public hearing scheduled for July 17th and 3rd reading on the 24th.

Let me know if it is at all possible to proceed with this option.

Best,

Krista Baronian

Development Manager

WestStone Group



Office: 604.498.1958 ext 108

Fax: 604.498.1959

315 – 13338 Central Ave

Surrey BC V3T 0M3

From: Krista Baronian

Sent: Thursday, June 29, 2023 11:49 AM

To: Neethu Syam <NSyam@whiterockcity.ca>; Anne Berry <ABerry@whiterockcity.ca>

Cc: Parb Rehal <parb@wsgroup.ca>

Subject: RE: 1441 Vidal Street - Items to be addressed prior to scheduling Public Hearing

Hi Neethu,

We are thrilled that 2nd reading has been achieved once again! Thank you for sending the below comments over – I currently have Keystone working on the updates and will provide responses as soon as possible.

As for our public hearing and 3rd reading, it would be great if we could have them on the same night considering we have already been through both processes in the past. By any chance, would it be at all possible to schedule Vidal for the July 17th public hearing date and follow through with 3rd reading on July 24th? I figured I would check in to see if this was an option to ensure we are maintaining a healthy schedule as re-financing for the project is getting tight.

Looking forward to hearing from you!

Best,

Krista Baronian

Development Manager

WestStone Group



Office: 604.498.1958 ext 108

Fax: 604.498.1959

315 – 13338 Central Ave

Surrey BC V3T 0M3

From: Neethu Syam <NSyam@whiterockcity.ca>

Sent: Wednesday, June 28, 2023 11:00 AM

To: Krista Baronian <krista@wsgroup.ca>; Anne Berry <ABerry@whiterockcity.ca>

Cc: Parb Rehal <parb@wsgroup.ca>

Subject: RE: 1441 Vidal Street - Items to be addressed prior to scheduling Public Hearing

Hi Krista,

Congratulations on receiving first and second readings for your application at Monday night's Council meeting! We shall look to schedule the Public Hearing for **July 24th**. We will check with Corporate Administration to see if the related bylaw can be placed on the agenda for third reading the same evening.

However, before doing so, I will need the following documents/information from you by the end of next week:

- The updated Architectural drawing set which reflects the updated parking stall commitment (i.e. 167 resident parking + 42 visitor parking = 209 stalls minimum off-street parking bylaw requirement)
*(please ensure **all pages** in the drawings reflect the latest drawing date as this is part of the CD zone)*
- The Design rationale page still reflects old language with respect to unit numbers and the total number of parkade levels. Please update these.
- An email confirming your commitment to securing fourteen (14) of the 139 dwelling units for a period of **15 years** as having maximum rents set at the average rent for a private apartment in White Rock as indicated by the most current rental market report from Canada Mortgage and Housing Corporation.

Related to EV parking

- Please update the stats sheet in the drawing set to include the committed EV parking numbers
- Provide a response to Council's question on rough-in charging for a renter who has an EV but whose parking space does not have an *energized outlet*. Who would pay for the installation of an Electric Vehicle Charging Station? Would it be the renter or the owner?

Let me know if you have any questions.

Kind regards,

Neethu Syam (she/her)

Planner, City of White Rock

15322 Buena Vista Avenue, White Rock, BC V4B 1Y6

Tel: 604.541.2159 | www.whiterockcity.ca

Email signature logo



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From: Krista Baronian <krista@wsgroup.ca>

Sent: Monday, June 26, 2023 12:39 PM

To: Neethu Syam <NSyam@whiterockcity.ca>; Anne Berry <ABerry@whiterockcity.ca>

Cc: Parb Rehal <parb@wsgroup.ca>

Subject: RE: 1441 Vidal Street - Full Architectural drawing set

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Hi Anne & Neethu,

We were just reviewing the agenda for today's council meeting and we noticed that recommendation # 3 is to schedule a public hearing for the project.

Is there any way we are able to *tentatively* schedule 1441 Vidal on the **July 17th** public hearing date before the summer break and finalize based on tonight's vote?

As you know, we are consistently trying to work on the re-financing for the project as it has taken longer than expected for approvals. Having us on this agenda date with a potential to have our 3rd reading the following week would be extremely helpful to the lenders. This also allows us to work with planning staff on all the remaining requirements needed for final adoption through the summer Council break.

Please let us know if this possible and I would be happy to send anything over that you may need in order to pencil us in.

See you tonight!

Best,

Krista Baronian

Development Manager

WestStone Group



Office: 604.498.1958 ext 108

Fax: 604.498.1959

315 – 13338 Central Ave
Surrey BC V3T 0M3

From: Neethu Syam <NSyam@whiterockcity.ca>
Sent: Tuesday, June 20, 2023 11:35 AM
To: Krista Baronian <krista@wsgroup.ca>
Cc: Parb Rehal <parb@wsgroup.ca>; Anne Berry <ABerry@whiterockcity.ca>
Subject: RE: 1441 Vidal Street - Full Architectural drawing set

Hi Krista,

Yes, the link worked and I was able to access the updated package, thanks. The report has been forwarded to senior management and corporate administration for review. I will let you know once the agenda for the Council meeting has been published.

Thanks,

Neethu Syam (she/her)

Planner, City of White Rock

15322 Buena Vista Avenue, White Rock, BC V4B 1Y6

Tel: 604.541.2159 | www.whiterockcity.ca

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From: Krista Baronian <krista@wsgroup.ca>
Sent: Tuesday, June 20, 2023 11:05 AM
To: Neethu Syam <NSyam@whiterockcity.ca>
Cc: Parb Rehal <parb@wsgroup.ca>
Subject: RE: 1441 Vidal Street - Full Architectural drawing set

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Hi Neethu,

Thanks for the quick chat. I am assuming the link worked after the credentials were inputted?

Let me know if you experience any other issues.

Best,

Krista Baronian

Development Manager

WestStone Group



Office: 604.498.1958 ext 108

Fax: 604.498.1959

315 – 13338 Central Ave

Surrey BC V3T 0M3

From: Neethu Syam <NSyam@whiterockcity.ca>
Sent: Tuesday, June 20, 2023 10:29 AM
To: Krista Baronian <krista@wsgroup.ca>
Cc: Parb Rehal <parb@wsgroup.ca>
Subject: RE: 1441 Vidal Street - Full Architectural drawing set

Hi Krista,

I'm unable to access the document via the HTML link you sent me. You might need to find an alternative way to share the info with me.

Thanks,

Neethu Syam (she/her)

Planner, City of White Rock

15322 Buena Vista Avenue, White Rock, BC V4B 1Y6

Tel: 604.541.2159 | www.whiterockcity.ca

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From: Krista Baronian <krista@wsgroup.ca>
Sent: Tuesday, June 20, 2023 10:21 AM
To: Neethu Syam <NSyam@whiterockcity.ca>
Cc: Parb Rehal <parb@wsgroup.ca>
Subject: Fwd: 1441 Vidal Street - Full Architectural drawing set

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Hi Neethu,

See below for full set.

Best,

Krista Baronian
Development Manager

WestStone Group

Office: 604.498.1958 ext 108
Fax: 604.498.1959

315 – 13338 Central Ave
Surrey BC V3T 0M3

From: Noel Lim <noel@keystonearch.ca>

Sent: Tuesday, June 20, 2023 10:18 AM

To: Lukas Wykpis <lukas@KeystoneArch.ca>; Krista Baronian <krista@wsgroup.ca>; Eric Poxleitner <eric@keystonearch.ca>

Subject: RE: 1441 Vidal Street - Full Architectural drawing set

Hi Krista,

Please see the full DP set attached and let me know if you need anything else.

Regards,

Citrix Attachments

Expires December 17, 2023

23-05-15 - Vidal - Reissued for DP (Full Set).pdf

324.4 MB

[Download Attachments](#)

Noel Lim uses Citrix Files to share documents securely.

Noel Lim | Project Manager
Architectural Technologist AIBC, B.Arch.Sc

KEYSTONE ARCHITECTURE & PLANNING LTD.
Abbotsford BC | 300 – 33131 South Fraser Way V2S
2B1
Calgary AB | 410 – 333 11th Avenue SW T2R 1L9

Keystone Architecture



| Abbotsford [604.850.0577](tel:604.850.0577) - Ext. 237
| Calgary [587.391.4768](tel:587.391.4768)
| Mobile [604.785.2314](tel:604.785.2314)
| noel@keystonearch.ca

keystonearch.ca

I N N O V A T I V E D E S I G N S
P R A C T I C A L S O L U T I O N S

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From: Neethu Syam <NSyam@whiterockcity.ca>
Sent: Tuesday, June 20, 2023 9:03 AM
To: Krista Baronian <krista@wsgroup.ca>
Subject: 1441 Vidal Street - Full Architectural drawing set

Hi Krista,

I noticed that the drawing package you sent my way only has the revised pages included in them. Could you send me the entire drawing package (which includes the revision pages) with renderings as a full submission package? I need it before 10:30 AM. Since we are taking this to Council for full bylaw readings again, I require the full package.

Thanks,

Neethu Syam (she/her)

Planner, City of White Rock

15322 Buena Vista Avenue, White Rock, BC V4B 1Y6

Tel: 604.541.2159 | www.whiterockcity.ca

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August 3rd, 2023

WS Vidal Properties Limited Partnership
315 – 13338 Central Ave
Surrey, BC V3T 0M3

SENT VIA EMAIL

Attention: Krista Baronian, Parb Rehal (*Agents*)

RE: Development Conditions and additional requirements – Zoning Bylaw Amendment for 14937 Thrift Avenue and 1441, 1443-45, 1465 Vidal Street (19-011)

The proposed Zoning Bylaw Amendment for the properties at 14937 Thrift Avenue and 1441, 1443-45, and 1465 Vidal Street received third reading at the Regular Council Meeting held on July 24th, 2023. The following conditions must be satisfied before Council can consider the adoption of the Bylaw Amendment:

1. UPDATED LANDSCAPE PLAN

Condition: Submit updated Landscape plans reflecting the parkade intake and exhaust shafts for the new P4 level located at the southwest corner and the northeast corner of the parkade.

Staff Contact: File Manager

2. HOUSING AGREEMENT

Condition: Enter into a housing agreement with the City that secures the secured market rental (125 units) and that 10% of the housing (14 units) provided will be affordable housing.

Staff Contact: File Manager

3. REGISTRABLE DOCUMENTS

Conditions:

- i. Registration of a Section 219 Tree Protection Covenant – see *Section 6: Tree Protection and Management* below for more details.
- ii. Registration of a Section 219 covenant to secure 25 off-street parking stalls to be fully equipped with Electric Vehicle Charging Stations / EV Supply Equipment.
- iii. Registration of a Statutory Right-of-Way for the community urban park space at the intersection of Thrift Avenue and Vidal Street

Comments:

- Applicant's legal team to have the registrable documents drafted and upon completion send a draft to the relevant contact person(s) for review and approval.

- Once finalized, the applicant is to submit two (2) signed paper copies and one (1) electronic copy of this registerable document to the City for signatures.
- Following receipt of signed and executed copies from the City, submit the same to the Land Titles Office for registration on the land title.

Staff Contact: File Manager

4. WORKS AND SERVICES AGREEMENT:

Condition: Applicant to ensure that all engineering requirements (including road dedication etc.) and issues are addressed to the satisfaction of the Director of Engineering and Municipal Operations.

Comments:

- Please reach out to the assigned staff contact to get a sample W&SA for your review.
- The works and services agreement must be signed, and all fees and deposits must be paid before the application can advance to Council for final bylaw adoption.

Staff Contact: Hiep Lo HLo@whiterockcity.ca

Engineering Departments Website: <https://www.whiterockcity.ca/187/Engineering>

5. DEMOLITION PERMIT

Condition: Complete the demolition of the existing dwelling(s) to the satisfaction of the Director of Planning and Development Services.

Contact: Building Division - building@whiterockcity.ca

Building Division Website: <https://www.whiterockcity.ca/170/Building>

6. TREE PROTECTION & MANAGEMENT:

Conditions:

- i. A tree protection covenant, if and as required, to be registered on title to ensure the recommendations of the final Arborist Report, approved by the Director of Planning and Development Services and, more specifically, the City's Arboricultural Technician, are implemented and maintained through future demolition and construction activities.

Staff Contact: File Manager

- ii. You must confirm and ensure the recommendations of the final arborist report, approved by the Director of Planning and Development Services and, more specifically, the City's Arboricultural Technician, are implemented and maintained through future demolition and construction activities.

Staff Contact: Alanna Claffey aclaffey@whiterockcity.ca

Comments:

- Your project Architect and Engineer will need to approve and sign off that all prescriptions made by the project arborist are feasible.
- You will need to contact the Building clerk for Tree Management application forms and fees and submit the same arborist report approved by Planning before 2nd reading for the 6-storey proposal (2023). In addition, we will collect securities to protect and retain trees through future construction on-site (**Contact:** Building Division – building@whiterockcity.ca)

Tree Management Website: <https://www.whiterockcity.ca/323/Tree-Management>

7. CONSTRUCTION MANAGEMENT PLAN

Condition: Develop a Construction Management Plan for staff review and approval.

Staff Contact: File Manager

8. COMPREHENSIVE ADDRESSING PLAN

Condition: Develop a Comprehensive Addressing Plan for staff review and approval.

Staff Contact: Sophia Bihari sbihari@whiterockcity.ca

9. MAJOR DEVELOPMENT PERMIT

Condition: Prior to the final adoption of the Zoning Amendment, staff will bring forward the draft Major DP and report to Council for consideration. Approval of the DP will be in concurrence with the final adoption of the zoning bylaw.

Comment: Landscaping cost estimate to be provided to staff contact for calculation of securities.

Staff Contact: File Manager

10. ADDITIONAL REQUIREMENTS

a. MINOR DEVELOPMENT PERMIT

The subject properties also falls within the Environmental (Ravine Lands and Significant Trees) Development Permit Area (Section 23.4 in the [Official Community Plan](#)). While many requirements needed for this permit type have been captured as third reading conditions, the following are the additional conditions required for staff review at this time:

- An Erosion and Sediment Control Plan that shows how potential impacts to sensitive areas and nearby watercourses will be mitigated.
- A geotechnical assessment, prepared by a Registered Geotechnical Engineer, in accordance with the current edition of the Guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia. Registration of a restrictive covenant pursuant to Section 219 of the Land Title Act may be required.

- Application fee payment of **\$1,622**. You can pay by cheque, in person or by mail. We also have an option for online payment, but there is an additional 2% credit card service fee. If paying by cheque, please make it out to the City of White Rock.
- Submission of the following forms:
 - [Development Application Form](#)
 - [Form E](#) – Minor DP (Environmental DPA)

Staff Contact: File Manager

b. [COMMUNITY AMENITY CONTRIBUTION](#)

In order to achieve the proposed additional density, the CACs amount of **\$604,715.45** for the additional bonus density will need to be submitted in the form of payment-in-lieu prior to the final adoption of the Housing agreement bylaw and issuance of the Major Development Permit.

Staff Contact: File Manager

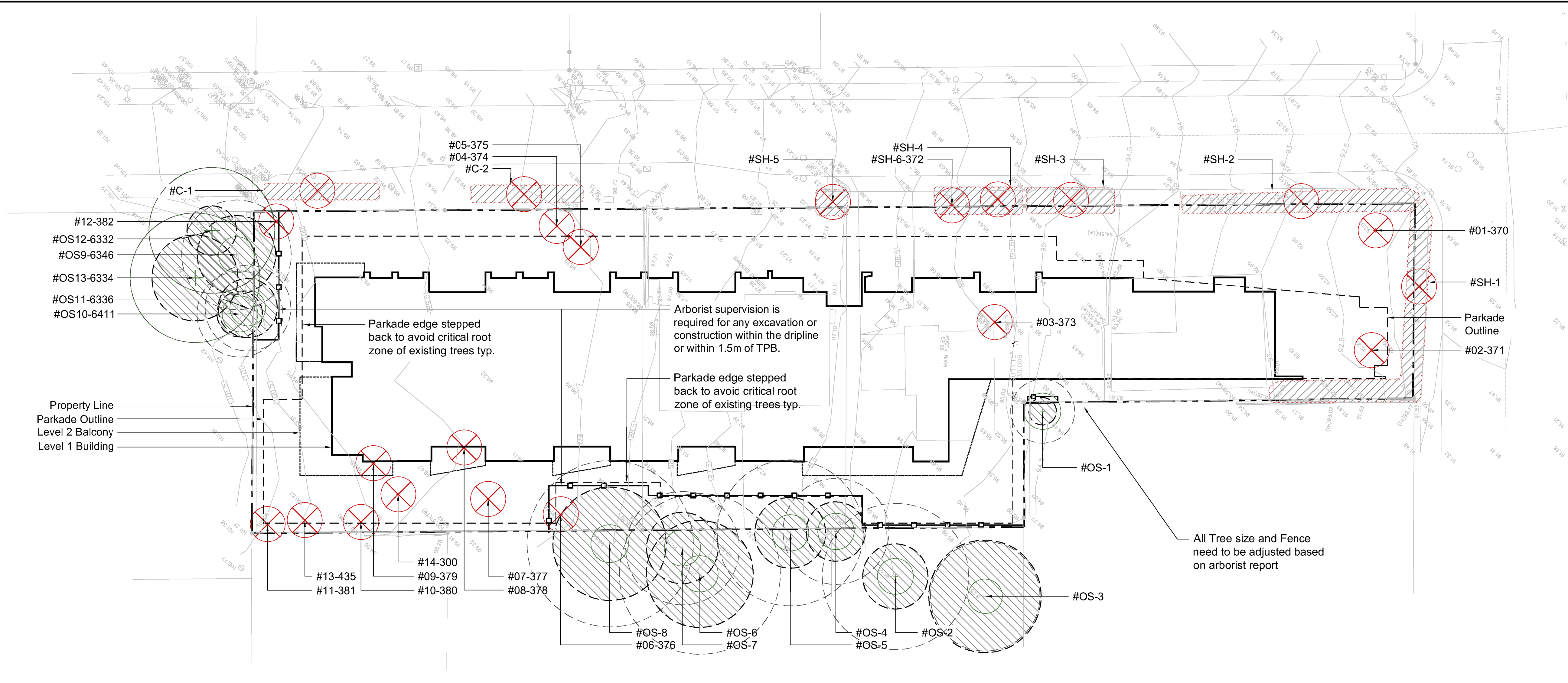
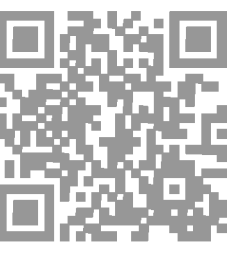
If you have any questions or concerns or would like to discuss this further, please contact Neethu Syam (File Manager) at 604-541-2159 or nsyam@whiterockcity.ca.

Regards,



Neethu Syam

Planner, Planning and Development Services



1 TREE PROTECTION AND REMOVAL PLAN
 Scale 1:250

Consolidated Version - White Rock Tree Management Bylaw, 2008, No. 1831
 Page 18 of 18

LEGEND

Tag #	CRZ CR	CRZ CR
Existing Tree to be Retained CRZ: Critical Root Zone CR: Crown Radius	Existing Tree to be Removed	Tree Protection Fencing

Tree Tag Legend
 XX - Tag number
 C-XX - Munciple tree
 OS-XX - Off-site tree
 SH-XX - Straddling tree. Written permission required from owner to remove trees.

SCHEDULE "A"
Specifications for Tree Protection Barriers

TRUNK DIAMETER (DBH)	MINIMUM PROTECTION DISTANCE (M FROM TRUNK)
20	1.2
25	1.5
30	1.8
35	2.1
40	2.4
45	2.7
50	3.0
55	3.3
60	3.6
75	4.5
90	5.0
100	6.0

NOTES
 Install tree protection barrier before construction begins and keep in place until landscape installation is complete.
 Storage of building materials & litter within or against protection barrier is prohibited. Developer/Owner responsible for maintenance within Tree Protection Barrier.
 Damaged trees will be replaced at Developer/Owner's cost.
 Maintain existing grades at protection barrier for all protected retained and existing trees.
 Regrading outside of protection barrier should not adversely compromise protected retained and existing trees.

- Note:**
- Contact Arborist (Glyn Romaine, 604 841 9977, glyn@vdz.ca) for inspection 72 hrs prior to any grading or excavation within the tree protection zone. (typ) If during excavation it is found that it cannot be completed without severing roots that are critical to the trees health or stability it may be necessary to remove additional trees.
 - Read this plan together with the arborist report prepared by VDZ+A.
 - An additional 1m setback is shown for all hand-plotted trees to be retained
 - If Stump Grinding is to occur in close proximity to trees which are to be retained then it is requested stumps to be removed under Arborist supervision.
 - It is the responsibility of the client or his/her representative to contact the project arborist for the purpose of:
 - *Locating TPZ Fencing
 - *Locating Work Zone and Machine access corridors where required
 - *Reviewing the Report with the project foreman or site supervisor.

2 TREE PROTECTION FENCE
 Scale NTS

No.	By:	Description	Date
14	SS	Re-Issued for DP	July 13, 2023
13	SS	Issued for DP	March 08, 2023
12	SH	Issued for Planning Review	May 31, 2022
11	SH	Issued for DP	Oct 18, 2021
10	SH	Response to ADP Comments	July 23, 2021
9	ET	Re-Issued for ADP	June 4, 2021
8	LJ	Issued for ADP	March 9, 2021
7	SH	Issued for Coordination	Feb. 26, 2021
6	SH	Issued for Coordination	Dec. 23, 2020
5	SH	Issued for Coordination	Oct. 6, 2020
4	SH	Issued for DP	June 25, 2020
3	SH	Issued for DP	March 6, 2020
2	SH	Issued for DP	May 24, 2019
1	JW	Issued for DP Review	Nov 16, 2018

REVISIONS TABLE FOR DRAWINGS
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No.	By:	Description	Date
6	GR	Arborist Report Update	Sept. 26, 2023
5	SH	Arborist Response	Sept. 26, 2022
4	KM	Arborist Report Revision	Sept 23rd, 2020
3	KM	Arborist Report Revision	Feb 4, 2020
2	SH	Arborist Report Revision	June 18, 2019
1	SH	Arborist Report Revision	May 15, 2019

REVISIONS TABLE FOR SHEET

Project:
 Vidal Street Development

Location:
 Vidal Street & Thrift Ave,
 White Rock, BC

Drawn: DV	Stamp:
Checked: SH	
Approved: GR	Original Sheet Size: 24"x36"
Scale: 1:250	CONTRACTOR SHALL CHECK ALL DIMENSIONS ON THE WORK AND REPORT ANY DISCREPANCY TO THE CONSULTANT BEFORE PROCEEDING. ALL DRAWINGS AND SPECIFICATIONS ARE THE EXCLUSIVE PROPERTY OF THE OWNER AND MUST BE RETURNED AT THE COMPLETION OF THE WORK. ALL REVISIONS/DP/PPA/HA/HP DRAWINGS MUST NOT BE PRIED FOR CONSTRUCTION UNLESS LABELED ISSUED FOR TENDER/CONSTRUCTION.

Drawing Title: **TREE PROTECTION AND REMOVAL PLAN**
 Drawing #: **DP2018-59**
 Drawing #: **L-02**

W:\DZ\SRV\LANG\VDZ\DATA\PROJECTS\DEVELOPMENT\PERMIT\ACTIVEDP\2018-59 VIDAL STREET\DWG\SHEET\02 TREE PROTECTION AND REMOVAL PLAN.DWG

PLAN EPP34987



SITE PLAN
SCALE = 1:400

WATER TREATMENT SYSTEM SHALL INCLUDE:
 • CO2 pH ADJUSTMENT - BMP C252
 • SETTLING TANKS - BMP C250
 • MECHANICAL FILTRATION - BMP C251
 SYSTEM MAY BE RELOCATED AS REQUIRED.
 WATER TREATMENT SYSTEM TO BE DESIGNED AND SIZED BY SUPPLIER TO STORE AND TREAT STORM WATER FROM THE SPECIFIED DESIGN STORM. DISCHARGE TO MEET THE DISCHARGE REQUIREMENTS AND BE MONITORED AS PER SPECIFICATIONS ON PAGE G-ESC.3.

SUMP TO BE CONSTRUCTED AT LOW POINT(S) OF SITE TO COLLECT STORM WATER. SUMP SHALL INCORPORATE A SEDIMENT TRAP AND FLOAT-ACTUATED PUMP AS SHOWN IN THE DETAILS. SUMP MUST BE MAINTAINED REGULARLY TO PREVENT BUILD UP OF SEDIMENT FROM BEING PUMPED INTO TREATMENT SYSTEM. DO NOT PLACE PUMPS DIRECTLY IN SEDIMENT. BMP C240

STORM WATER TREATMENT SYSTEM DESIGN
 SYSTEM SIZED BASED ON STORMWATER RUNOFF FLOW RATES AS FOLLOWS:
 DISCHARGE RATE (PEAK FLOW) $Q = 10.5 \text{ L/s}$
 DISCHARGE RATE (24 HOUR) $Q = 1.75 \text{ L/s}$
 GROUNDWATER INFLOWS MAY IMPACT THE WATER TREATMENT SIZE REQUIREMENTS.

DESIGN PARAMETERS
 RATIONAL METHOD: $Q = CA$
 WHERE: $Q =$ PEAK DISCHARGE FLOW RATE
 $C =$ RUNOFF COEFFICIENT $C = 0.75$
 $I =$ RAINFALL INTENSITY $I = 17 \text{ mm/HR}$
 $A =$ SITE CATCHMENT AREA $A = 2970.0 \text{ m}^2$

DESIGN PERIOD: 2-YEAR STORM EVENT @ $T_c = 30 \text{ min}$
 IDF CURVE FOR WHITE ROCK (ENVIRONMENT CANADA)

- LEGEND:**
- GRADE DIRECTION
 - WATER FLOW
 - CATCH BASIN PROTECTION
 - STOCKPILE
 - SUMP
 - 19-75mm CLEAR CRUSH GRAVEL

NO.	DATE	BY	REVISION



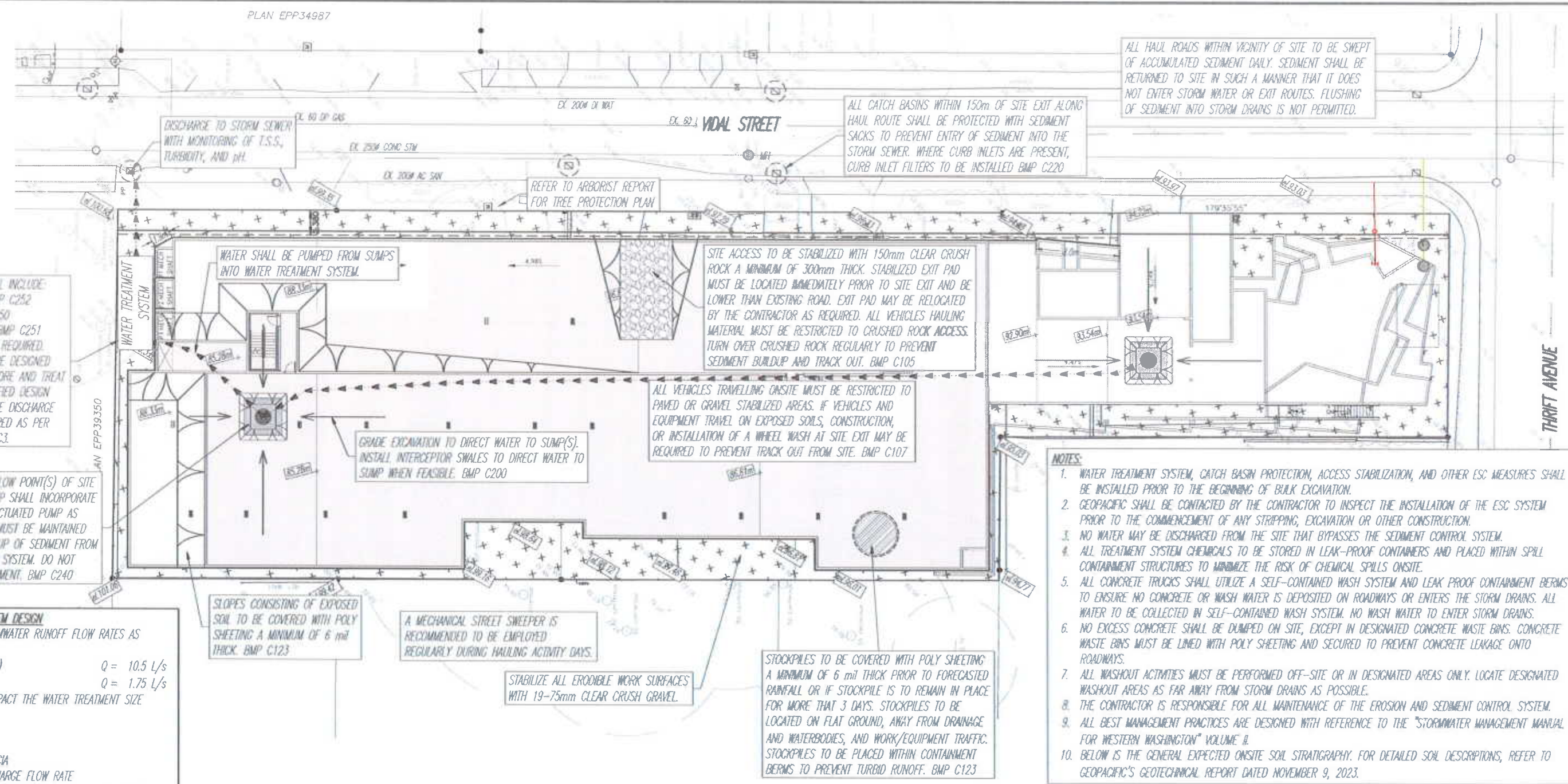
DESIGNED BY:
K.D.S.
 DRAWN BY:
N.S.K.
 APPROVED BY:
A.Ge.
 REVIEWED BY:
A.Ge.
 SCALE:
AS SHOWN

RESIDENTIAL DEVELOPMENT
 1441-1465 VIDAL STREET & 14937 THRIFT AVENUE, WHITE ROCK, B.C.
EROSION & SEDIMENT CONTROL PLAN

FILE NO:
15514
 DRAWING NO:
G-ESC1
 DATE:
DECEMBER 7, 2023



DEC 08 2023



ALL HAUL ROADS WITHIN VICINITY OF SITE TO BE SWEEPED OF ACCUMULATED SEDIMENT DAILY. SEDIMENT SHALL BE RETURNED TO SITE IN SUCH A MANNER THAT IT DOES NOT ENTER STORM WATER OR EXIT ROUTES. FLUSHING OF SEDIMENT INTO STORM DRAINS IS NOT PERMITTED.

ALL CATCH BASINS WITHIN 150m OF SITE EXIT ALONG HAUL ROUTE SHALL BE PROTECTED WITH SEDIMENT SACKS TO PREVENT ENTRY OF SEDIMENT INTO THE STORM SEWER. WHERE CURB INLETS ARE PRESENT, CURB INLET FILTERS TO BE INSTALLED BMP C220

SITE ACCESS TO BE STABILIZED WITH 150mm CLEAR CRUSH ROCK A MINIMUM OF 300mm THICK. STABILIZED EXIT PAD MUST BE LOCATED IMMEDIATELY PRIOR TO SITE EXIT AND BE LOWER THAN EXISTING ROAD. EXIT PAD MAY BE RELOCATED BY THE CONTRACTOR AS REQUIRED. ALL VEHICLES HAULING MATERIAL MUST BE RESTRICTED TO CRUSHED ROCK ACCESS. TURN OVER CRUSHED ROCK REGULARLY TO PREVENT SEDIMENT BUILDUP AND TRACK OUT. BMP C105

ALL VEHICLES TRAVELLING ONSITE MUST BE RESTRICTED TO PAVED OR GRAVEL STABILIZED AREAS. IF VEHICLES AND EQUIPMENT TRAVEL ON EXPOSED SOILS, CONSTRUCTION, OR INSTALLATION OF A WHEEL WASH AT SITE EXIT MAY BE REQUIRED TO PREVENT TRACK OUT FROM SITE. BMP C107

GRADE EXCAVATION TO DIRECT WATER TO SUMP(S). INSTALL INTERCEPTOR SWALES TO DIRECT WATER TO SUMP WHEN FEASIBLE. BMP C200

SLOPES CONSISTING OF EXPOSED SOIL TO BE COVERED WITH POLY SHEETING A MINIMUM OF 6 mil THICK. BMP C123

A MECHANICAL STREET SWEEPER IS RECOMMENDED TO BE EMPLOYED REGULARLY DURING HAULING ACTIVITY DAYS.

STABILIZE ALL ERODIBLE WORK SURFACES WITH 19-75mm CLEAR CRUSH GRAVEL.

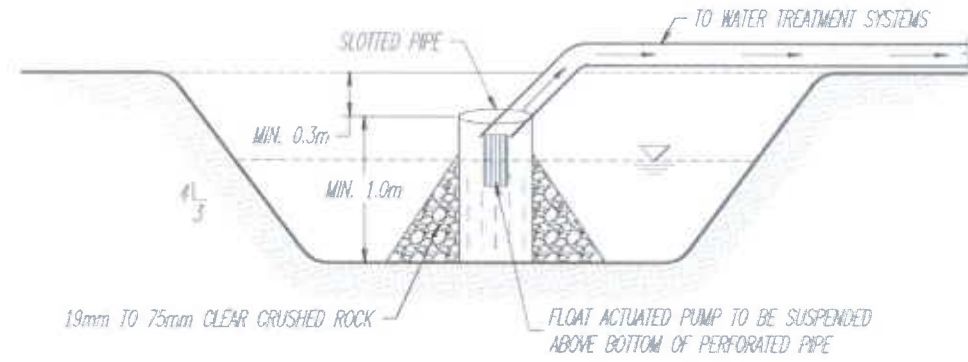
STOCKPILES TO BE COVERED WITH POLY SHEETING A MINIMUM OF 6 mil THICK PRIOR TO FORECASTED RAINFALL OR IF STOCKPILE IS TO REMAIN IN PLACE FOR MORE THAN 3 DAYS. STOCKPILES TO BE LOCATED ON FLAT GROUND, AWAY FROM DRAINAGE AND WATERBODIES, AND WORK/EQUIPMENT TRAFFIC. STOCKPILES TO BE PLACED WITHIN CONTAINMENT BERMS TO PREVENT TURBID RUNOFF. BMP C123

NOTES:

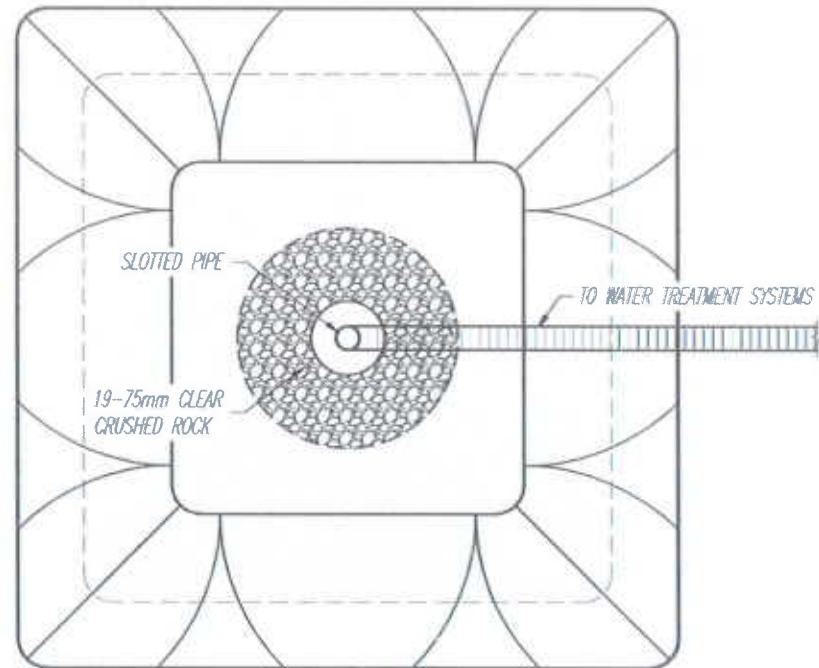
1. WATER TREATMENT SYSTEM, CATCH BASIN PROTECTION, ACCESS STABILIZATION, AND OTHER ESC MEASURES SHALL BE INSTALLED PRIOR TO THE BEGINNING OF BULK EXCAVATION.
2. GEOPACIFIC SHALL BE CONTACTED BY THE CONTRACTOR TO INSPECT THE INSTALLATION OF THE ESC SYSTEM PRIOR TO THE COMMENCEMENT OF ANY STRIPPING, EXCAVATION OR OTHER CONSTRUCTION.
3. NO WATER MAY BE DISCHARGED FROM THE SITE THAT BYPASSES THE SEDIMENT CONTROL SYSTEM.
4. ALL TREATMENT SYSTEM CHEMICALS TO BE STORED IN LEAK-PROOF CONTAINERS AND PLACED WITHIN SPILL CONTAINMENT STRUCTURES TO MINIMIZE THE RISK OF CHEMICAL SPILLS ONSITE.
5. ALL CONCRETE TRUCKS SHALL UTILIZE A SELF-CONTAINED WASH SYSTEM AND LEAK PROOF CONTAINMENT BERMS TO ENSURE NO CONCRETE OR WASH WATER IS DEPOSITED ON ROADWAYS OR ENTERS THE STORM DRAINS. ALL WATER TO BE COLLECTED IN SELF-CONTAINED WASH SYSTEM. NO WASH WATER TO ENTER STORM DRAINS.
6. NO EXCESS CONCRETE SHALL BE DUMPED ON SITE, EXCEPT IN DESIGNATED CONCRETE WASTE BINS. CONCRETE WASTE BINS MUST BE LINED WITH POLY SHEETING AND SECURED TO PREVENT CONCRETE LEAKAGE ONTO ROADWAYS.
7. ALL WASHOUT ACTIVITIES MUST BE PERFORMED OFF-SITE OR IN DESIGNATED AREAS ONLY. LOCATE DESIGNATED WASHOUT AREAS AS FAR AWAY FROM STORM DRAINS AS POSSIBLE.
8. THE CONTRACTOR IS RESPONSIBLE FOR ALL MAINTENANCE OF THE EROSION AND SEDIMENT CONTROL SYSTEM.
9. ALL BEST MANAGEMENT PRACTICES ARE DESIGNED WITH REFERENCE TO THE "STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON" VOLUME II.
10. BELOW IS THE GENERAL EXPECTED ONSITE SOIL STRATIGRAPHY. FOR DETAILED SOIL DESCRIPTIONS, REFER TO GEOPACIFIC'S GEOTECHNICAL REPORT DATED NOVEMBER 9, 2023.



ONSITE SOIL STRATIGRAPHY
N.T.S.



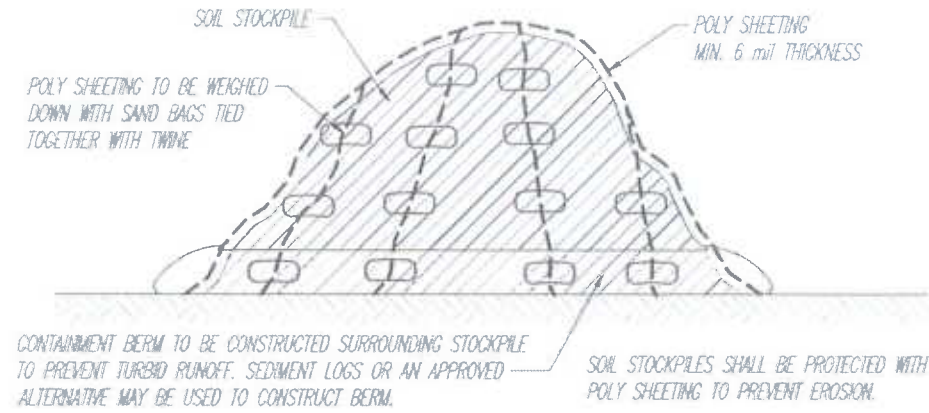
TYPICAL CROSS SECTION



TYPICAL PLAN VIEW

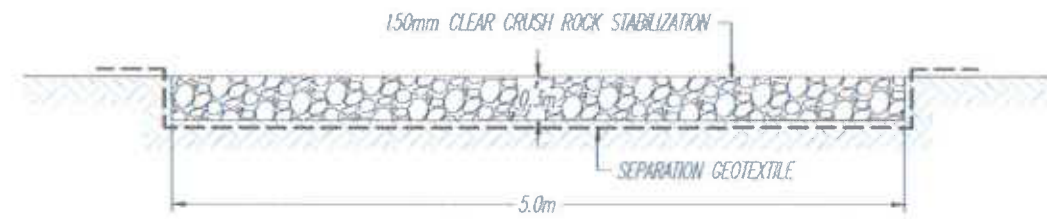
SUMP WITH SEDIMENT TRAP DETAIL - BMP C240

1:50



PLASTIC SHEETING - BMP C123

N.T.S.



GEOTEXTILE SEPARATION SPECS

GRAB TENSILE STRENGTH (ASTM D4751)	200psi MIN.
GRAB TENSILE ELONGATION (ASTM D4632)	30% MAX.
MULLEN BURST STRENGTH (ASTM D3786 - 80A)	400psi MIN.
AVERAGE OPENING SIZE (ASTM D4751)	20 - 45 (U.S. STANDARD SIZE)

STABILIZED CONSTRUCTION ACCESS DETAIL - BMP C105

1:50

LEGEND:

NO.	DATE	BY	REVISION



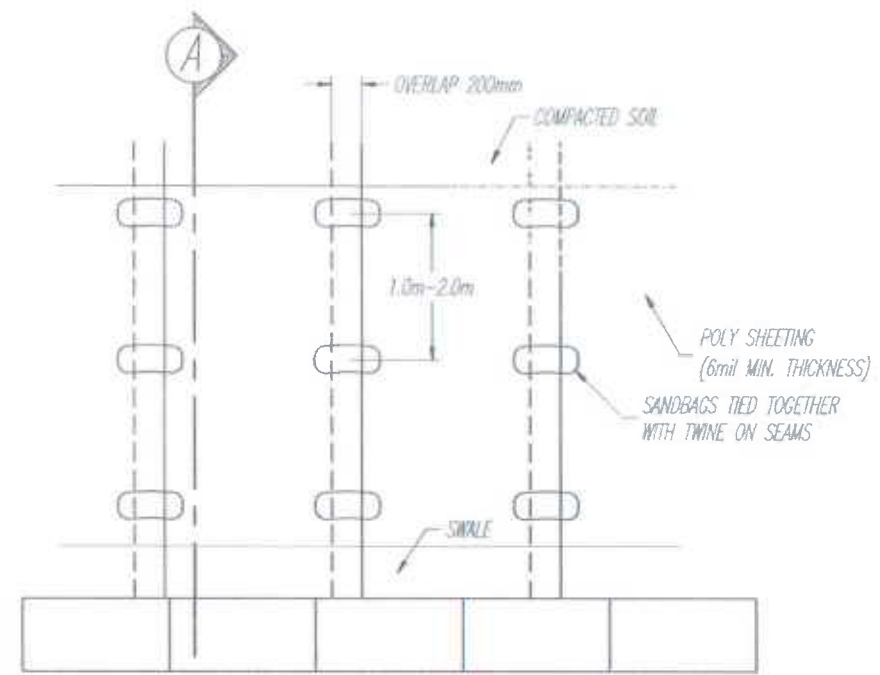
DESIGNED BY:
K.D.S.
DRAWN BY:
N.S.K.
APPROVED BY:
A.Ge.
REVIEWED BY:
A.Ge.
SCALE:
AS SHOWN

RESIDENTIAL DEVELOPMENT
1441-1465 VIDAL STREET & 14937 THRIFT AVENUE, WHITE ROCK, B.C.
EROSION & SEDIMENT CONTROL DETAILS (1 OF 2)

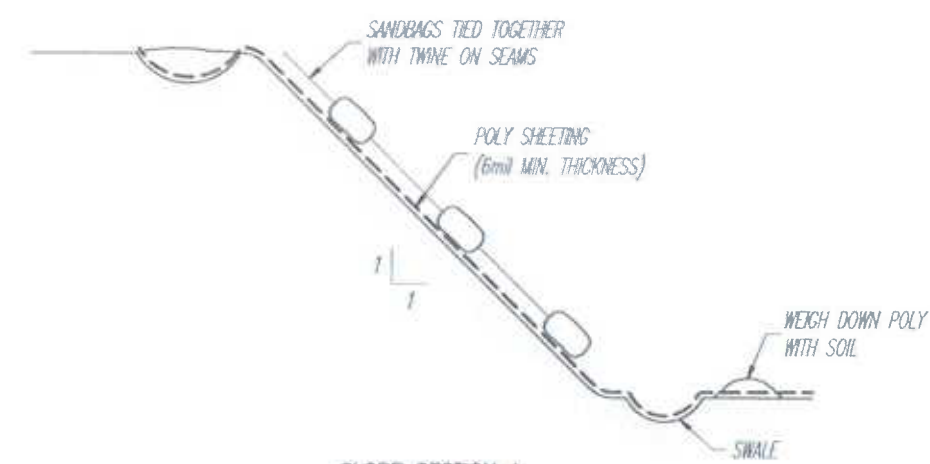
FILE NO:
15514
DRAWING NO:
G-ESC2A
DATE:
DECEMBER 7, 2023



DEC 08 2023



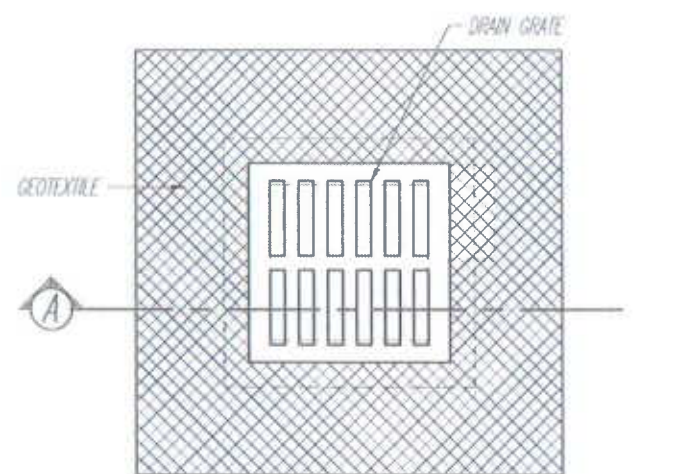
SLOPE PLAN VIEW



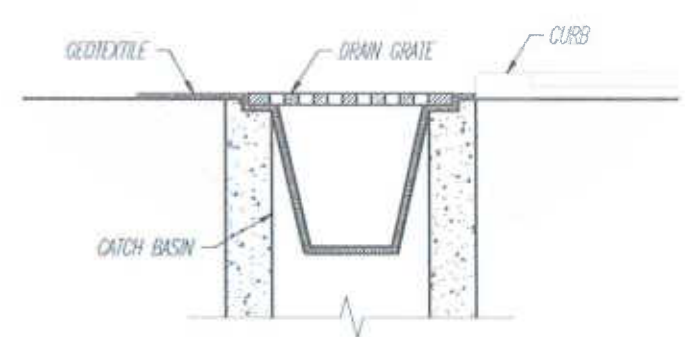
SLOPE SECTION A

PLASTIC COVERING - BMP C123
N.T.S.

- NOTE:**
1. POLYETHYLENE SHEETING WITH A MINIMUM THICKNESS OF 6mil TO BE USED.
 2. SHEETING TO BE PLACED PARALLEL TO THE SLOPE WITH A MINIMUM 200mm OVERLAP BETWEEN SHEETS.
 3. TRENCH TO BE EXCAVATED AT THE HEAD OF THE SLOPE TO ALLOW SHEETING TO BE SECURED UNDER COMPACTED SOIL.
 4. TRENCH TO BE EXCAVATED AT THE TOE OF THE SLOPE, TO A DEPTH OF 300mm, WHICH WILL ACT AS A SWALE.
 5. BURLAP OR GEOTEXTILE BAGS FILLED WITH SAND TO BE PLACED AT 1.0m TO 2.0m INTERVALS ALONG SEAMS. BAGS TO BE TIED TOGETHER WITH TWINE TO HOLD IN PLACE.
 6. REGULAR INSPECTION OF THE SHEETING IS REQUIRED. TORN SHEETS MUST BE REPLACED AND OPEN SEAMS MUST BE SEALED.



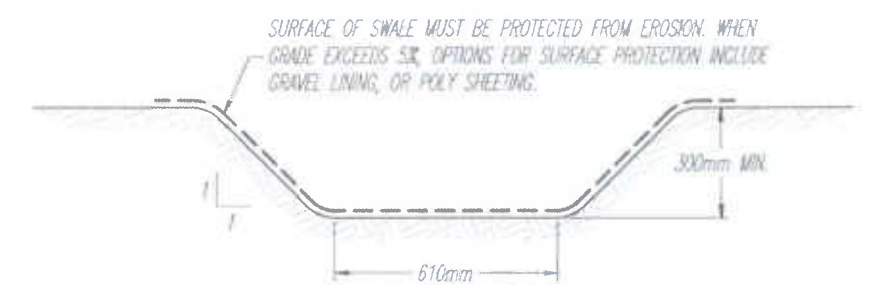
PLAN VIEW



SECTION A

- STORE SPARE CATCH BASIN PROTECTION ONSITE AT ALL TIMES.
- INSPECT CATCH BASIN PROTECTION WEEKLY, AND DAILY DURING STORM EVENTS. CLEAN OR REPLACE WHEN 1/3 FULL, CLOGGED, OR SIGNS OF WEAR OCCUR.
- CATCH BASIN PROTECTION TO BE USED ON ALL CATCH BASINS WITHIN 150m OF SITE EXIT ALONG HAUL ROUTE.

CATCH BASIN SEDIMENT SACK DETAIL - BMP C220
N.T.S.



INTERCEPTOR SWALE DETAIL - BMP C200
1:20

SPACING OF CHECK DAMS BASED ON SLOPE OF SWALES

SLOPE	SPACING OF CHECK DAMS
0.5%	EVERY 50m
1.0%	EVERY 35m
1.5%	EVERY 20m
2.0%	EVERY 15m
2.5%	EVERY 12m
3.0%	EVERY 10m

- NOTES:**
- DRAINAGE SWALE TO BE CONSTRUCTED WITH MIN. SLOPE TO FACILITATE FLOW.
 - SMALL SWALES SHALL DIRECT WATER INTO DRAINAGE SWALE.

- DURING ARID PERIODS OR DURING TIMES OF HIGH TRAFFIC OVER EXPOSED SOILS USE NATURAL OR ARTIFICIAL WIND BREAKS OR SCREEN.
- SPRINKLE WATER ON SITE UNTIL SURFACE SOILS ARE WETTED.
- SPRAY EXPOSED SOIL WITH DUST PALLIATIVE FOLLOWING MANUFACTURER'S INSTRUCTION.

DUST CONTROL - BMP C140

LEGEND:

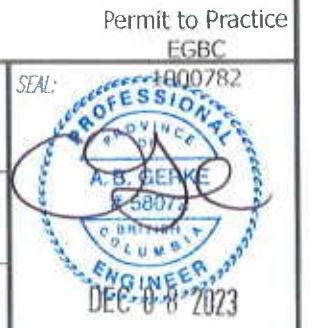
NO.	DATE	BY	REVISION



DESIGNED BY:
K.D.S.
DRAWN BY:
N.S.K.
APPROVED BY:
A.Ge.
REVIEWED BY:
A.Ge.
SCALE:
AS SHOWN

RESIDENTIAL DEVELOPMENT
1441-1465 VIDAL STREET & 14937 THRIFT AVENUE, WHITE ROCK, B.C.
EROSION & SEDIMENT CONTROL DETAILS (2 OF 2)

FILE NO:
15514
DRAWING NO:
G-ESC2B
DATE:
DECEMBER 7, 2023



ORIGINAL PAPER SIZE 11"X17"

GENERAL NOTES

1. UNDER THIS PLAN, ALL PERSONS INCLUDING BUT NOT LIMITED TO THE DEVELOPER, OWNER OF THE LAND, THE ENGINEER OF RECORD, ESC MONITOR, CIVIL CONTRACTOR, CIVIL SUBCONTRACTOR, BUILDER AND BUILDING SUB-TRADES, ENGAGED ONSITE SHALL COMPLY WITH THE REQUIREMENTS OF ALL REGULATORY AUTHORITIES, FEDERAL, PROVINCIAL AND MUNICIPAL GOVERNMENT DEPARTMENTS PERTAINING TO ONSITE MANAGEMENT AND DISCHARGE ASSOCIATED WITH EROSION AND SEDIMENT CONTROL REGULATIONS.
2. THE DEVELOPER/PERSONS RESPONSIBLE SHALL ENSURE THAT CONSTRUCTION ACTIVITIES ARE UNDERTAKEN IN A MANNER THAT ENSURES BEST MANAGEMENT PRACTICES ARE IMPLEMENTED TO CONTAIN ONSITE, SILT LADEN RUNOFF THAT EXCEEDS FEDERAL, PROVINCIAL, AND MUNICIPAL REQUIREMENTS, AND PREVENT ITS ENTERING DOWNSTREAM DRAINAGE INFRASTRUCTURE AND AQUATIC SYSTEMS.
3. THE DEVELOPER/OWNER/PERSONS RESPONSIBLE MUST COMPLY WITH THE ESC PLAN WITHIN THE SPECIFIED TIMEFRAME, AND COMPLY WITH ALL INSTRUCTIONS ISSUED BY THE ESC MONITOR TO RECTIFY DEFICIENCIES THAT RESULT IN NON-COMPLIANCE.
4. NO PERSON SHALL OBSTRUCT OR IMPEDE THE FLOW OF THE DRAINAGE SYSTEM. NO PERSON SHALL STORE, TRANSPORT OR DISPOSE OF ANY WASTE OR DELETERIOUS SUBSTANCES IN SUCH A MANNER SO AS TO PERMIT THE LIKELY ESCAPE OF THE MATERIALS INTO THE DRAINAGE SYSTEM, OR RELEASE DIRECTLY OR INDIRECTLY DELETERIOUS SUBSTANCES INTO THE DRAINAGE SYSTEM.
5. NO PERSON SHALL CAUSE OR PERMIT TO BE RELEASED INTO THE DRAINAGE SYSTEM, DIRECTLY OR INDIRECTLY, ANY SEDIMENT, EARTH, CONSTRUCTION OR EXCAVATION WASTES, GEMENT, CONCRETE OR OTHER SUBSTANCES WHICH WHEN MIXED WITH WATER WILL RESULT IN A PH AND/OR TURBIDITY VALUE OUTSIDE OF FEDERAL, PROVINCIAL, AND MUNICIPAL DISCHARGE REQUIREMENTS.
6. THE EROSION AND SEDIMENT CONTROL WORKS SHALL REMAIN IN PLACE AND SHALL BE MAINTAINED UNTIL THE SITE NO LONGER POSES A THREAT TO THE DRAINAGE SYSTEM AND APPROVAL TO REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL FACILITIES HAS BEEN OBTAINED FROM THE ESC MONITOR.

MAINTENANCE

1. UPON INSTRUCTION/NOTIFICATION BY ENGINEER OF RECORD OR ESC MONITOR, PERSONS RESPONSIBLE ARE REQUIRED TO UNDERTAKE MAINTENANCE ACTIVITIES TO MODIFY OR MAINTAIN ESC FACILITIES.
2. SHOULD ANY PART OF THE SEDIMENT CONTROL FACILITIES BECOME DAMAGED, BLOCKED OR IN ANY WAY NOT FUNCTION PROPERLY, THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO REPAIR AND/OR REMOVE SUCH DAMAGE, BLOCKAGE OR CAUSE OF MALFUNCTION.
3. ACCUMULATED SEDIMENT REMOVED DURING MAINTENANCE OF THE SEDIMENT CONTROL FACILITIES SHALL BE DISPOSED OF IN SUCH A MANNER AS TO PREVENT ITS ENTRY INTO THE SITE DRAINAGE SYSTEM, AND/OR INTO ANY STORM SEWER OR WATERCOURSE.
4. STREETS ARE TO BE INSPECTED DAILY AT MINIMUM AND SWEEPED TO ENSURE THAT NO SEDIMENT OR DEBRIS ENTERS THE STORM SYSTEM. FLUSHING IS NOT PERMITTED.
5. PAVED ROAD SURFACES ARE TO BE CLEANED OF ANY ACCUMULATED SEDIMENT AT THE END OF EACH DAY AS REQUIRED. NO MATERIAL WITH HIGH SEDIMENT CONTENT IS TO BE DEPOSITED OR PILED NEAR CATCH BASINS, LAWN BASINS OR OUTSIDE OF PROPERTY BOUNDARIES.

6. CATCH BASINS ARE TO BE INSPECTED DAILY AND FOLLOWING STORM EVENTS. SEDIMENT SACKS ARE TO BE REMOVED AND CLEANED WHEN THEY REACH APPROXIMATELY ONE THIRD CAPACITY.
7. SOIL DISTURBING CONSTRUCTION TO BE AVOIDED DURING PERIODS OF HEAVY OR PERSISTENT RAINFALL WHERE POSSIBLE.
8. STOCKPILED MATERIAL AND ALL EXPOSED SLOPES TO BE COVERED WITH 6 MIL THICK POLYETHYLENE SHEETING ANCHORED WITH WEIGHTS.
9. SILT FENCES AND BARRIERS ARE TO BE INSPECTED AND REPAIRED PRIOR TO FORECASTED RAIN EVENTS, AND FOLLOWING SIGNIFICANT RAINFALL EVENTS OR PERIODS OF EXTENDED RAIN. SEDIMENT TO BE REMOVED WHEN IT HAS REACHED APPROXIMATELY ONE THIRD THE HEIGHT OF THE FENCE.
10. SITE ACCESS PADS TO BE INSPECTED DAILY TO ENSURE FUNCTIONALITY AND ADDITIONAL ROCK IS TO BE ADDED AS REQUIRED.
11. NO CONCRETE WASH WATER IS TO BE DIRECTED INTO THE SEDIMENT CONTROL SYSTEM OR THE STORM SEWERS. ALL CONCRETE TRUCKS ARE TO BE EQUIPPED WITH A RECIRCULATORY WASH SYSTEM. NO DISCHARGE FROM CONCRETE TRUCKS IS PERMITTED ON THE STREET OR TO ENTER THE ONSITE DRAINAGE SYSTEM.
12. AN ADDITIONAL SUPPLY OF MATERIALS SHALL BE STORED ONSITE TO ENABLE A SUITABLE RESPONSE TO ANY MAINTENANCE ACTIONS REQUIRED.
13. WET WEATHER SHUT DOWN PROCEDURES TO INCLUDE SUSPENDING ANY HAULING OR MAJOR EARTHWORK ACTIVITIES USING UNPAVED ROAD SURFACES PRIOR TO FORECASTED RAIN EVENTS EXCEEDING 25mm IN 24 HOURS. ALL ERODIBLE SURFACES MUST BE STABILIZED, OR COVERED WITH POLY SHEETING, PRIOR TO SIGNIFICANT RAINFALL EVENT. ANY WATER POOLING ONSITE MUST BE DIRECTED TO SUMP AND TREATED BY WATER TREATMENT SYSTEM PRIOR TO DISCHARGE. NO UNTREATED WATER IS TO ENTER THE STORM SYSTEM.
14. IF DISCHARGE EXCEEDING THE MUNICIPAL REQUIREMENTS IS OBSERVED, THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO CEASE DISCHARGE AND CORRECT THE WATER QUALITY.

MONITORING, SAMPLING AND TESTING PROGRAM

1. ALL DISCHARGE TO MUST MEET THE PH RANGE REQUIREMENT OF 6.0-9.0.
 2. THE TOTAL SUSPENDED SOLIDS OF ALL DISCHARGE MUST NOT EXCEED 75 mg/L.
 3. WHERE ANY WASTE, DELETERIOUS SUBSTANCE, OR WATER RELEASED DIRECTLY OR INDIRECTLY INTO THE DRAINAGE SYSTEM EXCEEDS THE ALLOWABLE PH, TURBIDITY AND/OR TOTAL SUSPENDED SOLIDS LEVELS, ALL DISCHARGE IS TO BE CEASED AND CORRECTIVE MEASURES ARE TO BE IMPLEMENTED IMMEDIATELY.
 4. A LOGBOOK OF ALL INSPECTIONS SHALL BE MAINTAINED ONSITE AND BE MADE AVAILABLE TO THE CITY UPON REQUEST.
 5. WATER QUALITY MONITORING AND ESC FACILITIES INSPECTIONS BY THE ESC MONITOR SHOULD BE CONDUCTED AT THE MIN. FREQUENCY NOTED BELOW.
- | | <u>MIN. MONITORING FREQUENCY</u> | <u>MIN. REPORTING FREQUENCY</u> |
|------------|----------------------------------|---------------------------------|
| YEAR ROUND | MONTHLY | WITHIN 7 DAYS OF INSPECTION |
6. INSPECTION REPORTS SHALL BE SUBMITTED TO THE DEVELOPER AND CONTRACTORS AND THE CITY OF WHITE ROCK AT operations@whiterockcity.ca.

DECOMMISSIONING

1. BUILDING CONSTRUCTION MUST BE AT STREET LEVEL OR HIGHER WITH ALL EXPOSED SURFACES STABILIZED PRIOR TO BEGINNING THE PROCESS OF DECOMMISSIONING ANY ESC FACILITIES.
2. APPROVAL TO ALTER AND/OR REMOVE ANY COMPONENT OF THE WATER TREATMENT SYSTEM MUST BE OBTAINED FROM THE ESC MONITOR.
3. PRIOR TO RECEIVING FOR APPROVAL TO REMOVE COMPONENTS OF THE WATER TREATMENT SYSTEM, WATER QUALITY TESTING OF THE UNTREATED WATER IN THE BUILDING SUMP WILL BE CONDUCTED TO ENSURE ALLOWABLE TURBIDITY AND/OR PH LEVELS CAN BE MAINTAINED WITHOUT ADDITIONAL TREATMENT. THE PH TREATMENT COMPONENT OF THE SYSTEM MUST REMAIN ONSITE UNTIL ALL MAJOR CONCRETE POURS HAVE BEEN COMPLETED AT MINIMUM.
4. THE DECOMMISSIONING OF ANY ESC FACILITIES WITHOUT PRIOR APPROVAL MAY RESULT IN FINES AND/OR A STOP WORK ORDER.

ENFORCEMENT

1. FAILURE TO IMPLEMENT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR TO COMPLY WITH MUNICIPAL REGULATIONS MAY RESULT IN FINES AND/OR A STOP WORK ORDER.
2. FEDERAL ENVIRONMENTAL OFFENCES ARE STRICT LIABILITY OFFENCES AND CAN RESULT IN FINES AND/OR INCARCERATION.

LEGEND:	NO.	DATE	BY	REVISION		DESIGNED BY: K.D.S.	RESIDENTIAL DEVELOPMENT 1441-1465 VIDAL STREET & 14937 THRIFT AVENUE, WHITE ROCK, B.C.	FILE NO: 15514	SEAL: 
						DRAWN BY: N.S.K.		DRAWING NO: G-ESC3	
						APPROVED BY: A.Ge.		DATE: DECEMBER 7, 2023	
						REVIEWED BY: A.Ge.			
						SCALE: AS SHOWN	EROSION & SEDIMENT CONTROL SPECIFICATIONS		

Permit to Practice

EGBC

DEC 08 2023



P (604) 439 0922
geopacific.ca
1779 West 75th Avenue
Vancouver, B.C. V6P 6P2

WS Vidal Properties LP
315 – 13338 Central Avenue
Surrey, B.C.
V3T 0M3

November 9, 2023
File: 15514

Attention: Krista Baronian

**Re: Geotechnical Investigation Report – Vidal St Project
1441-1465 Vidal Street and 14937 Thrift Avenue, White Rock, B.C.**

1.0 INTRODUCTION

We understand that a residential development is proposed for the above referenced site. Based on the Architectural Drawings prepared by Keystone Architecture & Planning Ltd., dated July 4, 2023, the proposed development will consist of a 6 storey, wood framed, residential building with a rooftop amenity deck over up to 4 levels of below grade, reinforced concrete parking structure. The below grade portion of the development is to be constructed in close proximity to property lines. Foundation depths are expected to extend up to 14 m below grade at the northern extent.

This report provides the results of our field investigation and makes geotechnical recommendations for the design and construction of the proposed development. This report was prepared exclusively for WS Vidal Properties LP, for their use and for the use of others on their development team but remains the property of GeoPacific Consultants Ltd.

2.0 SITE DESCRIPTION

The proposed site consists of 4 adjoining residential lots located northwest of the intersection of Vidal Street and Thrift Avenue in White Rock, BC. The site is bounded by Vidal Street to the east, Thrift Avenue to the south and residential lots in all other directions.

Based on a surveyed topographical plan provided by Target Land Surveying issued on April 4, 2018, the site slopes from north to south with elevation differential of about 9 m.

The northern lot, 1465 Vidal Street, was cleared of all pre-existing improvements and is covered with trees and vegetation. The remaining lots are occupied with single family dwellings, paved/graveled driveways, grass, vegetation and fenced backyards. The location of the site relative to existing properties is shown on our Drawing No. 15514-01, following the text of this report.

3.0 FIELD INVESTIGATION

3.1 Site Investigation

GeoPacific initially investigated the site on October 25, 2017. Due to limited access to the majority of the lots, the initial investigation was carried out solely on 1465 Vidal Street. At that time, a total of 3 auger test holes (TH17-01 to TH17-03) were drilled to depths between 9.1 and 10.7 m below pre-existing grades and were supplemented with 1 Dynamic Cone Penetration Test (DCPT) sounding completed to approximately 1.5 m below pre-existing grade.

GeoPacific completed a supplementary investigation for the current development scope on October 26, 2023, to confirm soil conditions below the proposed foundation depths which are expected to extend up to 14 m below grade. At that time, 2 sonic test holes (TH23-01 and TH23-02), complete with one monitoring (standpipe piezometer), were conducted using a sonic drill rig supplied and operated by Blue Max Drilling Inc. of Surrey, BC. The test hole was terminated approximately 18.3 m below existing site grades. The monitoring well, installed at TH23-01, was screened between 15.3 and 18.3 m below existing site grades.

Prior to our investigations, a BC one call was placed, and the test hole locations were cleared of buried services. All test holes were backfilled and sealed in accordance with provincial abandonment requirements following classification, sampling, and logging of the soils in the field by our geotechnical staff. Our test hole logs are presented in Appendix A.

The approximate locations of the test holes are shown on our Drawing No. 15514-01.

4.0 SUBSURFACE CONDITIONS

4.1 Soil Profile

According to the Geological Survey of Canada Surficial Geology Map 1484A the subject site is underlain by Capilano Sediments consisting of raised marine, deltaic, fluvial deposit, marine and glaciomarine stony and stoneless silts (till like) to clay loam with minor sand and silt. Glacial till typically underlies these deposits at depth. A general description of the soils encountered is provided below. For specific subsurface soil descriptions at the test hole locations refer to the test hole logs provided in Appendix A

Sand and Gravel (Fill)

Sand and gravel fill was identified in all our test holes. The sand and gravel contained trace to some silt and appears to be compact. The fill extends to depths of 0.3 m to 1.8 m below grade.

Silty Sand (Glacial Till)

The sand and gravel fill is underlain by very dense glacial till comprised of silty sand, some gravel. The moisture content ranges from 6.8% to 10.5%. The till extended beyond the maximum extent of our investigation, approximately 18.3 m below existing grade. Cobbles and boulders are also commonly encountered within the till like soils. The fines contents of the till encountered typically ranged from 26.8% to 32%, with a higher fines content noted approximately 10.9 m below existing grade within a silty layer at TH23-01.

4.2 Groundwater Conditions

The static groundwater table was not encountered during our investigation. No water was present in the monitoring well as of November 1st, 2023. Based on our site investigation, well logs and our experience within the surrounding area, we expect that the static groundwater depth is significantly below the proposed excavation grades.

Perched groundwater seepage from silty soils are expected to be light to moderate. Perched water may also be encountered in the surficial fills. We expect that the presence of perched ground water to vary seasonally with generally higher levels in the wetter months of the year.

5.0 DISCUSSION

5.1 General Comments

As noted in Section 1.0, we understand that a residential development is proposed for the above referenced site. Based on the Architectural Drawings prepared by Keystone Architecture & Planning Ltd., dated July 4, 2023, the proposed development will consist of a 6 storey, wood framed, residential building with a rooftop amenity deck over up to 4 levels of below grade, reinforced concrete parking structure. The below grade portion of the development is to be constructed in close proximity to property lines. Foundation depths are expected to extend up to 14 m below grade at the northern extent.

Based on the results of our geotechnical investigations and the anticipated foundation depths, we expect that the development will be founded on very dense glacial till. We expect that these soils will provide adequate support for conventional pad and strip footings.

Shoring will be required to facilitate excavation and support neighbouring properties, structures or utilities given that the proposed below grade structure is to be constructed in close proximity to the property lines. Our design recommendations for temporary excavations are provided in Section 6.7.

The subsurface soils are not considered prone to liquefaction or other forms of ground softening under the design earthquake defined under the 2018 British Columbia Building Code.

We envision that some perched groundwater will be encountered while excavating and will need to be controlled. A graded excavation with sumps at low points should be adequate to control seepage. Based on the site investigations completed it is not anticipated that the static groundwater table will be encountered during excavation works.

We confirm, from a geotechnical point of view, that the proposed building development is feasible provided the recommendations outlined in Sections 6.0 are incorporated into the overall design.

6.0 RECOMMENDATIONS

6.1 Site Preparation

Prior to construction of foundations and floor slabs, all unsuitable materials including vegetation, topsoil, fill, organic material, debris, and loose or otherwise disturbed soils must be removed to expose a subgrade of dense to very dense silty sand. However, as the development is to be constructed with a below grade component, we expect that the excavation depth will be driven by the architectural design rather than the soils encountered. Suitable bearing soils are expected at the proposed foundation elevations. Crushed gravel or engineered fill can be placed beneath the slab-on-grade only.

“Engineered Fill” is generally defined as clean sand to sand and gravel containing silt less than 5% by weight, compacted in 300 mm loose lifts to a minimum of 95% of the ASTM D1557 (Modified Proctor) maximum dry density at a moisture content that is within 2% of optimum for compaction.

It is very important that the stripped subgrade be protected by lean mix concrete to preserve its bearing qualities and that it remain dry and free of ponded water prior to pouring concrete for footings. Any softened, disturbed subgrade should be removed under the review of GeoPacific and replaced with lean mix (5.0 MPa) concrete beneath the foundations.

GeoPacific shall be contacted for the review of foundation grade reinstatement, and engineered fill placement and compaction.

6.2 Foundations

Footings which are founded on very dense glacial till, as described in Section 4.1, can be designed on the basis of a serviceability limit state (SLS) bearing pressure of 500 kPa for strip or pad footings.

Factored ultimate limit state (ULS) bearing pressures, for transient loads such as those induced by wind and earthquakes, may be taken as 1.5 x the SLS bearing pressures provided above.

We estimate for foundations designed as recommended, settlements will not exceed 25 mm total and 2 mm per metre differential.

Irrespective of the allowable bearing pressures given, pad footings should not be less than 600 mm by 600 mm and strip footings should not be less than 450 mm in width. Footings should also be buried a minimum of 450 mm below the surface for frost protection.

Adjacent footings should achieve a maximum elevation difference equal to half of their horizontal distance to avoid superimposing the upper foundation loading to the lower foundation.

Foundation subgrades of all buildings must be reviewed by GeoPacific prior to blinding and footing construction.

6.3 Seismic Design of Foundations

We did not encounter any soils considered to be prone to liquefaction or strain softening during cyclic loading caused by the design earthquake as defined in the 2018 British Columbia Building Code. The subgrade conditions underlying this site may be classified as Site Class C as defined in Table 4.1.8.4.A of the 2018 British Columbia Building Code.

6.4 Lateral Pressures on Foundation Walls

The earth pressures on the basement walls depends upon a number of factors including the backfill material, surcharge loads, backfill slope, drainage, rigidity of the basement wall and method of construction including sequence and degree of compaction. For a fully restrained basement wall designed for static pressures a pressure distribution of 8 H (kPa) triangular, where H is the height of the restrained soil in meters, should be employed. For an unrestrained basement wall a static pressure distribution of 5 H (kPa) triangular may be used.

Dynamic loading induced by the 2018 BCBC design earthquake should be added to the static loads and should be taken as 2.5 H (kPa) inverted triangular.

Restrained versus unrestrained conditions depend upon the degree of wall movement. A flexible, or unrestrained wall, is allowed to move $0.002H$ outwards at the top of the wall, where H is the height of the wall. A restrained or rigid wall is prevented from rotating out at the top of the wall either by intervening walls or floors which prevent deflection of the wall. Partial movements of the wall may result in pressures somewhat less than the restrained condition, but it is not possible to predict intermediate cases with any degree of certainty.

We have assumed that a free draining granular backfill will be used behind the basement walls and that a perimeter drainage system will also be employed to collect any water from behind the walls. Therefore, our wall loading scenarios presented above assume that no water pressure will be generated behind the walls.

All earth pressures are based upon no surcharges or slopes above the walls. All soil parameters and loads are assumed to be unfactored.

GeoPacific shall be contacted for the review of all backfill materials and procedures.

6.5 Slab-On-Grade Floors

In order to provide suitable support for slab-on-grade floors we recommend that any fill placed under the slab should be granular and essentially “clean” with not more than 5% passing the #200 sieve. In addition, this granular fill must be compacted to a minimum of 98% Standard Proctor (ASTM D698) maximum dry density with water content within 2% of optimum for compaction.

Floor slabs should be directly underlain by a minimum of 150 mm of a free draining granular material, such as 19 mm clear crushed rock. A moisture barrier should underlie the slab directly above the free draining granular material.

Compaction of the slab-on-grade fill must be reviewed by GeoPacific.

6.6 Foundation Drainage

A perimeter drainage system will be required for the below grade structure to prevent the development of water pressure on the foundation walls and the basement floor slabs. Groundwater flows are expected to be relatively light to moderate, likely in the range of 30 to 50 liters/minute for the entire excavation. These flow rates should be confirmed at the time of construction.

6.7 Excavation and Shoring

The proposed development is to include up to 4 levels of below grade construction. Shoring will be required to facilitate excavation and support neighbouring properties, structures or utilities given that the proposed below grade structure is to be constructed in close proximity to the property lines. Partial open cuts above the shoring wall may be feasible where the building is offset from the property lines.

Vertical cuts may be supported with the use of a shotcrete membrane tied back with post-tensioned soil anchors. In areas where sand layers within the till like soils are encountered, hollow core (IBO) anchors may be required where a drilled anchor hole will not remain open to allow the installation of a conventional anchor bar.

We expect that the perimeter excavation would be sloped where sufficient space is available as it is more economical to do so. We would expect that slopes cut of 3H:4V (3 Horizontal to 4 Vertical) can be constructed

in the dense to very dense silty sand and 1H:1V in the surficial fills. Above any shoring walls, 1H:1V slope cuts would be feasible.

Our experience in this area indicates that cobbles and boulders may be present within the till like soils. Cobbles and small boulders can typically be removed with conventional excavation equipment. However, large boulders may require splitting/blasting to facilitate their removal from the site.

Some seepage into excavations from surficial fills and the till like soils should be expected. We envisage that groundwater inflows can generally be controlled with conventional sumps and sump pumps. Some face-saving measures may be required where seepage occurs at the shoring face.

6.8 Utilities

Site utilities will be required beneath the grade supported slab. The design of these systems must consider the location and the depth of the foundations. The service trenches and excavations required for the installation of underground vaults and/or manholes should be outside of a 1H:1V slope measured downward and outward from the underside of foundations.

Backfilling of trenches and excavations should be done with 19 mm clear crush gravel following the required pipe bedding.

All excavations and trenches must conform to the latest Occupational Health and Safety Regulation supplied by the Workers Compensation Board of British Columbia.

Temporary cut slopes in excess of 1.2 m in height must be covered in polyethylene sheeting and require review by a professional engineer in accordance with WorkSafe BC guidelines, prior to worker entry.

6.9 Re-Use of Native Soils

Excavated soils derived from the site are expected to be silt predominant. Therefore, they are not considered suitable for re-use as engineered fill.

7.0 DESIGN REVIEWS AND CONSTRUCTION INSPECTIONS

As required for Municipal “Letters of Assurance”, GeoPacific Consultants Ltd. will carry out sufficient field reviews during construction to ensure that the geotechnical design recommendations contained within this report have been adequately communicated to the design team and to the contractors implementing the design. These field reviews are not carried out for the benefit of the contractors and therefore do not in any way effect the contractors’ obligations to perform under the terms of his/her contract.

It is the contractors’ responsibility to advise GeoPacific Consultants Ltd. (a minimum of 48 hours in advance) that a field review is required. Field reviews are normally required at the time of the following activities:

- | | | |
|----|-----------------|---|
| 1. | Excavation | Review of temporary cut slopes. |
| 2. | Shoring | Review of shotcrete shoring construction, anchor installation and testing, anchor de-tensioning and removal, and shotcrete removal. |
| 3. | Foundation | Review of foundation subgrade. |
| 4. | Slab-on-grade | Review of subgrade and under-slab fill materials and compaction. |
| 5. | Backfill | Review of backfill materials and compaction against foundation walls. |
| 6. | Engineered Fill | Review of fill materials and compaction. |

It is critical that these reviews are carried out to ensure that our intentions have been adequately communicated. It is also critical that contractors working on the site view this document in advance of any work being carried out so that they become familiar with the sensitive aspects of the works proposed. It is the responsibility of the developer to notify GeoPacific Consultants Ltd. when conditions or situations not outlined within this document are encountered.

8.0 CLOSURE

This report has been prepared exclusively for Weststone Group for the purpose of providing geotechnical recommendations for the design and construction of the proposed building, temporary excavations and related earthworks. The report remains the property of GeoPacific Consultants Ltd. and unauthorized use of, or duplication of, this report is prohibited.

We are pleased to be of assistance to you on this project and we trust that our comments and recommendations are both helpful and sufficient for your current purposes. If you would like further details or would like clarification of any of the above, please do not hesitate to call.

For:
GeoPacific Consultants Ltd.

Helen McGhee, M.Eng., E.I.T.
Geotechnical E.I.T.

Bobby Sandhu, B.Eng., E.I.T.
Geotechnical E.I.T.

Reviewed By



NOV 09 2023

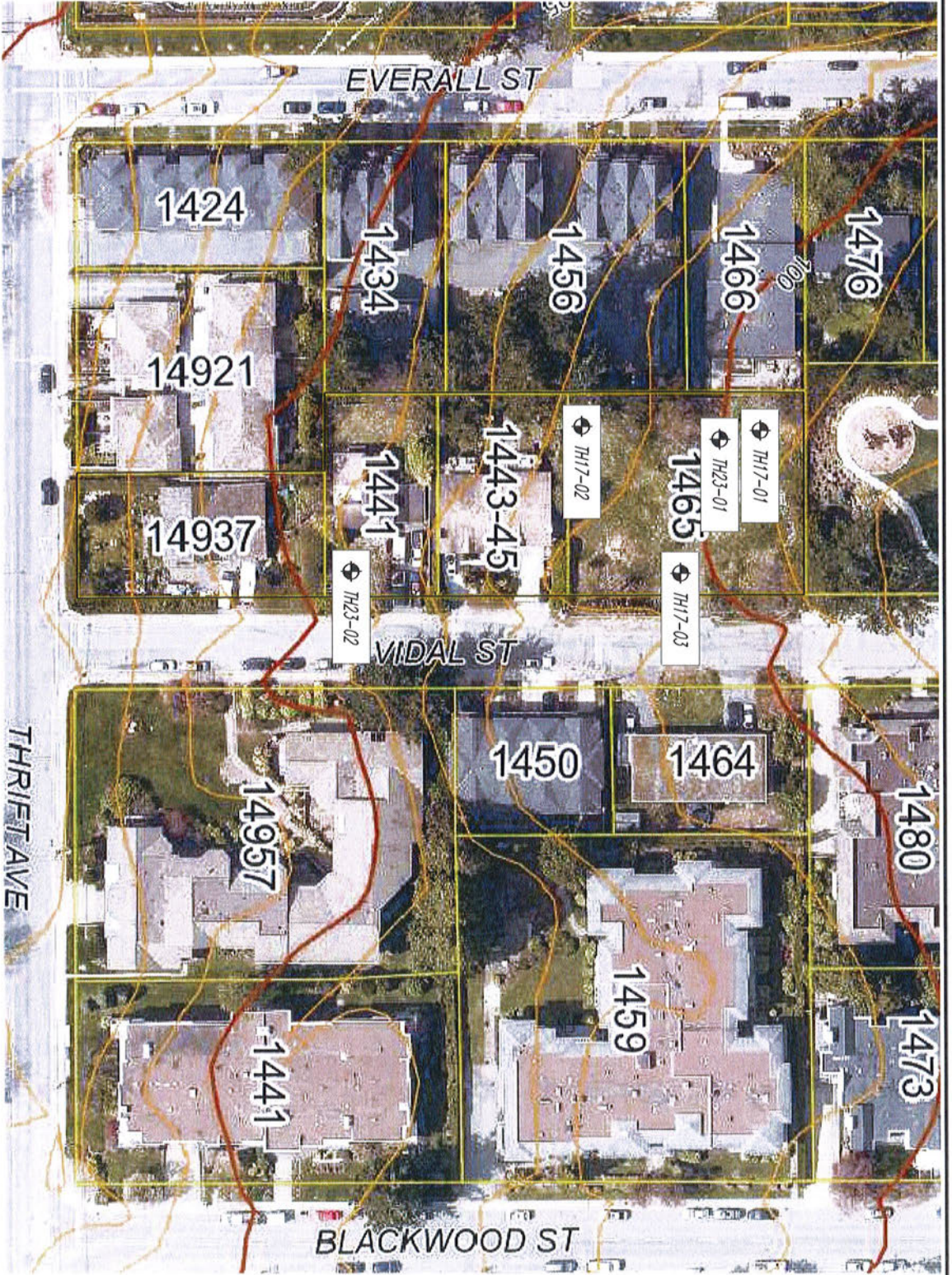
Permit to Practice
EGBC
1000782

Kevin Bodnar, M.Eng., P.Eng.
Principal

Appendix A

Test Hole Logs

Note: City staff have not vetted the reports that were submitted by the applicant December 2023



LEGEND:

- ◆ TH17-f - 2017 TEST HOLE (TH) LOCATIONS
- ◆ TH23-f - 2023 TEST HOLE (TH) LOCATIONS
- APPROXIMATE SITE BOUNDARY

SITE PLAN
SCALE = NTS

REFERENCE: WROMS - 2023-10-18



GEOPACIFIC
VANCOUVER LANDSCAPE ARCHITECTS

1779 W. 78th Avenue
Vancouver, BC V6P 0P2
P: 604.439.0922
F: 604.439.9189

DATE	NOVEMBER 3, 2023		
DRAWN BY:	BSS	APPROVED BY:	ZO
SCALE	SEE ABOVE		
REVIEWED BY:	BSS	REVIEWED BY:	BSS

PROPOSED RESIDENTIAL DEVELOPMENT
14397 THRIFT AVE, 1441-1465 VIDAL ST, WHITE ROCK, BC
TEST HOLE LOCATIONS

FILE NO.	15514
DATE	15514-01
REVISIONS	A. B. C.

Test Hole Log: TH23-01

File: 15514

Project: Vidal St Project

Client: WS Vidal Properties LP

Site Location: 1441-1465 Vidal St and 14937 Thrift Ave, White Rock, B.C.



GEOPACIFIC
CONSULTANTS

1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth/Elev (m)			
0		Ground Surface	0.00			
1		SAND AND GRAVEL (FILL) SAND, SOME SILT and GRAVEL. Loose to compact, sand is fine grained, gravel is subangular, brown, wet.	0.00			Root fragments throughout, drier with depth
2						
3						
4						
5						
6						
7						
8						
9						
10						
11			3.05			
12		WEATHERED GLACIAL TILL SAND and GRAVEL w/ COBBLES. Compact, sand is fine grained, gravel is subangular, grey brown, dry.	1.83			Moisture content changes to moist Cobble content increases with depth
13						
14						
15						
16						
17			4.57	9.9		
18		GLACIAL TILL SAND, SILTY and GRAVELLY w/ COBBLES. Compact to dense, gravel uniformly graded, grey, dry. (Profile inferred 10-12ft)	3.05			Increase in gravel content with depth
19						
20						
21						
22						
23						
24						
25						
26						
27				7.1		
28						
29						
30			9.14			
31						
32						
33				13.1		

Logged: HMG
Method: Sonic
Date: 27-10-2023

Datum: Ground Surface
Figure Number: A.4.
Page: 1 of 2

Test Hole Log: TH23-01

File: 15514

Project: Vidal St Project

Client: WS Vidal Properties LP

Site Location: 1441-1465 Vidal St and 14937 Thrift Ave, White Rock, B.C.



GEOPACIFIC
CONSULTANTS

1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE						
Depth	Symbol	SOIL DESCRIPTION	Depth/Elev (m)	Moisture Content (%)	Groundwater / Well	Remarks
34	11	GLACIAL TILL SAND, SILTY w/ some GRAVEL and COBBLE. Loose to compact, sand is fine grained, gravel is subangular, grey brown, moist to wet. (Profile inferred 30-32ft)	11.58	9.4		MC changes to wet
35						Fines 40.4%
36	12	GLACIAL TILL SAND, SILTY w/ some GRAVEL and COBBLES. Compact, sand is fine grained, gravel is subangular, grey brown, moist.	12.19			Increase in gravels and cobbles
37						Increase in fine sand content
38	13	GLACIAL TILL SAND and GRAVEL, some SILT w/ COBBLES.				Increase in moisture content
39						Fines 27.4%
40	14	Loose to compact, sand is fine grained, gravel is subangular, grey, dry becoming wet. (profile inferred 40-43ft)				Increase in sand fines with depth
41						Decrease in cobble content
42	15					
43						
44	16					
45						
46	17					
47						
48	18					
49						
50	19	End of Borehole	18.29			GW recorded November 1st 2023. No Groundwater recorded
51						
52	20					
53						
54						
55						
56						
57						
58						
59						
60						
61						
62						
63						
64						
65						
66						

Logged: HMG
Method: Sonic
Date: 27-10-2023

Datum: Ground Surface
Figure Number: A.4.
Page: 2 of 2

Test Hole Log: TH23-02

File: 15514

Project: Vidal St Project

Client: WS Vidal Properties LP

Site Location: 1441-1465 Vidal St and 14937 Thrift Ave, White Rock, B.C



GEOPACIFIC
CONSULTANTS

1779 West 75th Avenue, Vancouver, BC. V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth/Elev (m)			
0		Ground Surface	0.00			
1		FILL SILTY SAND. Loose, sand is fine to medium grained, Brown, dry	0.91			
2		SANDY SILT SANDY SILT w/ GRAVEL and some cobbles. Loose to compact, sand is medium grained, gravel is subangular, dark brown, dry.	1.52			Many Gravels>10mm
3		WEATHERED GLACIAL TILL SAND and GRAVEL. Compact, sand is fine to medium grained, gravel is subangular, brown, moist.	2.13			
4		GLACIAL TILL SILTY SAND and GRAVEL. Dense, sand is fine to medium grained, brown, moist.	3.05			
5		GLACIAL TILL SILTY SAND and GRAVEL. Dense to very dense, sand is fine grained, light brown, moist.	7.62	10.5		Becoming Moist with Depth
6		SAND AND GRAVEL SAND AND GRAVEL. Compact, fine to medium grained sand, gravel is subangular, grey, dry to moist.				Some Gravels<10mm

Logged: HMG
Method: Sonic
Date: 27-10-2023

Datum: Ground Surface
Figure Number: A.5.
Page: 1 of 2

Test Hole Log: TH23-02

File: 15514

Project: Vidal St Project

Client: WS Vidal Properties LP

Site Location: 1441-1465 Vidal St and 14937 Thrift Ave, White Rock, B.C



GEOPACIFIC
CONSULTANTS

1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE																																
Depth	Symbol	SOIL DESCRIPTION	Depth/Elev (m)	Moisture Content (%)	Groundwater / Well	Remarks																										
34		GLACIAL TILL SILTY SAND and GRAVEL. Dense to very dense, sand is fine grained, gravel is subangular, grey, moist.	10.67	7.8		Fines 32.0% Gravels increase with depth																										
35			36																													
37		38	39	40			41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
12		SAND AND GRAVEL SAND AND GRAVEL, some SILT. Dense to very dense, sand is medium grained, grey, moist.	13.72	6.4			Increase in Gravel content Fines 26.8%																									
13			14					15	16	17	18	19	20																			
14		SAND AND GRAVEL SAND AND GRAVEL. Dense to very dense, sand is medium grained, grey, moist.	16.76	9.1																												
15			16					17	18	19	20																					
17		18	19	20				End of Borehole	18.29																							

Logged: HMG
Method: Sonic
Date: 27-10-2023

Datum: Ground Surface
Figure Number: A.5.
Page: 2 of 2



ARBORIST REPORT

26 September 2023

PROJECT: **VIDAL STREET DEVELOPMENT**

SITE ADDRESS: 14937 Thrift Ave & 1441/1443-45/1465 Vidal Street, White Rock, BC

CLIENT: **WESTSTONE GROUP**
10090 152ND St.
Surrey, BC, V3R 8X8

VDZ PROJECT # DP2018-59

SITE REVIEW DATE(s): October 16, 2018
September 15, 2020
July 8, 2022, July 18, 2023

PREPARED BY: **VDZ+A Consulting Ltd.**
102 – 355 Kingsway
Vancouver, BC
V5T 3J7

PROJECT ARBORIST: **D. Glyn Romaine**
ISA Certified Arborist, PN-7929A
ISA Tree Risk Assessment Qualified
Email: glyn@vdz.ca
Phone: 236 521 4645

Signed:

A handwritten signature in black ink, appearing to read 'D. Glyn Romaine', is written over a light grey rectangular background.

D. Glyn Romaine

Original Report November 5, 2018
Revision 1 May 8, 2019
Revision 2 September 23, 2020 – A.L.
Revision 3 July 11, 2022 – D.G.R. - Updated Survey.
Revision 4 September 26, 2023 – D.G.R.

FORT LANGLEY STUDIO
102 – 9181 Church Street
Fort Langley, BC
V1M 2R8

MOUNT PLEASANT STUDIO
102 – 355 Kingsway
Vancouver, BC
V5T 3J7

www.vdz.ca
604.882.0024



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INTRODUCTION

ASSIGNMENT

VDZ + A Consulting Inc. (VDZ) have been retained by the client to prepare an arborist report to assess the tree(s) located at 14937 Thrift Avenue & 1441 / 1443-45 / 1465 Vidal Street, White Rock, BC. VDZ arborists performed site reviews entailing identification and visual assessment of the tree(s) on-site. A tree survey of all off-site trees was completed by the client or representative(s).

The Project Arborist will provide recommendations for the retention of tree(s) based on the existing site conditions and the proposed use of the site. Mitigation of development impact on the tree(s) has been considered as part of the tree assessment process.

LIMITS OF THE ASSIGNMENT

VDZ's observations were limited to site visits on October 16, 2018, September 15, 2020, and July 8, 2022, and July 18, 2023. No tissue or soil samples were sent to a lab for identification or analysis. VDZ + A Consulting Inc. located the trees using existing landmarks and onsite navigation.

TESTING AND ANALYSIS

VDZ arborists used visual tree assessment and mallet sounding to test the trees' health, condition, and risk level.

PURPOSE AND USE OF REPORT

The purpose of this report is to assist the property owner in compliance with the White Rock Tree Protection Bylaw, 2021 No. 2407.



SITE DESCRIPTION

SITE REVIEW

The site consists of four residential lots, three of which have existing houses.. The southernmost lot is a single-family residential home that fronts onto Thrift Avenue. It is joined via the north property line to the first three lots proceeding up the west side of Vidal Street. From Thrift Avenue, Vidal Street inclines north. To the west lay an assortment of low-rise multifamily residences and to the north is a newer high-rise development.



Fig. 1 – Aerial view of property (WROMS)

PROPOSED SITE DEVELOPMENT

The demolition of existing structure and the development of midrise multi-family residential building.



ENVIRONMENTAL DESCRIPTION

Vegetation on the site consists of ornamental trees, shrubs and hedges, and lawn. Knotweed was observed at 1445 Vidal. Himalayan blackberry, English Ivy and Scotch broom have established at 1465 Vidal.

There are no seasonal creeks that transect the property.

There is no evidence of raptors nests, osprey nests or heron colonies on the site. Removal of trees however between March 1 – August 31 (date subject to change depending on seasonal nesting behavior and therefore must be confirmed with City of White Rock) will require a bird nesting survey. This is as prescribed by the federal Migratory Birds Convention Act (MBCA), 1994 and Section 34 of the BC Wildlife Act. It is the responsibility of the owner/developer to ensure they are in compliance with the city's regulations governing nesting birds on sites where development is occurring.

Off-site Trees – There are private off-site trees associated with this project.

Municipal Trees – There are City of White Rock trees associated with this project.

Trees Straddling the Property Line – There are trees straddling the property line associated with this project

TREE PRESERVATION SUMMARY

All the Trees identified on the Tree Retention/Removal Plan and within the Tree Assessment Data Table have been given their Retention/Removal recommendation on a preliminary basis. Final recommendations will be based upon design/construction and grading details.

Long-term tree preservation success is dependent on minimizing the impact caused during pre-construction clearing operations, construction, and post construction activities. Best efforts must be made to ensure the Tree Protection Zone remains undisturbed.

Ongoing monitoring of retained trees through the development process and implementation of mitigating works (watering, mulching, etc.) is essential for success. Once excavation starts, the consulting arborist needs to be contacted to monitor the work that is done near the trees.

TREE HEALTH CARE PLAN DURING CONSTRUCTION

To ensure continued health of the protected trees during construction, the following is recommended:

1. Remove dead, dying, and diseased branches prior to the start of construction.



2. Install tree protection barriers per bylaw specifications.
3. Regular weekly watering of trees between June 1 – October 1.
4. Application of wood chips within the tree protection zone (1-3 inches).
5. Monthly monitoring of protected trees by assigned Arborist.

Retained protected trees will require supplemental watering on a weekly basis (weather dependent), as well as the application of wood chips or mulch to the tree protection zone within the tree protection barriers. Wood chips are preferred to ensure porous movement through soil and protection from compaction during construction. The mulch or wood chip height should not exceed the root collar (not to exceed 10cm) to avoid moisture retention concentrated on the stem. In addition to the City's requirements, recommendations include the pruning of dead or dying limbs, if applicable, prior to construction for worker safety, as well as monthly monitoring of the trees by an Arborist to ensure the health and well-being of the protected trees.

As there are off-site trees with driplines that extend into the subject property, there may be interconnected root systems within the grouping (OS9-OS11) which likely extend onto the property. BC Plant Health Care Root Radar results determined the roots of tree 06 has poor structure and multiple trunks with decay. In addition, OS2-OS6 have feeder or structural roots which grow towards the property. Any work done within the critical root zone will need to be monitored by the arborist. Any retention wall should be maintained to avoid root disruption and destabilization.

SUMMARY OF FINDINGS

- 14 protected trees were identified on-site. All are in conflict with the proposed development and are recommended for removal.
- 5 hedges and 1 tree straddle city property and are in conflict with civil upgrades and are recommended for removal.
- 2 trees on city property were identified. Both are in conflict with civil upgrades and are recommended for removal.
- 13 trees located off-site on private property were identified. All are recommended for retention with the proposed development.
- OS 03-OS 08 have driplines that extends to/over subject property line. Root radar was used to assess root systems. The project arborist must be present to monitor excavation within 1.5 m of the driplines, and during and during any construction within 1.5 m of the Tree Protection Barriers.
- Knotweed was observed at 1441 Vidal. This should be managed, and all plant parts must be disposed of separately.
- Hypodermic needles were observed at 1445 Vidal.

TREE ASSESSMENT



TABLE 1

_DBH = Diameter at Breast Height (1.4m) LCR = Live Crown Ratio CRZ = Critical Root Zone TPZ = Tree Protection Zone

TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
<p>Comments written for 376 and OS2-OS8, in italics, have been transferred from the BC Plant Health Care Inc. Arborist Report for Tree Root Mapping, dated March 18, 2019. Building design has changed base on these findings and excavation to the property line is no longer proposed in proximity to OS4-OS8.</p>								
<p>The following trees are located on 14937 Thrift Avenue.</p>								
01	370	English holly <i>Ilex aquifolium</i>	Yes	45	4.5	80	WITHIN PROPOSED PARKADE EXCAVATION.	Remove
02	371	English holly <i>Ilex aquifolium</i>	Yes	35	3.5	80	WITHIN PROPOSED PARKADE EXCAVATION.	Remove
<p>The following trees are located on 1441 Vidal Street.</p>								
03	373	Threadleaf false-cypress <i>Chamaecyparis pisifera</i> 'Filifera'	Yes	54 (17, 18, 19)	3.0	60	Fair form and structure. TRUNK – Growing directly adjacent to the foundation of the existing house. WITHIN PROPOSED BUILDING ENVELOPE	Remove
<p>The following trees are located on 1465 Vidal Street.</p>								
04	374	Crimson King Norway maple <i>Acer platanoides</i> 'Crimson King'	Yes	44	5.1	80	DBH measured at 1 m. Fair form and structure. CROWN – Previously side pruned for utility line clearance. Previously topped. WITHIN PROPOSED PARKADE EXCAVATION.	Remove
05	375	Common lilac <i>Syringa vulgaris</i>	No	31 (10, 10, 11)	3.0	30	HANDPLOTTED Poor form and structure. TRUNK – Multi-stem from base. Single limb failure since original visit. WITHIN PROPOSED PARKADE EXCAVATION.	Remove

TREE ASSESSMENT



TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
06	376	Red alder <i>Alnus rubra</i>	Yes	114 (42, 41, 31)	9.4	80	Fair form and structure. TRUNK – 3stems from base. Decay present in one stem (0.5 meters in length). Rope girdling eastern trunk, previous tear-out on western trunk. Natural lean east. <i>BC Plant Health Care root radar results:</i> <i>Poor structure with multiple trunks and decay. Conflict with proposed development.</i> WITHIN PROPOSED PARKADE EXCAVATION.	Remove
07	377	Flowering plum <i>Prunus cerasifera</i>	No	62 (15, 18, 29)	5.8	80	HANDPLOTTED Fair form and structure. CROWN: Heavy ivy up trunk into crown. Some dieback at branch ends. WITHIN PROPOSED PARKADE EXCAVATION.	Remove
08	378	Mountain ash <i>Sorbus aucuparia</i>	No	38 (11, 12, 15)	4.5	80	HANDPLOTTED Fair form and structure. CROWN: Heavy ivy up trunk into crown. Some dieback at branch ends. WITHIN PROPOSED PARKADE EXCAVATION.	Remove
09	379	Japanese maple <i>Acer palmatum</i>	No	36 (10, 13, 13)	5.6	75	HANDPLOTTED Fair form and structure. TRUNK: Ivy up trunk. WITHIN PROPOSED PARKADE EXCAVATION.	Remove
10	380	Mountain ash <i>Sorbus aucuparia</i>	No	37 (11, 13, 13)	4.5	40	HANDPLOTTED Fair form and structure. CROWN – Shade suppressed on north and east sides. TRUNK: Ivy up trunk. WITHIN PROPOSED PARKADE EXCAVATION.	Remove
11	381	Vine maple <i>Acer circinatum</i>	No	51 (15, 16, 20)	4.0	80	HANDPLOTTED Fair form and structure. TRUNK: Multi-stemmed. Ivy up trunk. WITHIN PROPOSED PARKADE EXCAVATION.	Remove

TREE ASSESSMENT



TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
12	382	Bitter cherry <i>Prunus emarginata</i>	No	54 (16, 16, 22)	4.5	80	HANDPLOTTED Fair form and structure. Multi-stemmed. CROWN: Dieback on one stem. WITHIN PROPOSED PARKADE EXCAVATION.	Remove
13	435	Fruiting cherry. <i>Prunus sp.</i>	No	31	4.3	50	Good form and structure TRUNK: Ivy up trunk. WITHIN PROPOSED PARKADE EXCAVATION.	Remove
14	300	Crimson King Norway maple <i>Acer platanoides</i> 'Crimson King'	No	23	5.5	60	Good form and structure TRUNK: Ivy up trunk. WITHIN PROPOSED PARKADE EXCAVATION.	Remove
The following trees are straddling the City of White Rock property.								
SH 01	No tag	Common privet hedge <i>Ligustrum vulgare</i>	Yes	-	1.3	100	Height = 2.2M Shared with 14937 Thrift Ave. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
SH 02	No tag	Boxwood hedge <i>Buxus sempervirens</i>	Yes	-	1.0	100	Height = 2.0M Shared with 14937 Thrift Ave. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
SH 03	No tag	Common privet hedge <i>Ligustrum vulgare</i>	Yes	-	1.5	100	Height = 2.5M Shared with 14937 Thrift Ave. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
SH 04	No tag	English laurel <i>Prunus laurocerasus</i>	Yes	-	2.2	100	Height = 5.0M Shared with 1441 Vidal St. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
SH 05	No tag	English laurel <i>Prunus laurocerasus</i>	Yes	-	1.8	100	Height = 3.5M Shared with 1443-45 Vidal St. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove

TREE ASSESSMENT



TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
SH 06	372	Cherry <i>Prunus</i> sp.	Yes	59	5.5	30	Growing within the SH 04 hedge. Fair condition. CROWN: Some dieback. Shared with 1441 Vidal St. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
The following trees belong to the City of White Rock.								
C 1	No tag	Pyramidalis hedge <i>Thuja occidentalis</i> 'Pyramidalis'	Yes	-	1.0	100	HANDPLOTTED Height = 6.0M Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
C 2	No tag	Mixed hedge	No	-	2.5	100	HANDPLOTTED Height = 6.0M Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
The following trees are located offsite.								
Trees OS 1 – OS 8 were inspected visually from a distance. DBH figures have been estimated by the Project Arborist.								
OS 01	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	25	3.5	90	Good form and structure. TRUNK – Located within (0.25 meters) of retaining wall on two sides. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS 02	No tag	Paper birch <i>Betula papyrifera</i>	Yes	55	8.0	50	Good form and structure. CROWN – Dripline extends 3.0 meters onto subject property. <i>BC Plant Health Care root radar results:</i> Feeder roots detected in the 0-20 cm depth range. The tree is about 6 meters from the proposed development. Critical Root Zone does not enter the subject lot. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain

TREE ASSESSMENT



TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
OS 03	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	95	6.0	75	<p>Good form and structure.</p> <p>OS 03 – OS 05 are part of a larger grouping of trees with approximately 6.0 meter dripline(s) that extend to subject property line.</p> <p>ROOTS – Interconnected within grouping and likely extending onto subject property.</p> <p><i>BC Plant Health Care root radar results:</i> Feeder roots detected in the 0 – 20 cm depth range. The tree is about 8 meters from the proposed development. Critical Root Zone does not enter the subject lot. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain
OS 04	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	50	5.8	75	<p>Good form and structure.</p> <p>OS 03 – OS 05 are part of a larger grouping of trees with approximately 6.0 meter dripline(s) that extend to subject property line.</p> <p>ROOTS – Interconnected within grouping and likely extending onto subject property.</p> <p><i>BC Plant Health Care root radar results:</i> Assessment blocked by a shed. Roots may grow towards the shed. About 24% of Critical Root Zone will be impacted. Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain

TREE ASSESSMENT



TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
OS 05	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	60	8.0	60	<p>Good form and structure.</p> <p>OS 03 – OS 05 are part of a larger grouping of trees with approximately 6.0 meters dripline(s) that extend to subject property line.</p> <p>ROOTS – Interconnected within grouping and likely extending onto subject property.</p> <p><i>BC Plant Health Care root radar results:</i> May have structural, lateral, and feeder roots growing towards the east in the 0 – 20 cm depth range. About 27% of Critical Root Zone will be impacted. Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain
OS 06	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	90	8.8	75	<p>Good form and structure.</p> <p>CROWN – Dripline extends 3.5 meters onto subject property.</p> <p><i>BC Plant Health Care root radar results:</i> The tree is about 6 meters from the proposed development. Critical Root Zone does not enter the subject lot. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain

TREE ASSESSMENT



TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
OS 07	No tag	Western redcedar <i>Thuja plicata</i>	Yes	60	6.2	60	<p>Good form and structure. CROWN – Dripline extends 3.8 meters onto subject property.</p> <p><i>BC Plant Health Care root radar results: May have structural, lateral, and feeder roots growing towards its southeast in the 0 – 20 cm depth range. About 6% of Critical Root Zone may be impacted. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i></p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain
OS 08	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	95	9.1	50	<p>Good form and structure. CROWN – Dripline extends 7.0 meters onto subject property.</p> <p><i>BC Plant Health Care root radar results: Assessment blocked by Tree 376 and shrubs. About 25% of Critical Root Zone will be impacted. Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i></p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain
Trees OS 9 – OS 13 form the edge of a larger grouping of private off-site trees to the north of the site.								
OS 9	6346	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	67	6.0	50	<p>Good form and structure. TRUNK: Crook at 16 m.</p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain

TREE ASSESSMENT



TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
OS 10	6411	Western redcedar <i>Thuja plicata</i>	Yes	38	4.7	80	Fair form and structure. CROWN: Sheared on south side. TRUNK – Previously topped. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS 11	6336	Western redcedar <i>Thuja plicata</i>	Yes	38	4.7	80	Fair form and structure. CROWN: Sheared on south side. TRUNK – Previously topped. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS12	6332	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	41	6.9	80	Good form and structure. Crown: Previous shearing or clearance pruning on south side. Minor flagging. ROOTS: Large exposed roots. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS13	6334	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	71	7.1	80	Good form and structure. Trunk: Resinosis. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain



TREE REPLACEMENT SUMMARY

Onsite & Straddling:

Size	To be Removed	Replacement Trees Required
Undersized (<20cm dbh), (hedges, invasive holly)	5	0
≤ 50cm dbh	9	18
51-65cm dbh	5	15
66-75cm dbh	0	0
76-85cm dbh	0	0
>85cm dbh	1	6
Total	20	39

Offsite City:

Size	To be Removed	Replacement Trees
(<30cm dbh) (hedges)	2	0
≤ 50cm dbh	0	0
51-65cm dbh	0	0
66-75cm dbh	0	0
76-85cm dbh	0	0
>85cm dbh	0	0
Total	2	0

TREE PROTECTION AND REPLACEMENT SECURITIES

Tree Protection securities:

Size of Tree Retained	Securities
Dbh ≤ 50cm	\$3,000.00 per retained tree
Dbh of 51-65cm	\$4,500.00 per retained tree
Dbh > 65cm	\$10,000 per retained tree

Tree Replacement securities:

Size Tree Removed*	Replacement Ratio	Securities / Cash-in-lieu (\$1,500 per replacement tree)
≤ 50cm dbh	2:1	\$3,000
51-65cm dbh	3:1	\$4,500
66-75cm dbh	4:1	\$6,000
76-85cm dbh	5:1	\$7,500
>85cm dbh	6:1	\$9,000



PHOTOS



Fig. 2 - View facing south along Vidal Street to Thrift Avenue.

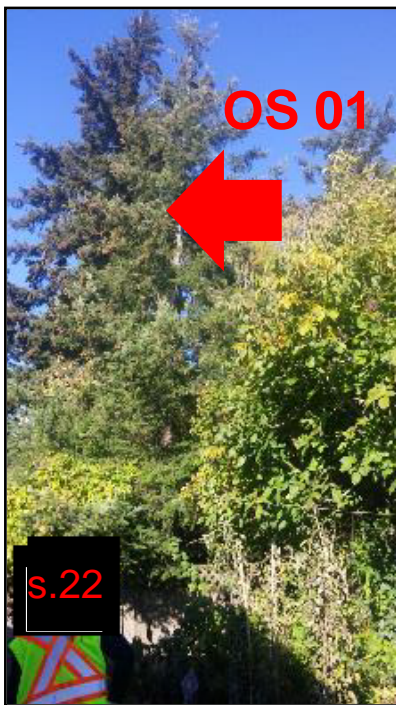


Fig. 3 – Off-site Douglas-fir tree



Fig. 4 – Tree 03 growing within S4



Fig. 5 – View of Trees OS2 – OS8



Fig. 6 – Stand of off-site conifers located directly west of 1441/1443-45/1465 Vidal Street.



Fig. 7 – View facing north/northwest. OS 9 – OS 11 make up part of the edge of a larger grouping of conifers.



Fig. 8 – Alternate view of Trees OS 9 – OS 11



Fig. 9 – Red alder (376) located on 1465 Vidal Street.



PHOTOS – September 15, 2020



Fig. 9 – View facing east on 1465 Vidal st, tree protection fencing damaged. Needs repair.

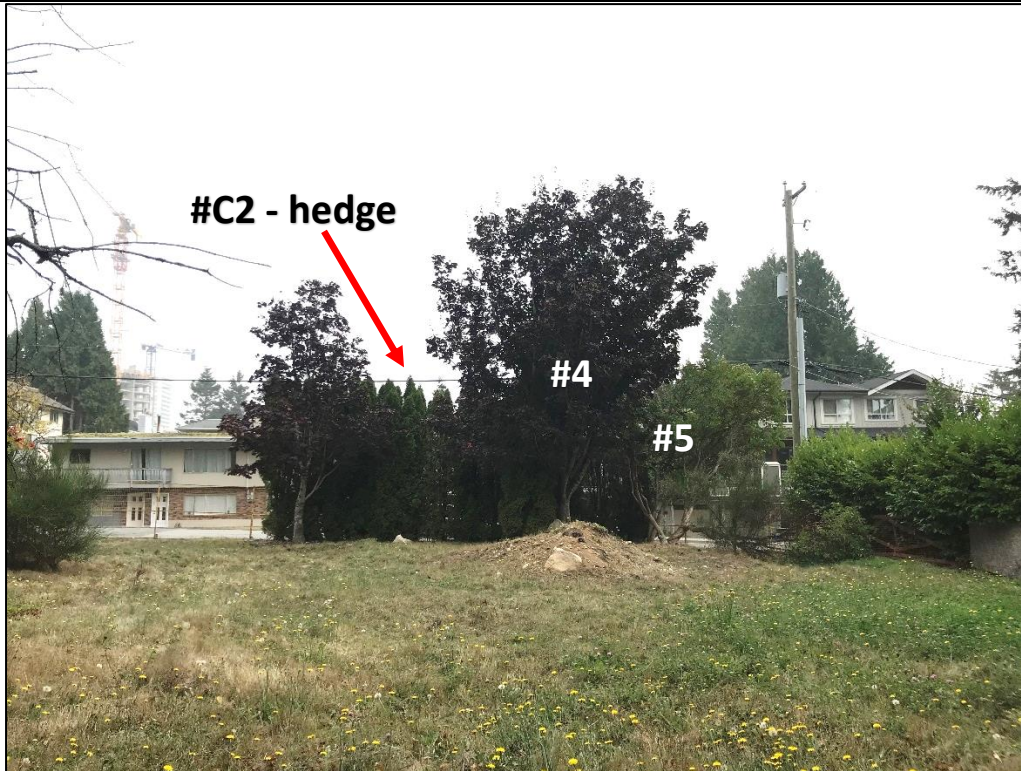




Fig. 10 – View facing east. Southeast corner of 1445 Vidal st. C2 hedge, #4 norway maple, and #5 lilac.



Fig. 11 – Northwest corner of 1465 Vidal.



Fig. 12 – Looking south from 1443-45 Vidal St.

APPENDIX A



Fig. 13 – Tree #5, failed limb.



Fig. 14 – Pruning of tree branches along east property line, 1465, 1443-45.



Fig. 15 – North property line of 1441 Vidal St, east corner.



Fig. 16 – North property line of 1441 Vidal St, west corner.



CONSTRUCTION ACTIVITY AROUND TREE PROTECTION ZONE

TREE PROTECTION FENCING

Specifications for Tree Protection Barriers

TRUNK DIAMETER (CM)	MINIMUM PROTECTION DISTANCE (M FROM TRUNK)
X	6X
20	1.2
25	1.5
30	1.8
35	2.1
40	2.4
45	2.7
50	3.0
55	3.3
60	3.6
75	4.5
90	5.0
100	6.0

NOTES

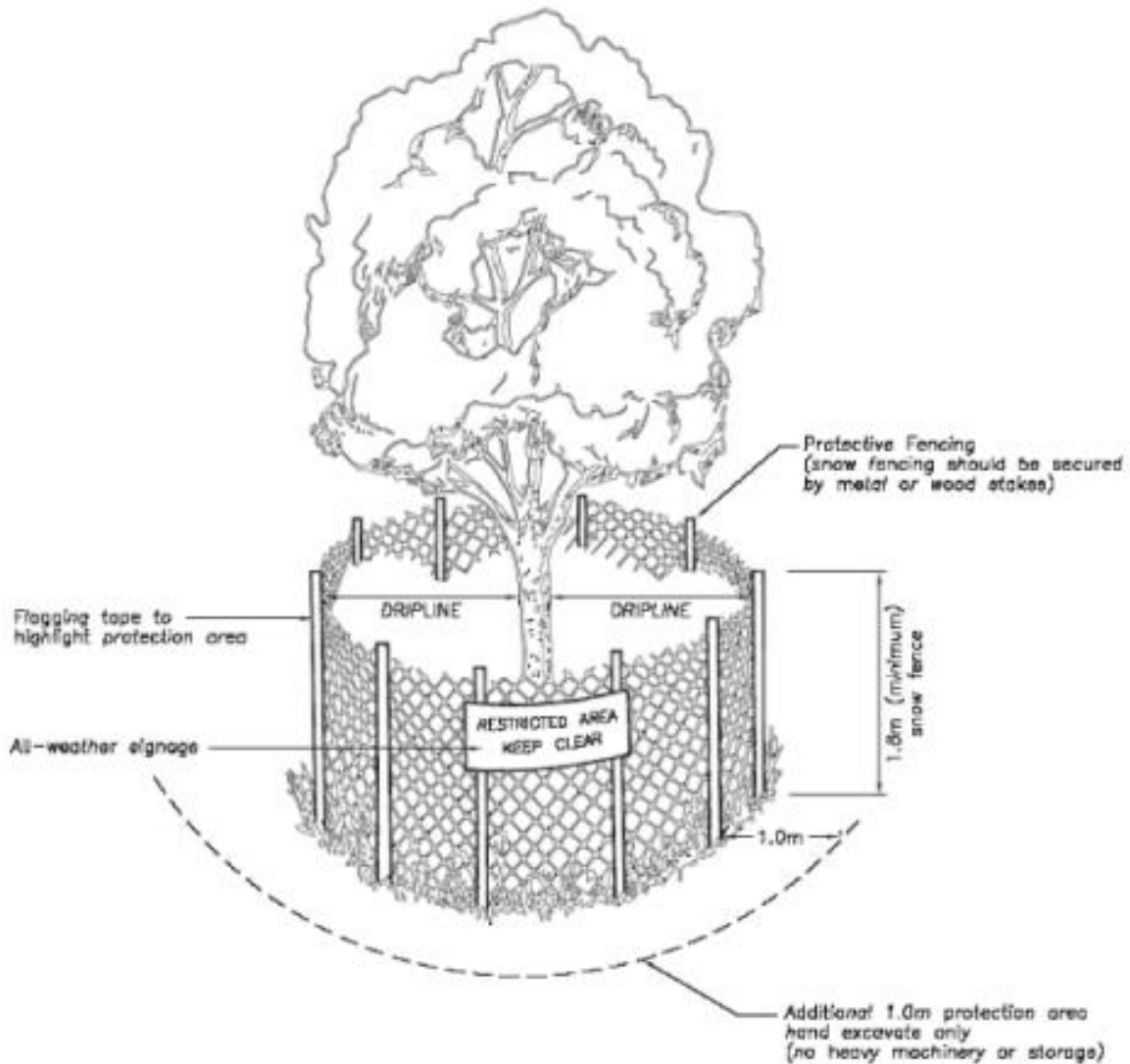
- Install tree protection barrier before construction begins and keep in place until landscape installation is complete.
- Storage of building materials & litter within or against protection barrier is prohibited. Developer/Owner responsible for maintenance within Tree Protection Barrier.
- Damaged trees will be replaced at Developer/Owner's cost.
- Maintain existing grades at protection barrier for all protected retained and existing trees.
- Regrading outside of protection barrier should not adversely compromise protected retained and existing trees.



TREE PROTECTION

How do I safely retain trees on, or adjacent to, the property?

Prior to construction activity you should erect temporary fencing at the dripline of the tree to protect the roots and canopy.





GENERAL REQUIREMENTS AND LIMITATIONS FOR OPERATIONS WITHIN THE TREE PROTECTION ZONE

- The Contractor shall not engage in any construction activity within the Tree Protection Zone (TPZ) without the approval of the Project Arborist including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree Protection Zone maybe indicated on the drawings along with any required remedial activity as listed below.
- If construction activity is unavoidable within the Tree Protection Zone, notify the Project Arborist and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree Protection Zone from the activity. Remedial actions shall include but shall not be limited to the following:
 - In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either using hand tools, directional boring and/or Air Spade. If any excavation work is required within the Tree Protection Zone (TPZ), the Project Arborist must be present during excavation, and a trench should be 'hand dug' to a depth of 60 cm outside the Drip Line, to uncover any potential roots. The Project Arborist should cleanly prune roots and recommend the appropriate treatment for any structural roots encountered.
 - Knife excavation where indicated or with other low impact equipment that will not cause damage to the tree, roots soil.
 - When encountered, exposed roots, 1 inches and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the Project Arborist. Excavation shall be tunnelled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.
 - Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be RETAINED when specifically indicated by the Project Arborist. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboriculture practices (ANSI A300, part 8) and be performed under supervision of the Project Arborist.
- Do not permit foot traffic, scaffolding or the storage of materials within the Tree Protection Zone.
- Protect the Tree Protection Zone at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves and roots of all plants; and contamination of the soil, bark or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the Project Arborist of any spills, compaction or damage and take corrective action immediately using methods approved by the Project Arborist



GLOSSARY OF KEY TERMS

Abutment: A structure built to support the lateral pressure of an arch or span, e.g., at the ends of a bridge.

Adapted Trunk Diameter Method: This method uses the trees age and tolerance to construction damage to determine the factor that will be multiplied by the diameter to provide a sufficient tree protection zone given these factors.

Age: The relative age (young, intermediate, mature) within the particular stand of trees or forest.

Algae: Is a simple, nonflowering plant (includes seaweeds and many single-celled forms). They do contain chlorophyll (but lack true stems, roots, and vascular tissue)

ALR: The Agricultural Land Reserve in which agriculture is recognized as the priority.

Bole: The stem or trunk of a tree.

Chlorotic: Yellowing of plant tissues caused by nutrient deficiency &/or pathogen.

Co-dominant Leaders: Forked dominant stems nearly the same size in diameter, arising from a common junction.

Co-dominant Within Stand: Individual tree whose height is generally equal to trees (regardless of species) within the same stand.

Compaction: Compression of the soil that breaks down soil aggregates and reduces soil volume and total pore space, especially macropore space.

Conk: A fungal fruiting structure typically found on trunks and indicating internal decay.

Dead Standing: A tree that has died but is still standing erect.

DBH: The Diameter of the tree at 1.40 meters above the ground.

Dominant Within Stand: Individual tree whose height is significantly greater than adjacent trees (regardless of species) within the same stand.

C-rad: Crown radius, is the dripline measured from the edge of the trunk to the outermost branches of the crown.

CRZ: Critical Root Zone - means the area of land surrounding the trunk of a tree contained within a radius equal to the DBH of the tree multiplied by six (6), or one (1) metre beyond the drip line of the tree, whichever is greater.

Fair: Healthy but has some defects such as co-dominant trunk, dead branches.



Feeder Roots: The smaller roots responsible for water and nutrient absorption and gas exchange. These roots can extend far beyond the Drip Line (or outer canopy) of the tree.

Fungus (singular) / Fungi (plural): Unicellular, multicellular or syncytial spore-producing organisms that feed on organic matter (including molds, yeast, mushrooms and toadstools)

Girdling Root: Root that encircles all or part of the trunk of a tree or other roots and constricts the vascular tissue and inhibits secondary growth and the movement of water.

Good: Good form and structure, healthy with no defects.

Hazardous: Significant hazard exists with a high risk of immediate failure; which could result in serious damage to property or person(s).

Height: Height of tree is approximate.

LCR: Live Crown Ratio – The ratio of crown length to total tree length.

Level 1 Limited Visual Assessment: Limited visual assessment looking for obvious defects such as, but not limited to dead trees, large cavity openings, large dead or broken branches, fungal fruiting structures, large cracks, and severe leans.

Level 2 Basic Visual Assessment: Detailed visual inspection (aboveground roots, trunk, canopy) of tree(s) may include the use of simple tools to perform assessment (i.e. sounding mallet, trowel, measuring tape, binoculars). The assessment does not include advanced resistance drilling of trunk.

Level 3 Advanced Assessment: To provide detailed information about specific tree parts, defects, targets, or side conditions. May included aerial inspection, resistance drilling of tree parts, laboratory diagnosis of fungal or plant tissue.

Mildew: Is a minute powdery or web-like fungi (of different colours) that is found on diseased or decaying substances.

Moss: A small, green, seedless plant that grows on stones, trees or ground.

No Disturbance Zone: $(\text{Trunk Diameter} \times 6) + \text{Trunk Radius} + (60 \text{ cm excavation zone})$. For example, a 50-cm diameter tree would have a No Disturbance Zone = 3.85 meters measured from the edge of the trunk.

Poor: multiple defects, disease, poor structure and or form, root and or canopy damage.

Phloem: Plant vascular tissue that transports sugar and growth regulators. Situated on the inside of the bark, just outside the cambium. Is bidirectional (transports up and down). Contrast with xylem.

Phototropic: Growth toward light source or stimulant.



Retain & Monitor: Monitor health and condition of tree every 12 months for signs of deterioration.

Root Crown: Also, called the root collar, it includes the flare at the base of the trunk and the initial roots that develop below the trunk. These roots generally taper and subdivide rapidly to form the root system of the tree.

SPEA: Streamside Protection and Enhancement Area

Spiral Decline: The health and condition of the tree is deteriorating.

Sub-dominant Within Stand: Individual tree whose height is significantly less than adjacent trees (regardless of species) within the same stand.

Suppressed: Individual tree whose growth, health and condition are negatively impacted by adjacent tree(s).

TPZ: Tree Protection Zone - The area between the trunk and the Tree Protection Barrier.

Wildlife Tree: A tree or a group of trees that are identified to be retained to provide future wildlife habitat. Wildlife habitat can exist in tree risks (cavities, dead snags, broken tops). Often times the tree risk to potential targets (people & property) is reduced by removing that part of the tree posing the risk of failure, but the tree (or portion of) is retained to provide future habitat.

Witches Broom: A dense mass of shoots growing from a single point, with the resulting structure resembling a broom or a bird's nest.

Xylem: Thin overlapping cells that helps provide support and that conducts water and nutrients upward from the roots all the way to the leaves.



LIMITATIONS

This report is valid for the day the trees were reviewed. This report is not to be re-printed, copied, published, or distributed without prior approval by VDZ + A Consulting Inc.

Sketches, diagrams, and photographs contained in this report being intended as visual aids, should not be construed as engineering reports or legal surveys.

Only the subject tree(s) was inspected and no others. This report does not imply or in any other way infer that other trees on this site or near this site are sound and healthy.

The tendency of trees or parts of trees to fall due to environmental conditions and internal problems are unpredictable. Defects are often hidden within the tree or underground. The project arborist has endeavored to use his skill, education, and judgment to assess the potential for failure, with reasonable methods and detail. It is the owner's responsibility to maintain the trees and inspect the trees to reasonable standards and to carry out recommendations for mitigation suggested in this report.

REFERENCES

Bond, Jerry & Buchanan, Beth (2006) *Best Management Practices: Tree Inventories*, International Society of Arboriculture, Champaign, IL.

Dunster, Dr. Julian (2003) *Preliminary Species Profiles for Tree Failure Assessment*. ISA Pacific Northwest Chapter, Silverton, OR, USA

Dunster, Dr. Julian & Edmonds, Dr. R. (2014) *Common Fungi Affecting Pacific Northwest Trees*, ISA Pacific Northwest Chapter, Silverton, OR, USA

Fite, Kelby & Smiley, E. Thomas (2016) *Best Management Practices: Managing Trees During Construction*, International Society of Arboriculture, Champaign, IL.

Sibley, David Allen (2009) *The Sibley Guide to Trees*. Alfred A. Knopf, New York, NY

Smiley, E.T., Matheny, N., Lilly, S. (2011) *Best Management Practices: Tree Risk Assessment*. International Society of Arboriculture, Champaign, IL.

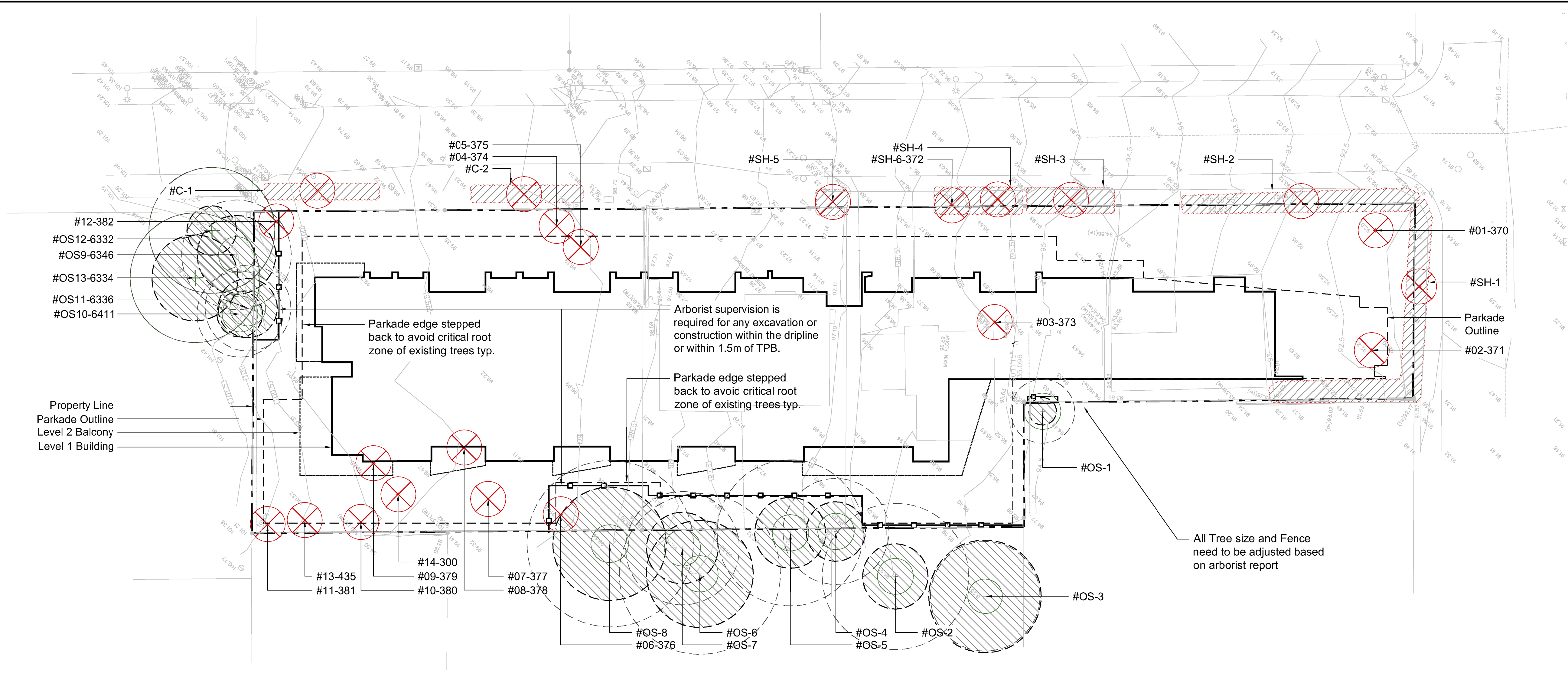
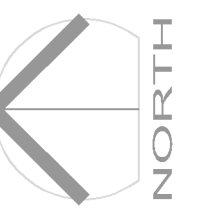
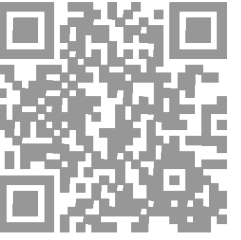


TREE MANAGEMENT PLAN

See attached Tree Mangement Plan

Original size: 24x36

Print as 11x17 for foldout



1 TREE PROTECTION AND REMOVAL PLAN
 Scale 1:250

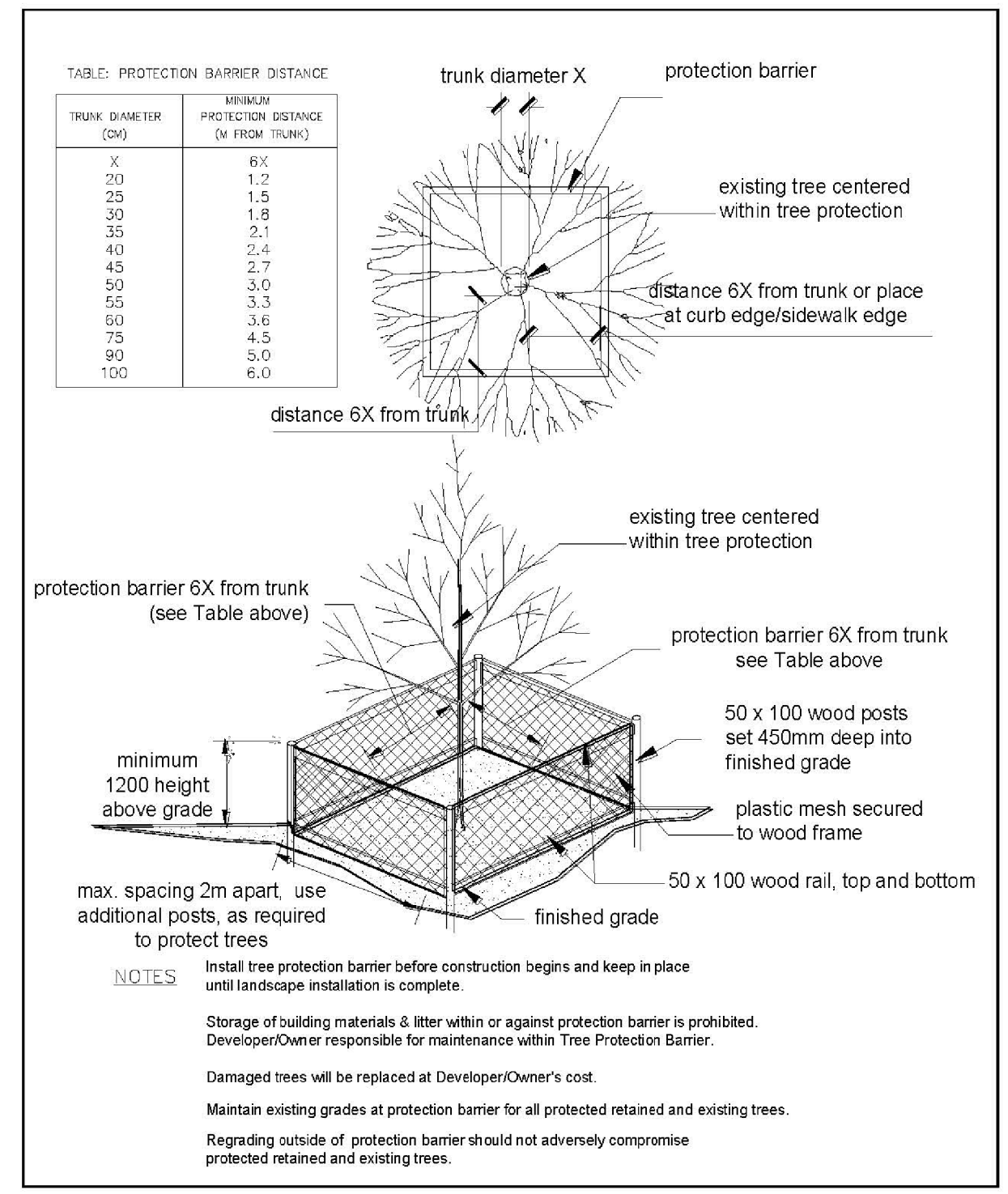
Consolidated Version - White Rock Tree Management Bylaw, 2008, No. 1831
 Page 18 of 18

LEGEND

Existing Tree to be Retained CRZ: Critical Root Zone CR: Crown Radius	Existing Tree to be Removed	Tree Protection Fencing

Tree Tag Legend
 XX - Tag number
 C-XX - Municipality tree
 OS-XX - Off-site tree
 SH-XX - Straddling tree. Written permission required from owner to remove trees.

SCHEDULE "A"
Specifications for Tree Protection Barriers



Note:

- Contact Arborist (Glyn Romaine, 604 841 9977, glyn@vdz.ca) for inspection 72 hrs prior to any grading or excavation within the tree protection zone. (typ) If during excavation it is found that it cannot be completed without severing roots that are critical to the trees health or stability it may be necessary to remove additional trees.
- Read this plan together with the arborist report prepared by VDZ+A.
- An additional 1m setback is shown for all hand-plotted trees to be retained
- If Stump Grinding is to occur in close proximity to trees which are to be retained then it is requested stumps to be removed under Arborist supervision.
- It is the responsibility of the client or his/her representative to contact the project arborist for the purpose of:
 - *Locating TPZ Fencing
 - *Locating Work Zone and Machine access corridors where required
 - *Reviewing the Report with the project foreman or site supervisor.

2 TREE PROTECTION FENCE
 Scale NTS

14	SS	Re-Issued for DP	July 13, 2023
13	SS	Issued for DP	March 08, 2023
12	SH	Issued for Planning Review	May 31, 2022
11	SH	Issued for DP	Oct 18, 2021
10	SH	Response to ADP Comments	July 23, 2021
9	ET	Re-Issued for ADP	June 4, 2021
8	LJ	Issued for ADP	March 9, 2021
7	SH	Issued for Coordination	Feb. 26, 2021
6	SH	Issued for Coordination	Dec. 23, 2020
5	SH	Issued for Coordination	Oct. 6, 2020
4	SH	Issued for DP	June 25, 2020
3	SH	Issued for DP	March 6, 2020
2	SH	Issued for DP	May 24, 2019
1	JW	Issued for DP Review	Nov 16, 2018
No.	By:	Description	Date

REVISIONS TABLE FOR DRAWINGS

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6	GR	Arborist Report Update	Sept. 26, 2023
5	SH	Arborist Response	Sept. 26, 2022
4	KM	Arborist Report Revision	Sept 23rd, 2020
3	KM	Arborist Report Revision	Feb 4, 2020
2	SH	Arborist Report Revision	June 18, 2019
1	SH	Arborist Report Revision	May 15, 2019
No.	By:	Description	Date

REVISIONS TABLE FOR SHEET

Project:
 Vidal Street Development
 Location:
 Vidal Street & Thrift Ave,
 White Rock, BC

Drawn: DV	Stamp:
Checked: SH	
Approved: GR	Original Sheet Size: 24"x36"
Scale: 1:250	CONTRACTOR SHALL CHECK ALL DIMENSIONS ON THE WORK AND REPORT ANY DISCREPANCY TO THE CONSULTANT BEFORE PROCEEDING. ALL DRAWINGS AND SPECIFICATIONS ARE THE EXCLUSIVE PROPERTY OF THE OWNER AND MUST BE RETURNED AT THE COMPLETION OF THE WORK. ALL REVISIONS/DP/PPA/HA/BP DRAWINGS MUST NOT BE PRIED FOR CONSTRUCTION UNLESS LABELED ISSUED FOR TENDER/CONSTRUCTION.



MEMORANDUM

Project	Vidal St. Development, White Rock BC		
Subject	Code Concepts Memorandum	From	Bruce Campbell
File #	4V2003700	Direct	604-260-6800
Date	October 13, 2023	E-mail	bruce.campbell@jensenhughes.com

To	CC	Company	Attention	Via
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Keystone Architecture	Lukas Wykpis	Email
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Weststone Group	Krista Baronian	Email
<input type="checkbox"/>	<input type="checkbox"/>			
<input type="checkbox"/>	<input type="checkbox"/>			
<input type="checkbox"/>	<input type="checkbox"/>			

Introduction

The project involves construction of a new 139-unit market residential building in White Rock BC. The complex consists of two wood-framed buildings separated by a firewall, otop of a tiered parkade below grade.



Building Information & Construction Requirements

North Building

Building Height: 6 Storeys
 Building Area: Approx. 900 m²
 Major Occupancy: Group C
 Construction Type: Combustible

O: +1 604-732-3751

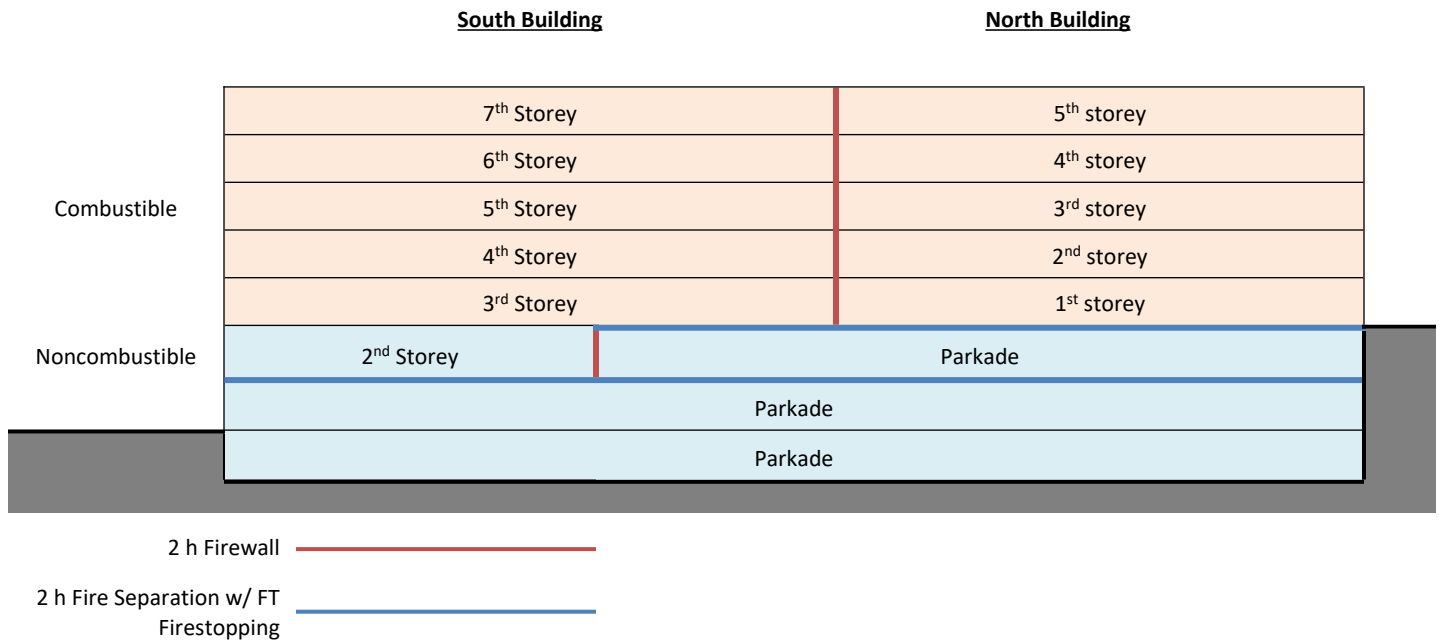
Jensen Hughes Consulting Canada Ltd.
1195 West Broadway | Suite 228
Vancouver, BC V6H 3X5 CANADA

South Building

Building Height: 7 Storeys (see notes below)
 Building Area: Approx. 600 m²
 Major Occupancy: Group C
 Construction Type: Combustible

Alternative Solution – Building Height due to sloping site

The building site is sloped such that it tiers down towards Thrift Street as follows:



east perspective elevation

A small portion of the middle parkade level protrudes above grade level facing Thrift Ave, and is deemed to be the first storey of the south building. As such the entire south building is technically considered “seven storeys in height”. The deck, elevator lobby, and stairwell enclosures at roof level are not considered storeys.



An Alternative Solution will be submitted with the Building Permit Application to address the use of combustible construction for the south building, based on the following concepts:

Proposed Mitigating Features

To mitigate the inclusion of combustible construction on the third to seventh storeys of the south building, the following features have been reviewed:

- Residential units to the south of the building step down in a “tiered” arrangement such that external fire department access via ladder of hose stream at the lowest end of the site does not exceed 6 storeys at any point. Furthermore, along the Vidal St fire department response route, the building is fully 6 storeys in height at all possible response points.
- The building will be served by a single address and fire department response point at the first storey of the North Building along Vidal St, with the annunciator panel and fire department connection located here. On this basis, from the fire department response point, it will not be necessary for fire department personnel to travel up or down more than 5 storeys to reach the uppermost level.
- For the purposes of occupant evacuation, the building functions the same as a traditional six-storey building, in that occupants from the uppermost level need not travel down more than six storeys to reach ground level from any of the exit stairs.
- The first and second storeys of the south building will be of noncombustible construction, and the floor slab separating the second and third storeys will be constructed with a 2 h fire-resistance rating, with 2 h FT rated firestopping at all service penetrations through the slab. In this regard, the upper storeys will be separated from the lowest storey similar to a storage garage constructed as a separate building, which will prevent fire spread in an equivalent manner as a firewall

Discussion

1. Fire Department Response

For exterior response via fire truck or ladder, all units facing Vidal St will be located not greater than six storeys above adjacent grade, due to the tiered nature of the design. Accordingly, for primary fire department response operations, the building functions no differently than a traditional six-storey

Due to the sloping site, the lowest face of the building to the south, which is the designated first storey of the building, does not require direct ladder access. Notwithstanding this, access via Thrift Ave is provided to the second storey amenity deck and into the main building directly via an exterior stair.

The building will be provided with a single fire department response point via the main entry facing Vidal St, which is located at the effective third storey of the building. From this response point, first responders will distribute throughout the building and travel up or down to reach residential units, and it will not be necessary to travel up or down more than five storeys to reach the uppermost level of the building.

A secondary access to one of the exit stairs is located at the second storey of the building provides a supplemental means of accessing the residential levels of the building, and from this level is not necessary to travel up more than six storeys to reach the top level of residential units.

2. Fire Compartmentalization

Level 1 and 2 will be fully non-combustible and separated from the wood-frame structure above it by a 2 h rated cast-in-place concrete slab, with all service penetrations firestopped with not less than 2 h FT rated firestopping. Precedent in Article 3.2.1.2 permits a “horizontal firewall” to be utilized where a common parkade is located beneath multiple buildings of combustible construction. Although Level 1 and 2 is not fully basements, the function of a horizontal firewall is to contain a fire from spreading beyond the compartment of origin on the same basis as a vertical firewall, for the purposes of applying construction requirements. On that basis, a fire originating on the first and second storey are expected to be prevented from spreading into the combustible structure above on the same basis as a vertical firewall



3. Guidance in other Codes & Standards

Provisions for parkades protruding up to one storey above grade are referenced in other international codes and regulations. NFPA 101, often referenced as good practice, provides a similar allowance to BCBC Article 3.2.1.2 under Sentence 4.6.3.(5), specifically permitting a parking structure to extend a maximum of one storey above grade, without being considered a storey for the purposes of determining the building height. This is done with the consideration that the primary level of exit discharge typically occurs on the level above the parking structure and that the storage garage does not have a high occupant load relative to the primary floor.

This requirement is also mirrored in the International Building Code (IBC), under Articles 508.1 through 508.7, which generally permit the parking garage to be treated as a separate building to a maximum of one storey. Of particular note is Article 508.2, which closely resembles Article 3.2.1.2. of the BCBC. It permits an enclosed parking garage below residential occupancies to be, "a basement and/or first storey above the grade plane to be treated as a separate and distinct building." As with the BCBC, it also requires the storage garage to be of noncombustible construction, limits its use and construction, and requires the protection of openings.

In all cases, the assumed risks are based on the assumptions that

- The integrity of the construction of the basement must be of fire-resistive construction and prevent the spread of fire to adjacent structures,
- The use of the basement must be limited to relatively low occupant loads & low hazard uses, and
- The proposed egress and occupancy of the floors above must be considered so that occupants are not put at undue risk during emergency scenarios.

These risks have been reviewed on the subject building, as described previously.

4. Review of high building requirements

Due to the sloping site, the southernmost face of the first storey parking area at P2 level is located with average grade approximately 19 m below the floor of the top storey of the south building. This would cause the building to conform to the restrictive requirements for Subsection 3.2.6 for high buildings.

It is proposed to waive high building requirements for the site as part of the proposed alternative solution, due to the building design making high building requirements functionally redundant.

The issue of artificial grading around buildings has been addressed by the NBCC User's Guide (1995). The Guide notes that landscaping or grading around the building can be manipulated in order to diminish the building height, but cautions that care must be taken to ensure that the occupants are not exposed to an increased risk. "Therefore, reason and judgement must be exercised in establishing grade, taking into account exiting and firefighting."

The guide also notes, with regard to high buildings, that high building requirements are intended to address tenability of occupied floor areas in an emergency situation, based on the fact that occupants in upper storeys may be exposed to smoke from a fire in a storey much lower in the building, due to natural stack effect in shafts.

Accordingly, omitting high building requirements is deemed to be reasonable based on the following considerations:

- The building height measured from average finished grade is substantially less than 18 m on the east and west faces of the building. The lowered parkade entry facing Thrift Ave. represents less than 5% of the perimeter of the overall building.
- As each exit stair from the residential storeys terminates at the second storey at grade and does not continue to the parkade, the hazard of smoke movement via stack effect in exit stairs is not greater than would be expected for a building not exceeding 18 m in height. Similarly, the elevator is well below grade at Level 1, and the hazard of smoke infiltration via the elevator shaft is not more than would be expected for a typical six storey building with basement.



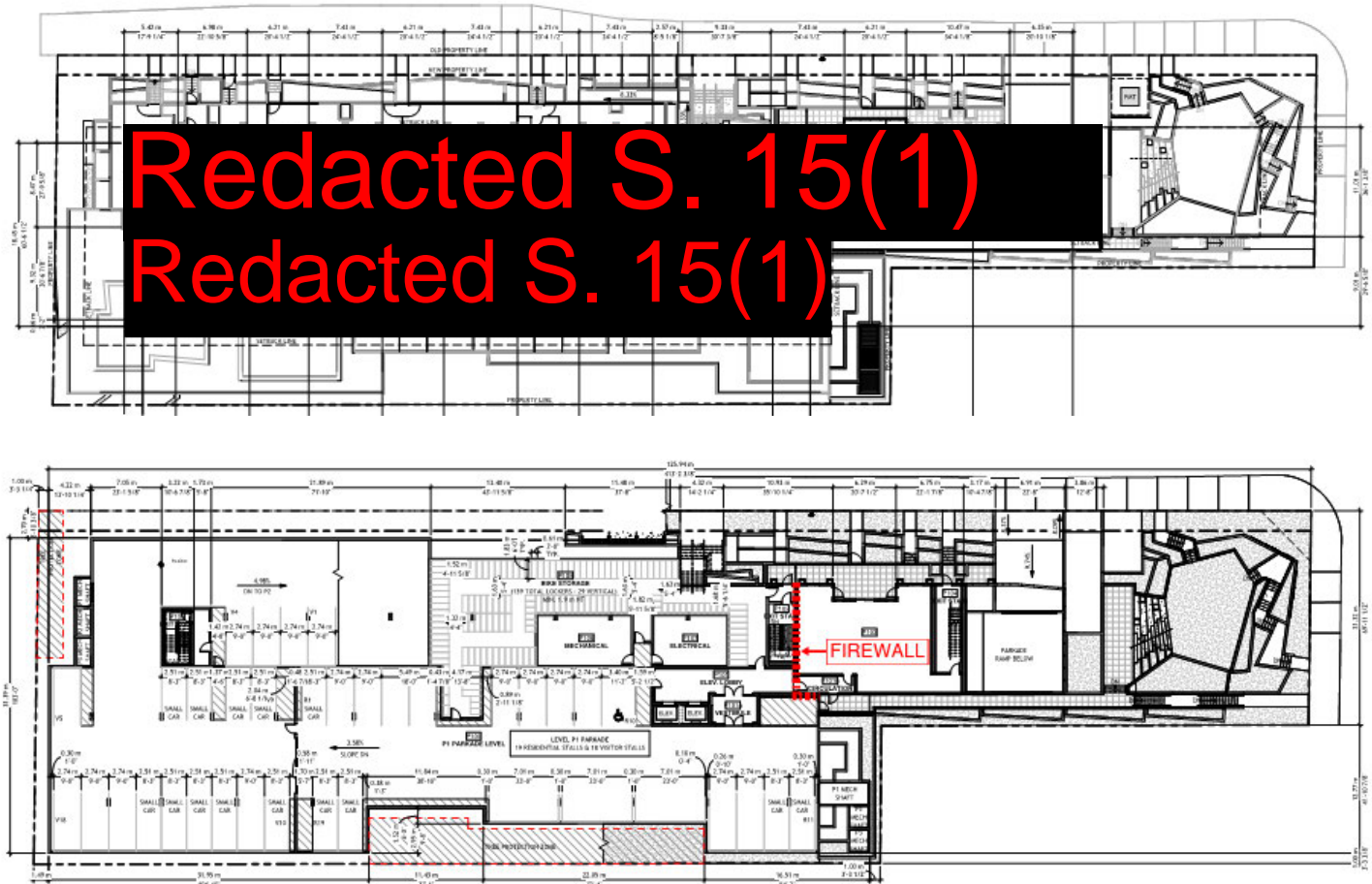
- The NBCC User’s Guide notes that the objective of maintaining tenable conditions in a fire emergency can be met when occupant evacuation to the outdoors does not exceed 7-10 minutes, as would be expected for a non-highrise building. As it is not necessary for occupants to travel downwards more than 6 storeys to reach grade level in the subject building, this condition is deemed to be met.
- It is not necessary for fire department personnel to travel up more than 6 storeys to reach the top storey from the fire department response point. As shown in the mitigating features for the alternative solution above, consideration has been given to fire department access on the West side of the building.

Alternative Solution – Offset Firewall

The firewall separating the combustible upper levels of the building is required to extend vertically through all storeys of the building. The lower storeys of this building consist of parkade recessed below grade, and as such, continuing the firewall down through the parking areas of the building is impractical given the limitation it would place on circulation.

Proposed Mitigating Features

Where the firewall terminates at the Level 2 concrete slab, it will jog horizontally to another firewall at the level below, before terminating above the common parkade as follows:



The horizontal portions of concrete slab joining each firewall will be designed substantially in conformance with the same requirements for vertical firewalls as follows:

- The horizontal portions of firewall will be constructed entirely of concrete or masonry construction,
- The horizontal portions of firewall will be constructed with not less than a 2 h fire-resistance rating



- All structural elements supporting the horizontal portions of firewall will be provided with not less than a 2 h fire resistance rating, such that they will not collapse prior to collapse of the floor assembly,
- Within the horizontal portions of the firewall, all service penetrations will be protected with firestop systems tested in accordance with CAN/ULC-S115, "Fire Tests of Firestop Systems", for 2 h FT ratings.

Discussion

The intent of the requirement to have all firewalls extend vertically through all storeys of a building, as noted by the BCBC, is to limit the probability of a firewall not being continuous, which could lead to gaps or openings in the firewall during a fire. Therefore, the purpose of this alternative solution is to demonstrate that the non-vertical (horizontal) sections of firewall will not create gaps or openings which achieve a lower level of performance than the vertical sections of firewall.

The ground storey is constructed of noncombustible construction and the 2nd storey floor slab will be constructed as a structural concrete slab having a 2 h FRR, with service penetrations within the horizontal portion of a firewall protected with firestop systems having a 2 h FT rating when tested in conformance with ULC-S115, "Fire Tests of Firestop Systems". The use of masonry or concrete construction is considered to be superior to that of other types of noncombustible construction. The concrete slab is more reliable because over time, the concrete slab is less prone to unauthorized alterations and requires a lesser degree of maintenance to remain intact. Likewise, the concrete slab provides less opportunity for craftsmanship mistakes during the construction stage because it does not involve installation of gypsum board systems, application of spray-applied insulation to individual structural members, protection of joints with firestop systems, etc. The FT rating requirement for service penetrations, equivalent to that required for vertical firewalls, will further reduce the probability of vertical fire spread across this horizontal fire separation.

This type of a floor assembly meets all the requirements of Article 3.2.1.2. permitting a basement used primarily as a storage garage to be considered as a separate building for the purposes of Subsection 3.2.2. The intent of this exemption, as noted by the BCBC, is to exempt certain firewalls from the requirement to be continuous if certain conditions are met that provide an equivalent level of protection. By virtue of the enhanced horizontal floor slab, the proposed ground floor commercial space will perform as a separate building that is capable of preventing an interior vertical flame spread in the upward direction. The risk of a fire propagation from the parking levels to the residential storeys above will be remote.





Authorization Form

Planning and Development Services

P: 604-541-2136 | F: 604-541-2153

www.whiterockcity.ca

15322 Buena Vista, White Rock B.C. V4B 1Y6

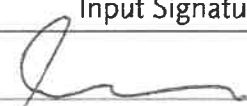
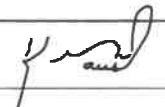
Application Type(s)	Major Development Permit, with zoning amendment application
Site Address(es)	1441, 1443-45, and 1465 Vidal Street / 14937 Thrift Avenue
PID(s)	Please see attached
Legal Description(s)	Please see attached

This document shall serve to notify the City of White Rock ("City") that I am / we are the legal owner(s) of the property described above and do authorize the person indicated below ("Agent") to act on my / our behalf on all matters pertaining to the stated application type(s) for the above referenced property/ies. In addition, I / we have read and understood the application requirements for the above application(s) and authorize the Agent to act on our behalf.

All registered property owners shall sign this Authorization Form. Company-owned properties must be represented by Agents. Use additional sheets if necessary. Changes in ownership will require the submission of new Authorization Forms.

Name of Property Owner(s) If company-owned, please also provide a contact name.	WS Vidal Properties Holdings Ltd. Brian Regehr
Mailing Address	#300 - 10090 152nd Street, Surrey, B.C. V3R 8X8
Main & Cell Phone Number	(604) 498-1958
E-Mail Address	bregehr@wstgp.com

Name of Agent	Kim Maust
Company Name (if applicable)	WS Vidal Properties Limited Partnership
Mailing Address	#300 - 10090152nd Street, Surrey, B.C. V3R 8X8
Main & Cell Phone Number	(604) 498-1958 / (604) 788-0176
E-Mail Address	kmaust@wsgroup.ca

I hereby consent ...	Input Signature Below:	Date (YY/MM/DD)
Property Owner		2019-05-23
Property Owner		
Authorized Agent		2019-05-24

ADDENDUM TO AUTHORIZATION FORM

ADDRESS	PID	LEGAL DESCRIPTION
1441 Vidal Street	007-208-677	Lot 8 Section 10 Township 1 NWD Plan 13684
1443 Vidal Street	001-267-761	SL 2 of Section 9 Township 1 NWD Strata Plan NW2236
1445 Vidal Street	001-267-744	SL 1 of Section 9 Township 1 NWD Strata Plan NW2236
1465 Vidal Street	029-484-413	Lot 1 Section 10 Township 1 NWD Plan EPP46879
14937 Thrift Avenue	007-223-480	Lot 41 Section 10 Township 1 NWD Plan 35379



Development Application Form

Planning and Development Services

P: 604-541-2136 | F: 604-541-2153

www.whiterockcity.ca

15322 Buena Vista, White Rock B.C. V4B 1Y6

Please follow the instructions provided with each section to ensure that you have filled out this application form correctly. Full review and completion of this Development Application Form, along with associated Agent Authorization and Submission Requirement forms, is required to ensure that your application is complete. **Staff will only accept a full and complete application at time of formal submission.**

If you have questions at any time, or if you would like to schedule a pre-application meeting prior to application submission, please contact us at planning@whiterockcity.ca or at 604-541-2155 for assistance.

Section Overview

- Section 1 – Type of Application
- Section 2 – Site Description and Proposed Works
- Section 3 – Provincial Requirements

- Section 4 – Owner/Applicant Information
- Section 5 – Reminder Checklist
- Section 6 – Consent

Section 1 – Type of Application

Please check all development application types that apply to your proposal. For each type selected, please attach the corresponding form noted below. These forms are available at City Hall or on our website:

BYLAW AMENDMENT APPLICATIONS	Check/X
Official Community Plan Amendment - Form A	
Zoning Amendment - Form B	X
Phased Development Agreement - Form B	
Land Use Contract – Discharge - Form B	
Land Use Contract – Amendment - Form B	

SUBDIVISION APPLICATIONS	Check/X
Fee Simple Subdivision - Form G	
Bare Land Strata Subdivision - Form G	
Lot Line Adjustment - Form G	
Air Space Parcel - Form G	
Phased Strata Development - Form G	
Strata Plan Amendment - Form G	
Strata Title Conversion - Form H	

LAND USE PERMIT APPLICATIONS	Check/X
Development Variance Permit – Form C	
Temporary Use Permit – General – Form C	
Development Permit (Major) - Form D	X
Development Permit (Minor) <ul style="list-style-type: none"> • Environmental DP – Form E • Form and Character DP (duplex/triplex, signage, etc) – Form F 	
Is this for a time extension/amendment?	

MISCELLANEOUS APPLICATIONS	Check/X
Liquor/Cannabis License Referral - Council - Form I	
Liquor/Cannabis License Referral - Staff - Form I	
Request for Purchase of Municipal Right of Way - Form J	
Temporary Use Permit – Cannabis Store – Form K	

Is your application type missing? Please provide a description in the box to the right:	
---	--

Section 2 – Site Description and Proposed Works

Please input an answer to the best of your ability in each applicable entry box below. If you require assistance, please do not hesitate to contact the Planning & Development Services Department.

Site Address(es)	1441, 1443, 1445, 1465 Vidal Street, 14937 Thrift Avenue
PID(s)	007-208-677, 001-267-761, 001-267-744, 029-484-413, 007-223-480

Land Use Summary	Existing	Proposed
OCP Land Use Designation	Town Centre Transition	
Development Permit Area(s)	Multi-family	
Zone	RS-1, RT-1	CD
Number of Lots	5	1
Number of Dwelling Units	5	129
Gross Floor Area Total (m ² or ft ²)		88,998 S.F.
Residential, Institutional and/or Commercial Floor Area (m ² or ft ²)		Residential: 73,807 S.F.

Please provide a general description of your proposal below:
<p>This proposed development is a 129-unit multi-family residential six-storey wood frame development on 3 levels of concrete parkade on a sloping site toward the south along Vidal Street.</p>

Section 3 – Provincial Requirements

Please read the instructions and check the applicable boxes below:

(This list is not exhaustive; other provincial regulations may apply)	Check or X		
	YES	NO	DO NOT KNOW
Has the subject site, currently or historically, been used for commercial or industrial purposes? If “Yes”, a Site Profile may be required, pursuant to the <i>Environmental Management Act</i> and the <i>Contaminated Sites Regulation</i> (Ministry of Environment).		X	
Are there archaeological sites or resources on the subject site(s)? If “Yes” or “Do Not Know”, you may be advised to contact the BC Archaeology Branch (Ministry of Forests, Lands, Natural Resources Operations, and Rural Development)		X	

Section 4 – Owner / Applicant Information

Please input the following information into each box as labelled and organized below:

	Registered Owner	Applicant (only if not the Owner)
Full Name / Organization	WS Vidal Properties Holdings Ltd. Brian Regehr, Director	WS Vidal Properties Limited Partnership Kim Maust, Agent for Owner
Address	308-10090 152 St.	300-10090 152 St.
City	Surrey	Surrey
Postal Code	V3R 8X8	V3R 8X8
Phone (Main)	604-498-1958	604-498-1958
Phone (Cell)		604-788-0176
Fax		
E-mail	bregehr@wstgp.com	kmaust@wsigroup.ca

Section 5 – Reminder Checklist

Before you continue any further, please ensure that you have completed the following items:

Checklist	Check/X
• Have you scheduled and completed a pre-application meeting?	X
• Have you confirmed your additional submission requirements with Planning staff?	X
• Have you completed and attached the applicable Submission Requirements Form(s)?	X
• If applicable, have you completed and attached any required Agent Authorization Form(s)?	X

Section 6 – Consent

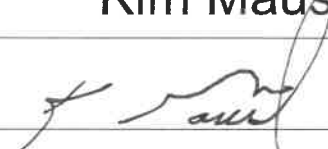
Please read the following consent information fully. Please fill out and sign the following materials below to signify your consent for this application. **If this application is being represented by an Authorized Agent, then the Authorized Agent will only need to fill out the “Authorized Agent” section below and shall also proceed with the submission of a completed Agent Authorization Form:**

As the registered owner(s) / authorized agent, I/we hereby submit this application for the development of the subject site(s) and declare that the information submitted in support of this application is true and correct in all respects. Should there be a change in ownership, authorized agent, legal description, or development proposal while the application is pending, I/we will notify the Planning & Development Services Department in writing immediately to avoid any unnecessary delay in processing the application.

I/we further understand that the following total fee of \$ 9100.00 is payable at time of application and may only be refunded in accordance with the provisions of the “City of White Rock Planning Procedures Bylaw, 2017, No. 2234”.

	Registered Owner	Registered Owner (if more than one)
Full Name		
Signature		
Date		

... OR ...

	Authorized Agent
Full Name	Kim Maust
Signature	
Date	2019-07-03

The objectives of the **Multi-Family Development Permit Area** are to:

- Establish an attractive, comfortable, well-connected, pedestrian-oriented environment that fosters vibrant public life
- Ensure the compatibility of new development with adjacent existing buildings
- Enhance quality of life
- Conserve energy, conserve water, and reduce GHGs
- Enhance the character of the built environment and public realm in the City of White Rock

Please provide a summary of how your proposal achieves the objectives and policies of the Multi-Family DPA below:

NOTE 1: All 'Applicant Response' sections must be filled out by the applicant.

NOTE 2: If your proposal cannot adequately address one of the below-listed DPA guidelines, provide a rationale (and alternative resolution) above, and in the applicable response section.

Section 22.6.1 - Buildings

Multi-Family DPA Guideline 22.6.1 (a)

Ensure buildings are compatible with or complementary to adjacent developments in terms of height, density, and design, with height transitions as outlined in Figure 9 in applicable areas. Vary heights, rooflines, and massing to minimize impacts to views and solar exposure enjoyed by adjacent buildings and open spaces.

Applicant Response

Multi-Family DPA Guideline 22.6.1 (b)

Set buildings back from the property line at least 3 metres to provide enough space for gardens and shade trees in the front yard. Include a further step back above the fourth floor and consider an additional step back above the seventh floor. Tower portions of all buildings should be slim and be set back a minimum of 6 metres from the edge of the podium level to minimize view impacts and shading and to facilitate a minimum tower separation of 30 metres.

Applicant Response

Multi-Family DPA Guideline 22.6.1 (c)	
<p>Create visual interest and comfort for pedestrians along all elevations with architectural details. Incorporate windows, doors, bay windows, porches, setbacks, and vary colours, massing, and materials. Townhouse developments are encouraged to provide for individuality from site to site and unit to unit, and to vary the front set-back between units. Non-street facing elevations shall be treated with the same architectural details as the street facing elevations.</p>	
Applicant Response	
Multi-Family DPA Guideline 22.6.1 (d)	
<p>Ensure the main entrances of residential apartment buildings are level with the sidewalk to create a barrier free environment for aging in place. Townhouses may have elevated patios and entrances. Entrances shall be clearly identifiable, and weather protection with overhangs and awnings shall be provided over all entrances. Residential units on the ground floor should be ground-oriented.</p>	
Applicant Response	

Multi-Family DPA Guideline 22.6.1 (e)	
Address all street edges on properties fronting multiple streets or public walkways. Orient buildings toward intersections or design independent frontages along both intersecting streets, and incorporate windows, doorways, landscaping, and architectural detailing along all street frontages and walkways.	
Applicant Response	
Multi-Family DPA Guideline 22.6.1 (f)	
Provide articulation to break up building mass and to establish a rhythm along the street front in commercial areas. Ground-level commercial spaces should reflect traditional patterns of diverse, small-scale retail with storefronts of approximately ten metres wide. Include no more than six contiguous units fronting a given street without incorporating architectural elements.	
Applicant Response	

Multi-Family DPA Guideline 22.6.1 (g)

Provide shared outdoor amenity spaces for residents in mixed-use and residential buildings. Shared roof decks with gardens are encouraged where appropriate. Incorporate dining and seating areas with outdoor cooking facilities, play areas for children, areas for air-drying laundry, communal vegetable gardens, and appropriate landscaping.

Provide each residential unit with a private outdoor space where possible. Incorporating green-roofs to manage stormwater, reduce urban heat island effect, and contribute to biodiversity is encouraged.

Applicant Response

Multi-Family DPA Guideline 22.6.1 (h)

Follow passive solar design principles and orient and site buildings to maximize views to the waterfront. Design roofs to maximize opportunities for solar collection in winter and control solar gain on south-facing facades by blocking high-angle sun in summer. Alternatively, provide operable shading devices or window overhangs to control summer solar gain. Maximize passive ventilation and passive cooling through building orientation.

Applicant Response

Multi-Family DPA Guideline 22.6.1 (i)	
Incorporate west coast design elements with the use of natural materials, including brick, stone, concrete, exposed heavy timber, and/or steel. Vinyl siding and stucco will not be considered for cladding. Use rich natural tones which reflect the natural landscape and seascape as the dominant colours, with brighter colours used only as accents.	
Applicant Response	
Multi-Family DPA Guideline 22.6.1 (j)	
Integrate commercial signage with the building and/or landscaping. Signage shall have a pedestrian scale and be coordinated throughout each development and compatible with signage on adjacent properties to establish a unified and attractive commercial area. The use of natural materials and projecting signs is encouraged.	
Applicant Response	

Multi-Family DPA Guideline 22.6.1 (k)	
Blocks of side-by-side townhouses are limited to a maximum of eight contiguous units. Lot consolidation to allow for street-fronting townhouse developments are encouraged.	
Applicant Response	

Section 22.6.2 – Public Realm and Landscape

Multi-Family DPA Guideline 22.6.2 (a)

Improve the public realm with widened sidewalks (minimum 1.8 metres). Plant street trees and design curb let-downs to accommodate wheelchairs and scooters.

**Applicant
Response**

Multi-Family DPA Guideline 22.6.2 (b)

Provide consistency with street trees, plant materials, street furniture, and other aspects of the public realm to create cohesive streetscapes. Incorporate public art in both the public and private realm that is reflective of the local landscape and heritage.

**Applicant
Response**

Multi-Family DPA Guideline 22.6.2 (c)

Site buildings to create through-block walking connections. These will create opportunities for a variety of pedestrian-oriented activities and a finer-grained street grid. Special attention should be paid to establishing a linear park connection between the Town Centre and Centennial Park. Enhance these public spaces with public art and opportunities for programmed uses.

Applicant Response

Multi-Family DPA Guideline 22.6.2 (d)

Use light coloured reflective paving materials such as white asphalt or concrete for paths, driveways, and parking areas to reduce heat absorption and urban heat island effect. Ensure all areas not covered by buildings, structures, roads, and parking areas are landscaped. Use landscaping to establish transitions from public, to semi-public, to private areas.

Applicant Response

Multi-Family DPA Guideline 22.6.2 (e)

Increase the quantity, density, and diversity of trees planted. Ensure all trees are planted with sufficient soil volume, using soil cells where appropriate, and incorporate diverse native shrub layers below trees to intercept stormwater. Projects should be designed to allow for the retention of large, mature, healthy trees, and landscape design should employ CPTED safety principles.

**Applicant
Response**

Multi-Family DPA Guideline 22.6.2 (f)

Select trees that will maximize passive solar gain, natural ventilation, and natural cooling, and increase the entry of natural light into buildings. Maximize the use of drought tolerant species that can withstand the seaside setting and require minimal irrigation. Avoid planting invasive species. The planting of hedges directly adjacent to sidewalks is discouraged, unless they are screening a garbage/recycling area.

**Applicant
Response**

Multi-Family DPA Guideline 22.6.1 (g)

Incorporate Low Impact Development Techniques for stormwater management, where appropriate and in accordance with the City’s ISWMP. This includes but is not limited to bio-swales, cisterns, and permeable paving. Narrower lanes/access roads and the use of porous asphalt are encouraged.

**Applicant
Response**

Multi-Family DPA Guideline 22.6.2 (h)

Provide sufficient on-site illumination for pedestrian/vehicle safety and good exposure for retail uses. Light facades and highlight building entrances, and avoid “light spill” onto adjacent properties. The use of lighting systems that are powered by renewable energy, such as solar-power, are encouraged.

**Applicant
Response**

Section 22.6.3 – Parking and Functional Elements

Multi-Family DPA Guideline 22.6.3 (a)

Locate parkade entrances at the rear or side of buildings where possible and separate from pedestrian entrances. Vehicular access from North Bluff Road will only be considered when alternative access is not available. If a parkade entrance faces a street, it shall be subordinate to the pedestrian entrance in terms of size, prominence on the streetscape, location, and design emphasis. The use of landscaping to screen and soften the appearance of the parkade entrance is encouraged. Access ramps must be designed with appropriate sight lines and incorporate security features.

Applicant Response

Multi-Family DPA Guideline 22.6.3 (b)

Use a single internal vehicular access for townhouse developments where possible, with a shared parkade or individual garages. Provide landscaped areas between garages in townhouse developments that have multiple direct vehicular accesses from the street.

Applicant Response

Multi-Family DPA Guideline 22.6.3 (c)

Provide all off-street parking below grade or enclosed within a building, with the exception of some visitor parking spaces and short-term commercial parking spaces. Bicycle and scooter parking shall be provided for residents within parkades, with temporary bicycle parking available near building entrances. Ensure buildings are accessible from parkades for those with mobility impairments.

**Applicant
Response**

Multi-Family DPA Guideline 22.6.3 (d)

Provide sufficient space for garbage, recycling, and composting within parkades. These areas are to be located so that they are convenient for users and accessible for waste/recycling/ compost collection and removal. Loading areas must also be incorporated within buildings wherever possible.

**Applicant
Response**

Multi-Family DPA Guideline 22.6.3 (e)

Locate mechanical equipment to minimize exposure to the street and nearby buildings. Screening of rooftop mechanical equipment must be integrated into the overall architectural form of the building, and be designed to dampen noise where required.

Applicant Response	
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TITLE SEARCH PRINT

2019-05-22, 10:54:28

File Reference: 17-170

Requestor: s.22

Declared Value \$2400000

****CURRENT INFORMATION ONLY - NO CANCELLED INFORMATION SHOWN****

Land Title District

Land Title Office

NEW WESTMINSTER

NEW WESTMINSTER

Title Number

From Title Number

CA6954523

CA1966319

Application Received

2018-07-25

Application Entered

2018-07-27

Registered Owner in Fee Simple

Registered Owner/Mailing Address:

WS VIDAL PROPERTIES HOLDINGS LTD., INC.NO. BC1163846
308 10090 152 ST
SURREY, BC
V3R 8X8

Taxation Authority

White Rock, The Corporation of the City of

Description of Land

Parcel Identifier:

007-208-677

Legal Description:

LOT 8 SECTION 10 TOWNSHIP 1 NEW WESTMINSTER DISTRICT
PLAN 13684

Legal Notations

NONE

Charges, Liens and Interests

Nature:

MORTGAGE

Registration Number:

CA6954624

Registration Date and Time:

2018-07-25 15:04

Registered Owner:

WEST LAKESIDE CAPITAL CO., LIMITED

Remarks:

EXTENSION OF CA6887008

Nature:

ASSIGNMENT OF RENTS

Registration Number:

CA6954625

Registration Date and Time:

2018-07-25 15:04

Registered Owner:

WEST LAKESIDE CAPITAL CO., LIMITED

Remarks:

EXTENSION OF CA6887009

TITLE SEARCH PRINT

2019-05-22, 10:54:28

File Reference: 17-170

Requestor: s.22

Declared Value \$2400000

Nature: MORTGAGE
Registration Number: CA7118470
Registration Date and Time: 2018-10-10 09:20
Registered Owner: WEST LAKESIDE CAPITAL CO., LIMITED
Remarks: INTER ALIA

Nature: ASSIGNMENT OF RENTS
Registration Number: CA7118471
Registration Date and Time: 2018-10-10 09:20
Registered Owner: WEST LAKESIDE CAPITAL CO., LIMITED
Remarks: INTER ALIA

Duplicate Infeasible Title NONE OUTSTANDING

Transfers NONE

Pending Applications NONE

TITLE SEARCH PRINT

2019-05-22, 10:56:37

File Reference: 17-170

Requestor: s.22

Declared Value \$1150000

****CURRENT INFORMATION ONLY - NO CANCELLED INFORMATION SHOWN****

Title Issued Under	STRATA PROPERTY ACT (Section 249)
Land Title District Land Title Office	NEW WESTMINSTER NEW WESTMINSTER
Title Number From Title Number	CA7001283 BX431145
Application Received	2018-08-15
Application Entered	2018-08-17
Registered Owner in Fee Simple Registered Owner/Mailing Address:	WS VIDAL PROPERTIES HOLDINGS LTD., INC.NO. BC1163846 308 10090 152 ST SURREY, BC V3R 8X8
Taxation Authority	White Rock, The Corporation of the City of
Description of Land Parcel Identifier: Legal Description:	001-267-761 STRATA LOT 2 OF SECTION 9 TOWNSHIP 1 NEW WESTMINSTER DISTRICT STRATA PLAN NW2236 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1
Legal Notations	NONE
Charges, Liens and Interests Nature: Registration Number: Registration Date and Time: Registered Owner: Remarks:	MORTGAGE CA7001445 2018-08-15 13:52 WEST LAKESIDE CAPITAL CO. LIMITED EXTENSION OF CA6887008

TITLE SEARCH PRINT

2019-05-22, 10:56:37

File Reference: 17-170

Requestor: s.22

Declared Value \$1150000

Nature:	ASSIGNMENT OF RENTS
Registration Number:	CA7001446
Registration Date and Time:	2018-08-15 13:52
Registered Owner:	WEST LAKESIDE CAPITAL CO., LIMITED
Remarks:	EXTENSION OF CA6887009

Nature:	MORTGAGE
Registration Number:	CA7118470
Registration Date and Time:	2018-10-10 09:20
Registered Owner:	WEST LAKESIDE CAPITAL CO., LIMITED
Remarks:	INTER ALIA

Nature:	ASSIGNMENT OF RENTS
Registration Number:	CA7118471
Registration Date and Time:	2018-10-10 09:20
Registered Owner:	WEST LAKESIDE CAPITAL CO., LIMITED
Remarks:	INTER ALIA

Duplicate Infeasible Title NONE OUTSTANDING

Transfers NONE

Pending Applications NONE

TITLE SEARCH PRINT

2019-05-22, 10:58:47

File Reference: 17-170

Requestor: s.22

Declared Value \$1325000

****CURRENT INFORMATION ONLY - NO CANCELLED INFORMATION SHOWN****

Title Issued Under STRATA PROPERTY ACT (Section 249)

Land Title District NEW WESTMINSTER
Land Title Office NEW WESTMINSTER

Title Number CA6886281
From Title Number CA6826776

Application Received 2018-06-25

Application Entered 2018-07-03

Registered Owner in Fee Simple
Registered Owner/Mailing Address: WS VIDAL PROPERTIES HOLDINGS LTD., INC.NO. BC1163846
308 - 10090 152 ST
SURREY, BC
V3R 8X8

Taxation Authority White Rock, The Corporation of the City of

Description of Land
Parcel Identifier: 001-267-744
Legal Description:
STRATA LOT 1 OF SECTION 9 TOWNSHIP 1 NEW WESTMINSTER DISTRICT STRATA PLAN
NW2236 TOGETHER WITH AN INTEREST IN THE COMMON PROPERTY IN PROPORTION TO THE
UNIT ENTITLEMENT OF THE STRATA LOT AS SHOWN ON FORM 1

Legal Notations NONE

Charges, Liens and Interests
Nature: MORTGAGE
Registration Number: CA6887008
Registration Date and Time: 2018-06-25 16:45
Registered Owner: WEST LAKESIDE CAPITAL CO., LIMITED
Remarks: INTER ALIA
EXTENDED BY CA6909406
EXTENDED BY CA6954624
EXTENDED BY CA7001445

TITLE SEARCH PRINT

2019-05-22, 10:58:47

File Reference: 17-170

Requestor: s.22

Declared Value \$1325000

Nature:	ASSIGNMENT OF RENTS
Registration Number:	CA6887009
Registration Date and Time:	2018-06-25 16:45
Registered Owner:	WEST LAKESIDE CAPITAL CO., LIMITED
Remarks:	INTER ALIA EXTENDED BY CA6909407 EXTENDED BY CA6954625 EXTENDED BY CA7001446

Nature:	MORTGAGE
Registration Number:	CA7118470
Registration Date and Time:	2018-10-10 09:20
Registered Owner:	WEST LAKESIDE CAPITAL CO., LIMITED
Remarks:	INTER ALIA

Nature:	ASSIGNMENT OF RENTS
Registration Number:	CA7118471
Registration Date and Time:	2018-10-10 09:20
Registered Owner:	WEST LAKESIDE CAPITAL CO., LIMITED
Remarks:	INTER ALIA

Duplicate Infeasible Title NONE OUTSTANDING

Transfers NONE

Pending Applications NONE

TITLE SEARCH PRINT

2019-05-22, 11:02:14

File Reference: 17-170

Requestor: s.22

Declared Value \$4800000

****CURRENT INFORMATION ONLY - NO CANCELLED INFORMATION SHOWN****

Land Title District NEW WESTMINSTER
Land Title Office NEW WESTMINSTER

Title Number CA6909353
From Title Number CA4199888

Application Received 2018-07-04

Application Entered 2018-07-12

Registered Owner in Fee Simple
Registered Owner/Mailing Address: WS VIDAL PROPERTIES HOLDINGS LTD., INC.NO. BC1163846
300 10090 152 ST
SURREY, BC
V3R 8X8

Taxation Authority White Rock, The Corporation of the City of

Description of Land
Parcel Identifier: 029-484-413
Legal Description:
LOT 1 SECTION 10 TOWNSHIP 1 NEW WESTMINSTER DISTRICT PLAN EPP46879

Legal Notations
THIS TITLE MAY BE AFFECTED BY A PERMIT UNDER PART 26 OF THE LOCAL GOVERNMENT ACT, SEE BB3024512

THIS TITLE MAY BE AFFECTED BY A PERMIT UNDER PART 26 OF THE LOCAL GOVERNMENT ACT, SEE BB4031015

Charges, Liens and Interests
Nature: MORTGAGE
Registration Number: CA6909406
Registration Date and Time: 2018-07-04 12:54
Registered Owner: WEST LAKESIDE CAPITAL CO., LIMITED
Remarks: EXTENSION OF CA6887008

TITLE SEARCH PRINT

2019-05-22, 11:02:14

File Reference: 17-170

Requestor: s.22

Declared Value \$4800000

Nature:	ASSIGNMENT OF RENTS
Registration Number:	CA6909407
Registration Date and Time:	2018-07-04 12:54
Registered Owner:	WEST LAKESIDE CAPITAL CO., LIMITED
Remarks:	EXTENSION OF CA6887009

Nature:	MORTGAGE
Registration Number:	CA7118470
Registration Date and Time:	2018-10-10 09:20
Registered Owner:	WEST LAKESIDE CAPITAL CO., LIMITED
Remarks:	INTER ALIA

Nature:	ASSIGNMENT OF RENTS
Registration Number:	CA7118471
Registration Date and Time:	2018-10-10 09:20
Registered Owner:	WEST LAKESIDE CAPITAL CO., LIMITED
Remarks:	INTER ALIA

Duplicate Infeasible Title NONE OUTSTANDING

Transfers NONE

Pending Applications NONE

TITLE SEARCH PRINT

2019-05-22, 11:28:26

File Reference: 17-170

Requestor: s.22

Declared Value \$3300000

****CURRENT INFORMATION ONLY - NO CANCELLED INFORMATION SHOWN****

Land Title District

Land Title Office

NEW WESTMINSTER

NEW WESTMINSTER

Title Number

From Title Number

CA6886940

CA2829643

Application Received

2018-06-25

Application Entered

2018-06-27

Registered Owner in Fee Simple

Registered Owner/Mailing Address:

WS VIDAL PROPERTIES HOLDINGS LTD., INC.NO. BC1163846
308 10090 152 ST
SURREY, BC
V3R 8X8

Taxation Authority

White Rock, The Corporation of the City of

Description of Land

Parcel Identifier:

007-223-480

Legal Description:

LOT 41 SECTION 10 TOWNSHIP 1 NEW WESTMINSTER DISTRICT PLAN 35379

Legal Notations

NONE

Charges, Liens and Interests

Nature:

MORTGAGE

Registration Number:

CA6887008

Registration Date and Time:

2018-06-25 16:45

Registered Owner:

WEST LAKESIDE CAPITAL CO., LIMITED

Remarks:

INTER ALIA

EXTENDED BY CA6909406

EXTENDED BY CA6954624

EXTENDED BY CA7001445

TITLE SEARCH PRINT

2019-05-22, 11:28:26

File Reference: 17-170

Requestor: s.22

Declared Value \$3300000

Nature:	ASSIGNMENT OF RENTS
Registration Number:	CA6887009
Registration Date and Time:	2018-06-25 16:45
Registered Owner:	WEST LAKESIDE CAPITAL CO., LIMITED
Remarks:	INTER ALIA EXTENDED BY CA6909407 EXTENDED BY CA6954625 EXTENDED BY CA7001446

Nature:	MORTGAGE
Registration Number:	CA7118470
Registration Date and Time:	2018-10-10 09:20
Registered Owner:	WEST LAKESIDE CAPITAL CO., LIMITED
Remarks:	INTER ALIA

Nature:	ASSIGNMENT OF RENTS
Registration Number:	CA7118471
Registration Date and Time:	2018-10-10 09:20
Registered Owner:	WEST LAKESIDE CAPITAL CO., LIMITED
Remarks:	INTER ALIA

Duplicate Infeasible Title NONE OUTSTANDING

Transfers NONE

Pending Applications NONE



BC Company Summary

For
WS VIDAL PROPERTIES HOLDINGS LTD.

Date and Time of Search: May 22, 2019 11:07 AM Pacific Time
Currency Date: May 08, 2019

ACTIVE

Incorporation Number: BC1163846
Name of Company: WS VIDAL PROPERTIES HOLDINGS LTD.
Recognition Date and Time: Incorporated on May 11, 2018 10:37 AM Pacific Time **In Liquidation:** No
Last Annual Report Filed: Not Available **Receiver:** No

COMPANY NAME INFORMATION

Previous Company Name	Date of Company Name Change
1163846 B.C. LTD.	June 20, 2018

REGISTERED OFFICE INFORMATION

Mailing Address:	Delivery Address:
1450, 13401-108TH AVENUE SURREY BC V3T 5T3 CANADA	1450, 13401-108TH AVENUE SURREY BC V3T 5T3 CANADA

RECORDS OFFICE INFORMATION

Mailing Address:	Delivery Address:
1450, 13401-108TH AVENUE SURREY BC V3T 5T3 CANADA	1450, 13401-108TH AVENUE SURREY BC V3T 5T3 CANADA

DIRECTOR INFORMATION

Last Name, First Name, Middle Name:
Regehr, Brian Keith

Mailing Address:	Delivery Address:
308 - 10090 152ND ST. SURREY BC V3R 8X8 CANADA	308 - 10090 152ND ST. SURREY BC V3R 8X8 CANADA

NO OFFICER INFORMATION FILED .

Submission Requirements Form
Form D – Major Development Permits

Planning and Development Services

P: 604-541-2136 | F: 604-541-2153

www.whiterockcity.ca

15322 Buena Vista, White Rock B.C. V4B 1Y6

Complete Application - General Requirements

Please use the following checklist to assist with the preparation of your application.

Checklist	Check or X
If applicable, these items may be submitted in conjunction with another application type.	
A Completed Application Form with associated fee	✓
An Authorized Agent Form, if the property owner is represented by a third party	✓
Proof of Business Ownership <i>Note: Required if property owner is a corporation; includes Notice of Articles, Certificate of Incorporation, BC Company Summary</i>	✓
A recent title search, dated within 30 days of the application <i>Note: Staff will require copies of any applicable legal encumbrances on title.</i>	✓
Registered Survey Plan <i>Note: The Registered Survey Plan must show the topography of the site, and the location, elevation, and size of trees located on and around the subject site. If applicable, the Registered Survey Plan should show the proposed building envelope.</i>	✓
Site Profile <i>Note: A Site Profile is only required if the subject site is being currently used, or has historically been used, for commercial or industrial activities.</i>	✓

no survey

Complete Application – Additional Requirements

Depending on the scope and scale of the development application, the following submission requirements may be necessary. Other studies not described here may be required at time of initial application.

Be aware that there are two checkboxes here. Please verify with Planning staff as to whether the below-listed submission materials are required as part of your complete application.

Checklist – General Project Requirements	Staff Only	Applicant
If applicable, these items may be submitted in conjunction with another application type.	Check or X	Check or X
Site Plan and Site Statistics <i>Note: The site plan should show information relating to gross site area (with and without road dedications), density (floor area totals – e.g.: gross, residential, etc), bulk (e.g. setbacks, lot coverage, height, proposed use, dwelling unit total (including unit distribution by bedroom count), floor areas (by use/common/amenity), parking spaces (electric charging stations, motor vehicles, and bicycles), loading spaces, and any other additional details.</i>		✓
Design Rationale <i>Note: This document will need to describe the proposed development in terms of its relationship to relevant City policies (including the OCP), good planning and design principles, and its contribution to the character of the surrounding area.</i>		✓
Geotechnical Study <i>Note: This report will need to be prepared by a professional engineer or geoscientist with a specialization in geotechnical engineering in accordance with the current edition of the "Guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia."</i>		✓

Development Permit Guidelines Response Table <i>Note: This table, as provided by staff, provides an applicant with an opportunity to outline how their proposed development responds to the applicable Development Permit guidelines.</i>		✓
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Checklist – Form, Massing, and Aesthetics If applicable, these items may be submitted in conjunction with another application type.	Staff Only Check or X	Applicant Check or X
Photographs of Site and Surrounding Area <i>Note: These photographs should show the existing site, along with the current condition of adjacent properties.</i>		✓
Precedent Photos <i>Note: This refers to images or illustrations from other projects that have inspired the proposed development.</i>		✓
Scaled Architectural Plans <i>Note: The site plan should show information relating to gross site area (with and without road dedications),</i>		✓
Digital or Physical 3D Massing Model <i>Note: This three-dimensional illustration or model of the proposed development should include, at minimum, the massing of buildings on adjacent parcels. Only the proposed development is required to be in colour.</i>		✓ USB Flash Drive
Colour Renderings with Adjacent Buildings <i>Note: This refers to elevation drawings of the proposed development that are illustrated according to the proposed colour and materials of the development and adjacent buildings are displayed in colour on the same drawing either photographically, or drawn at the same scale as the proposed development.</i>		✓
Colour and Materials Board <i>Note: This refers to an illustration or a sample board that includes the colour and finish of the exterior materials to be used in the project. A physical Colour and Materials Board will be required at any required Advisory Design Panel meeting.</i>		✓
Street Profile <i>Note: This refers to a two-dimensional elevation drawing of the proposed development and the adjacent buildings on properties on either side of the proposed development. Subject properties on a corner or through lot must provide a street profile for all frontages.</i>		✓
View Analysis <i>Note: This document will demonstrate the view impact of the proposed development on surrounding buildings, which may include plan diagrams illustrating the angle of view from adjacent buildings under current conditions and with the proposed development and may include renderings of the development's impact on the streetscape from the pedestrian level. The level of detail required shall be discussed with staff.</i>		✓
Shadow Study <i>Note: This set of illustrations will demonstrate the shadow impact from the proposed development, including illustration for the Vernal Equinox (March), Summer Solstice (June), Autumnal Equinox (September) and Winter Solstice (December) at 10:00 am, 12:00 pm, 2:00 pm, and 4:00 pm.</i>		✓

Checklist – Public Realm and Landscaping Considerations If applicable, these items may be submitted in conjunction with another application type.	Staff Only Check or X	Applicant Check or X
Tree Assessment Report <i>Note: The report, as prepared by a certified arborist, will need to meet the requirements of White Rock Tree Management Bylaw, 2008, No. 1831 (as amended or replaced).</i>		✓
Landscaping Plan <i>Note: The landscaping plan will need to include existing tree locations, proposed plantings (using graphic keys), proposed grades, proposed garbage/recycling enclosures, details on proposed outdoor amenity spaces, and proposed paving and lighting details.</i> <i>A cost estimate of proposed landscaping is required as part of the overall landscaping plan regime.</i>		✓

<p>Environmental Impact Assessment</p> <p><i>Note: This report will need to document the proposed development's impact on the surrounding environment. This assessment can take many different forms as applicable to the particular circumstances of the site. This could include a Phase 1 Environmental Site Assessment, a Riparian Areas Regulation (RAR) Assessment Report, or a Biological Site Inventory.</i></p>		X
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Checklist – Parking and Functional Elements If applicable, these items may be submitted in conjunction with another application type.	Staff Only Check or X	Applicant Check or X
<p>Parking Plan</p> <p><i>Note: This plan must illustrate all proposed off-street (on-site) parking spaces, including dimensions of each parking space and drive aisles. If parking for persons with disabilities or small car spaces are proposed, they need to be clearly marked in the plan. A synopsis of the number of parking spaces (including electric vehicle charging stations) must be included. Any variances from the Zoning Bylaw must be identified.</i></p>		✓
<p>Parking Study</p> <p><i>Note: This submission requirement refers to a report prepared by a registered professional engineer that recommends a reduced number of parking spaces for a proposed development, or a shared on-site parking regime for two or more uses within a proposed development.</i></p> <p><i>The report will need to analyze the proposed amount of parking in relation to the parking demand generated by proposed development, and provide detail on any recommended Transportation Demand Management strategies.</i></p>		X
<p>Traffic Study</p> <p><i>Note: This report will need to outline the impacts on existing and future traffic conditions resulting from the proposed development(s), as well as on-site parking, loading, turning movements, and other related matters, in accordance with specifications provided by the City's Engineering and Municipal Operations Department.</i></p>		X

Checklist – Condition of Land Use Permit If applicable, these items may be submitted in conjunction with another application type.	Staff Only Check or X	Applicant Check or X
<p>Cost Estimate</p> <p><i>Note: Pursuant to Section 502 of the Local Government Act and as a condition of the issue of a land use permit, the City of White Rock may require the provision of securities to ensure that the City can adequately undertake, at the expense of the holder of the applicable land use permit, the works, construction or other activities required to satisfy the landscaping condition(s), correct the unsafe condition(s), or correct damages to the environment.</i></p> <p><i>This cost estimate will need to summarize the cost of works, as applicable, with the above-mentioned items: the full scope of works required to satisfy the proposed landscaping conditions, to correct unsafe conditions, or to correct damages to the environment. This will be required prior to final consideration by Council or by the relevant approving authority.</i></p>		



Submission Requirements Form

Form B – Zoning Amendments, Phased Development Agreements, and Land Use Contracts

Planning and Development Services

P: 604-541-2136 | F: 604-541-2153

www.whiterockcity.ca

15322 Buena Vista, White Rock B.C. V4B 1Y6

Complete Application - General Requirements

Please use the following checklist to assist with the preparation of your application.

Checklist	Check
If applicable, these items may be submitted in conjunction with another application type.	
Completed Application Form with associated fee	✓
Authorized Agent Form(s), if the property owner is represented by a third party	✓
Proof of Business Ownership <i>Note: Required if property owner is a corporation; includes Notice of Articles, Certificate of Incorporation, BC Company Summary</i>	✓
Recent title search, dated within 30 days of the application <i>Note: Staff will require copies of any applicable legal encumbrances on title.</i>	✓
Registered Survey Plan <i>Note: The Registered Survey Plan must show the topography of the site, and the location, elevation, and size of trees located on and around the subject site. If applicable, the Registered Survey Plan should show the proposed building envelope.</i>	✓
Site Profile <i>Note: A Site Profile is only required if the subject site is being currently used, or has historically been used, for commercial or industrial activities.</i>	✓
Phasing Plan [Phased Development Agreements only] <i>Note: A phasing plan should identify the land that it is subject to the Phased Development Agreement, which portions of said lands will be subject to a particular phase, and other details on the sequence and timing of each phase among other details.</i>	N/A X
Amenity Confirmation Letter [Phased Development Agreements only] <i>Note: This letter would confirm any proposed amenities as part of the proposed Phased Development Agreement. Amenities may take the form of 'in-kind' or 'payment-in-lieu' contributions.</i>	N/A X

Complete Application – Additional Requirements [If Applicable]

Depending on the scope and scale of the development application, the following submission requirements may be necessary. Other studies not described here may be required at time of initial application.

Be aware that there are two checkboxes here. Please verify with Planning staff as to whether the below-listed submission materials are required as part of your complete application.

Checklist – General Project Requirements	Staff Only Check	Applicant Check
If applicable, these items may be submitted in conjunction with another application type.		
Site Plan and Site Statistics <i>Note: The site plan should show information relating to gross site area (with and without road dedications), density (floor area totals – e.g.: gross, residential, etc), bulk (e.g. setbacks, lot coverage, height, proposed use, dwelling unit total (including unit distribution by bedroom count), floor areas (by use/common/amenity), parking spaces (electric charging stations, motor vehicles, and bicycles), loading spaces, and any other additional details.</i>		✓

Design Rationale <i>Note: This document will need to describe the proposed development in terms of its relationship to relevant City policies (including the OCP), good planning and design principles, and its contribution to the character of the surrounding area.</i>		✓
Geotechnical Study <i>Note: This report will need to be prepared by a professional engineer or geoscientist with a specialization in geotechnical engineering in accordance with the current edition of the "Guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia."</i>		✓
Community Amenity Contribution Valuation Report [Zoning Amendments Only] <i>Note: This document will need to be prepared pursuant to the provisions and conditions contained within Council Policy 511 – Density Bonus / Community Amenity Contribution.</i>		X

Checklist – Form, Massing, and Aesthetics	Staff Only Check	Applicant Check
Note: These items may be submitted in conjunction with a Development Permit Application Photographs of Site and Surrounding Area <i>Note: These photographs should show the existing site, along with the current condition of adjacent properties.</i>		✓
Precedent Photos <i>Note: This refers to images or illustrations from other projects that have inspired the proposed development.</i>		✓
Development Permit Guidelines Response Table <i>Note: This table, as provided by staff, provides an applicant with an opportunity to outline how their proposed development responds to the applicable Development Permit guidelines.</i>		✓
Scaled Architectural Plans <i>Note: The site plan should show information relating to gross site area (with and without road dedications),</i>		✓
Digital or Physical 3D Massing Model <i>Note: This three-dimensional illustration or model of the proposed development should include, at minimum, the massing of buildings on adjacent parcels. Only the proposed development is required to be in colour.</i>		✓ USB Flash drive
Colour Renderings with Adjacent Buildings <i>Note: This refers to elevation drawings of the proposed development that are illustrated according to the proposed colour and materials of the development and adjacent buildings are displayed in colour on the same drawing either photographically, or drawn at the same scale as the proposed development.</i>		✓
Colour and Materials Board <i>Note: This refers to an illustration or a sample board that includes the colour and finish of the exterior materials to be used in the project. A physical Colour and Materials Board will be required at any required Advisory Design Panel meeting.</i>		✓
Street Profile <i>Note: This refers to a two-dimensional elevation drawing of the proposed development and the adjacent buildings on properties on either side of the proposed development. Subject properties on a corner or through lot must provide a street profile for all frontages.</i>		✓
View Analysis <i>Note: This document will demonstrate the view impact of the proposed development on surrounding buildings, which may include plan diagrams illustrating the angle of view from adjacent buildings under current conditions and with the proposed development and may include renderings of the development's impact on the streetscape from the pedestrian level. The level of detail required shall be discussed with staff.</i>		✓
Shadow Study <i>Note: This set of illustrations will demonstrate the shadow impact from the proposed development, including illustration for the Vernal Equinox (March), Summer Solstice (June), Autumnal Equinox (September) and Winter Solstice (December) at 10:00 am, 12:00 pm, 2:00 pm, and 4:00 pm.</i>		✓

Checklist – Public Realm and Landscaping Considerations Note: These items may be submitted in conjunction with a Development Permit Application	Staff Only Check	Applicant Check
Tree Assessment Report <i>Note: The report, as prepared by a certified arborist, will need to meet the requirements of White Rock Tree Management Bylaw, 2008, No. 1831 (as amended or replaced).</i>		✓
Landscaping Plan <i>Note: The landscaping plan will need to include existing tree locations, proposed plantings (using graphic keys), proposed grades, proposed garbage/recycling enclosures, details on proposed outdoor amenity spaces, and proposed paving and lighting details.</i>		✓
Environmental Impact Assessment <i>Note: This report will need to document the proposed development's impact on the surrounding environment. This assessment can take many different forms as applicable to the particular circumstances of the site. This could include a Phase 1 Environmental Site Assessment, a Riparian Areas Regulation (RAR) Assessment Report, or a Biological Site Inventory.</i>		X

Checklist – Parking and Functional Elements Note: These items may be submitted in conjunction with a Development Permit Application	Staff Only Check	Applicant Check
Parking Plan <i>Note: This plan must illustrate all proposed off-street (on-site) parking spaces, including dimensions of each parking space and drive aisles. If parking for persons with disabilities or small car spaces are proposed, they need to be clearly marked in the plan. A synopsis of the number of parking spaces (including electric vehicle charging stations) must be included. Any variances from the Zoning Bylaw must be identified.</i>		✓
Parking Study <i>Note: This submission requirement refers to a report prepared by a registered professional engineer that recommends a reduced number of parking spaces for a proposed development, or a shared on-site parking regime for two or more uses within a proposed development.</i> <i>The report will need to analyze the proposed amount of parking in relation to the parking demand generated by proposed development, and provide detail on any recommended Transportation Demand Management strategies.</i>		X
Traffic Study <i>Note: This report will need to outline the impacts on existing and future traffic conditions resulting from the proposed development(s), as well as on-site parking, loading, turning movements, and other related matters, in accordance with specifications provided by the City's Engineering and Municipal Operations Department.</i>		X

**TOPOGRAPHIC SITE SURVEY OF:
 LOT 1 PLAN EPP46879,
 LOT 8 PLAN 13684,
 LOT 41 PLAN 35379 AND
 STRATA PLAN NWS2236
 ALL OF SEC 10 TP 1 NWD**

CIVIC ADDRESS:

LOT 1 PLAN EPP46879
 1465 Vidal Street, White Rock, BC
 029-484-413

STRATA PLAN NWS2236
 1443-1445 Vidal Street, White Rock, BC
 001-267-761/001-267-744

LOT 8 PLAN 13684
 1441 Vidal Street, White Rock, BC
 007-208-677

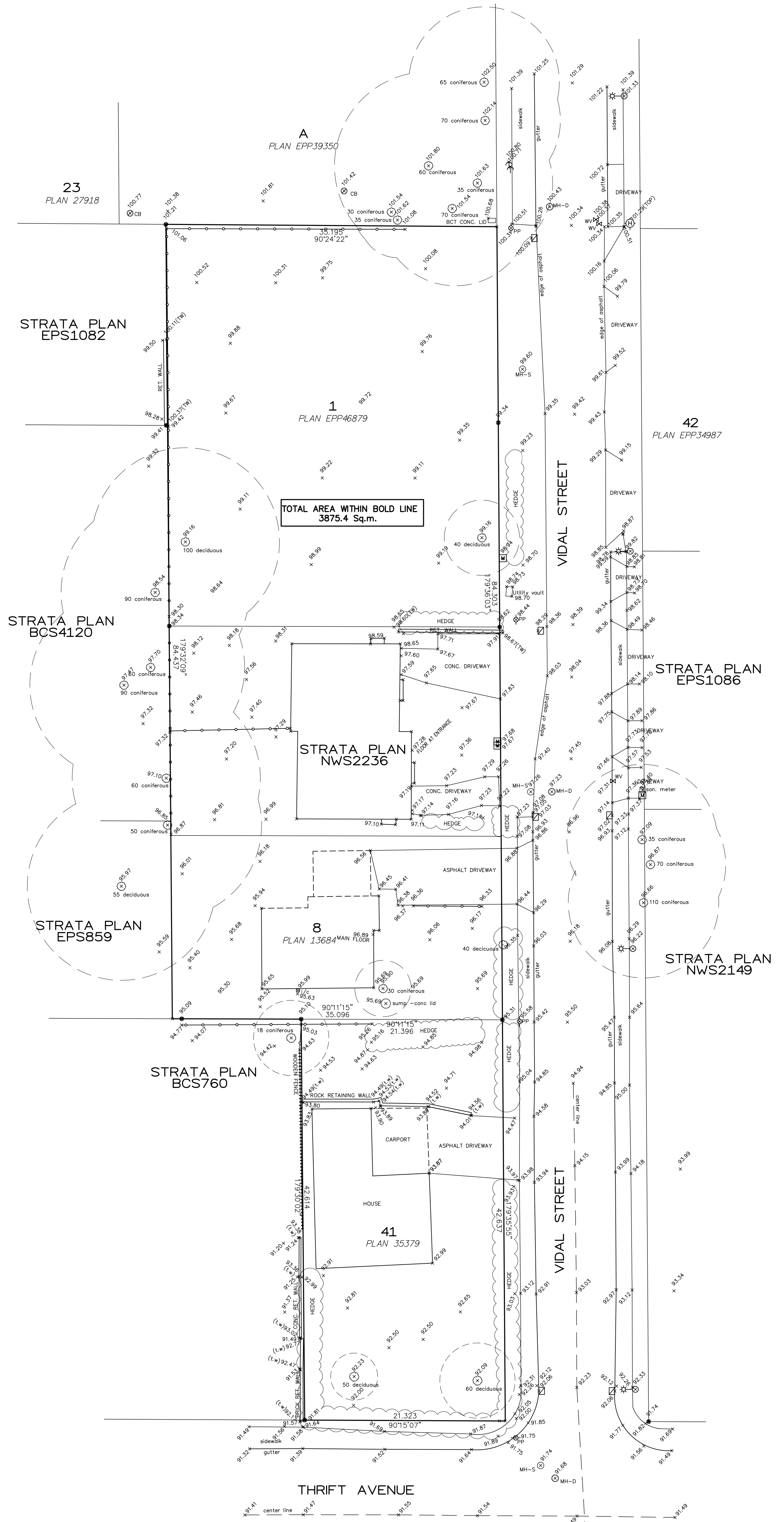
LOT 41 PLAN 35279
 14937 Thrift Avenue, White Rock, BC
 007-223-480

LEGEND

- DENOTES STANDARD IRON POST FOUND
- ⊕ DENOTES FIRE HYDRANT
- ⊠ DENOTES CATCH BASIN - TOP ENTRY
- ⊙ DENOTES CATCH BASIN - ROUND
- ⊕ DENOTES UTILITY POLE
- ⊕* DENOTES UTILITY POLE WITH LIGHT
- ⊙* DENOTES STREET LIGHT - DAVIT
- ⊕ WV DENOTES WATER VALVE
- ⊕ WM DENOTES WATER METER
- ⊕ GV DENOTES GAS VALVE
- ← DENOTES GUY WIRE
- MH-S DENOTES SANITARY MANHOLE
- MH-D DENOTES STORM MANHOLE
- ⊙ DENOTES TREE AND CANOPY EXTENT
- × DENOTES GROUND ELEVATION



SCALE 1 : 250
 0 5 10
 ALL DISTANCES ARE IN METRES



Lot dimensions are derived from FIELD SURVEY.

Elevations are Geodetic (CVD28 GVRD-2005 - IN METERS)
 Derived from Control Monument 89H5101 located at SE
 corner of the intersection of Vidal St. and Thrift Ave.
 Elevation = 91.151m

Invert elevations and offsets of services from property lines
 are derived from municipal records and field survey.
 Contractor to verify all service locations and inverts prior to
 construction.

Spot elevations along curb are taken in gutter

If this plan is used in digital form, Target Land Surveying
 will only assume responsibility for information content
 shown on original unaltered drawing.

Tree diameters are taken at 1.4m above grade and are
 shown in cm. All trees 30cm and larger on project are
 shown. Refer to Arborist report for tree details.

This Plan was prepared for architectural design and site
 servicing purposes, and is for the exclusive use of our
 client. The signatory accepts no responsibility or liability
 for any damages that may be suffered by a third party
 as a result of reproduction, transmission or alteration to
 this document without consent of the signatory.

CERTIFIED CORRECT
 DATED THIS 4th DAY OF April, 2018.

----- B.C.L.S.
 M. Adam Fulkerson

ARBORIST REPORT

PROJECT:

VDZ-VIDAL ST.

SITE ADDRESS:

**14937 THRIFT AVE.
&
1441 / 1443-45 / 1465 VIDAL ST.
WHITE ROCK, B.C.**

CLIENT:

WEST STONE GROUP

PROJECT #

DP2018-59

PREPARED BY:

VDZ + A Consulting Inc.

**Suite 1, 20177 97 Avenue
Langley, BC V1M 4B9**

PROJECT ARBORIST

Austin Peterson

ISA Certified Arborist PN 1570A
ISA Tree Risk Assessment Qualified

November 5, 2018

1st Revision – May 8, 2019

2nd Revision – May 15th, 2019



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Background

VDZ + A Consulting Inc. was contracted by West Stone Group to prepare an ISA Certified Arborist Tree Report for the properties at 14937 Thrift Avenue & 1441 / 1443-45 / 1465 Vidal Street, White Rock, B.C.

Assignment

VDZ + A Consulting Inc. have been retained by the client to prepare a report to assess the tree(s) located at Address Surrey, BC. The Project Arborist, Austin Peterson, performed a site review entailing identification and visual assessment of the tree(s) on site. A tree survey of all off-site trees was completed by the client or representative(s).

The Project Arborist will provide recommendations for the retention or removal of tree(s) on this site based on the existing site conditions and the proposed use of the site. Mitigation of development impact on the tree(s) has been considered as part of the tree assessment process.

Limits of the Assignment

Austin Peterson's observations were limited to one site visit on October 16, 2018. No tissue or soil samples were sent to a lab for identification or analysis. VDZ + A Consulting Inc. located the trees using existing landmarks and onsite navigation.

Testing and Analysis

Austin Peterson used visual tree assessment and mallet sounding to test the trees' health, condition and risk level.

Purpose and Use of Report

The purpose of this report is to assist the property owner in compliance with the City of White Rock Tree Management Bylaw, 2008, No. 1831.

Site Review



Fig. 1 – Aerial view of property (WROMS)

Proposed Site Development

The development of a new high-rise buildings.

Environmental Description

ISA Certified Arborist Austin Peterson of VDZ + A Consulting Inc. conducted a site review and evaluation of the trees located at the above referenced property on October 16, 2018.

The site consists of four residential lots, three of which have existing houses. All four lots have established landscapes composed of mature trees and shrubs. The southernmost lot is a single family residential home that fronts onto Thrift Avenue. It is joined via the north property line to the first three lots proceeding up the west side of Vidal Street. From Thrift Avenue, Vidal Street inclines north. To the west lay an assortment of low-rise multifamily residences and to the north is a newer high-rise development.



There are no seasonal creeks that transect the property.

There is no evidence of raptors nests, osprey nests or heron colonies on the site. Removal of trees however between March 15 – August 15 (date subject to change depending on seasonal nesting behavior and therefore must be confirmed with City of Maple Ridge) will require a bird nesting survey. This is as prescribed by the federal Migratory Birds Convention Act (MBCA), 1994 and Section 34 of the BC Wildlife Act. It is the responsibility of the owner/developer to ensure they are in compliance with the city's regulations governing nesting birds on sites where development is occurring.

Off-site Trees – There are private off-site trees associated with this project.

Municipal Trees – There are City of White Rock trees associated with this project.

Trees Straddling the Property Line – There are trees straddling the property line associated with this project.

Tree Preservation Summary

All the trees identified on the Tree Retention/Removal Plan and within the Tree Assessment Data Table have been given their Retention/Removal recommendation on a preliminary basis. Final recommendations will be based upon design/construction and grading details.

Long-term tree preservation success is dependent on minimizing the impact caused during pre-construction clearing operations, construction and post construction activities. Best efforts must be made to ensure the Tree Protection Zone remains undisturbed.

Ongoing monitoring of retained trees through the development process and implementation of mitigating works (watering, mulching, etc.) is essential for success.



Table 1 - Tree Assessment Data:

Tree #	Tag #	Common Name <i>Botanical Name</i>	Located on the Survey	DBH (m.)	C-Rad (m.)	LCR (%)	Comments	Retain / Remove
Comments written for 376 and OS2-OS8, in italics, have been transferred from the BC Plant Health Care Inc. Arborist Report for Tree Root Mapping, dated March 18, 2019.								
The following trees are located on 14937 Thrift Avenue.								
01	370	English holly <i>Ilex aquifolium</i>	Yes	-	-	-	Listed as an invasive species by City of White Rock. Dash ("-") indicates the arborist was not required measure this species. WITHIN BUILDING FOOTPRINT	Remove
02	371	English holly <i>Ilex aquifolium</i>	Yes	-	-	-	Listed as an invasive species by City of White Rock. Dash ("-") indicates the arborist was not required measure this species. WITHIN BUILDING FOOTPRINT	Remove
The following trees are located on 1441 Vidal Street.								
03	373	Threadleaf false-cypress <i>Chamaecyparis pisifera f. filifera</i>	Yes	0.16 0.17 0.18	3.00	60	Fair form and structure. TRUNK – Growing directly adjacent to the foundation of the existing house. WITHIN BUILDING FOOTPRINT	Remove
The following trees are located on 1465 Vidal Street.								
04	374	Crimson King Norway maple <i>Acer platanoides</i> 'Crimson King'	Yes	0.42	4.70	80	Fair form and structure. CROWN – Previously side pruned for utility line clearance. WITHIN PARKADE FOOTPRINT	Remove
05	375	Common lilac <i>Syringa vulgaris</i>	No	0.10 0.10 0.11	3.00	30	HANDPLOTTED Poor form and structure. TRUNK – Multi-stem from base. WITHIN PARKADE FOOTPRINT	Remove



Tree #	Tag #	Common Name <i>Botanical Name</i>	Located on the Survey	DBH (m.)	C-Rad (m.)	LCR (%)	Comments	Retain / Remove
06	376	Red alder <i>Alnus rubra</i>	Yes	0.31 0.40 0.41	6.50	90	Fair form and structure. TRUNK – (3) stems from base. Decay present in one stem (0.50 meters in length). Natural lean east. <i>BC Plant Health Care root radar results: Poor structure with multiple trunks and decay. Conflict with proposed development.</i> WITHIN PARKADE FOOTPRINT	Remove
07	377	Flowering plum <i>Prunus cerasifera</i>	No	0.13 0.18 0.27	5.50	80	HANDPLOTTED Fair form and structure. WITHIN PARKADE FOOTPRINT	Remove
08	378	Mountain ash <i>Sorbus aucuparia</i>	No	0.10 0.11 0.14	4.50	80	HANDPLOTTED Fair form and structure. WITHIN BUILDING FOOTPRINT	Remove
09	379	Japanese maple <i>Acer palmatum</i>	No	0.09 0.11 0.11	4.00	75	HANDPLOTTED Fair form and structure. WITHIN LIKELY EXCAVATION ZONE	Remove
10	380	Mountain ash <i>Sorbus aucuparia</i>	No	0.10 0.11 0.11	2.50	40	HANDPLOTTED Fair form and structure. CROWN – Shade suppressed on north and east sides. WITHIN PARKADE FOOTPRINT	Remove
11	381	Vine maple <i>Acer circinatum</i>	No	0.14 0.15 0.18	4.00	80	HANDPLOTTED Fair form and structure. WITHIN LIKELY EXCAVATION ZONE	Remove
12	382	Bitter cherry <i>Prunus emarginata</i>	No	0.14 0.15 0.21	4.00	80	HANDPLOTTED Fair form and structure. WITHIN LIKELY EXCAVATION ZONE	Remove
The following trees are located offsite.								
Trees OS 1 – OS 8 were inspected visually from a distance. DBH figures have been estimated by the Project Arborist and dripline numbers have been measured from the subject property(s) line/fence.								



Tree #	Tag #	Common Name <i>Botanical Name</i>	Located on the Survey	DBH (m.)	C-Rad (m.)	LCR (%)	Comments	Retain / Remove
OS 01	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	0.23	3.50	90	Good form and structure. TRUNK – Located within (0.25 meters) of retaining wall on two sides. WITHIN LIKELY EXCAVATION ZONE	Retain
OS 02	No tag	Paper birch <i>Betula papyrifera</i>	Yes	0.55	-	-	Good form and structure. CROWN – Dripline extends 3.0 meters onto subject property. The dash ("-") signifies the arborist did not have enough access to get an accurate measurement. <i>BC Plant Health Care root radar results: Feeder roots detected in the 0-20 cm depth range. The tree is about 6 meters from the proposed development. Critical Root Zone does not enter the subject lot. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i>	Retain



Tree #	Tag #	Common Name <i>Botanical Name</i>	Located on the Survey	DBH (m.)	C-Rad (m.)	LCR (%)	Comments	Retain / Remove
OS 03	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	No	0.95	-	75	<p>HANDPLOTTED</p> <p>Good form and structure. OS 03 – OS 05 are part of a larger grouping of trees with approximately 6.0 meter dripline(s) that extend to subject property line. ROOTS – Interconnected within grouping and likely extending onto subject property. The dash (“-”) signifies the arborist did not have enough access to get an accurate measurement.</p> <p><i>BC Plant Health Care root radar results: Feeder roots detected in the 0 – 20 cm depth range. The tree is about 8 meters from the proposed development. Critical Root Zone does not enter the subject lot. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i></p>	Retain



Tree #	Tag #	Common Name <i>Botanical Name</i>	Located on the Survey	DBH (m.)	C-Rad (m.)	LCR (%)	Comments	Retain / Remove
OS 04	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	0.50	-	75	<p>HANDPLOTTED Good form and structure. OS 03 – OS 05 are part of a larger grouping of trees with approximately 6.0 meter dripline(s) that extend to subject property line. ROOTS – Interconnected within grouping and likely extending onto subject property. The dash (“-”) signifies the arborist did not have enough access to get an accurate measurement.</p> <p><i>BC Plant Health Care root radar results: Assessment blocked by a shed. Roots may grow towards the shed. About 24% of Critical Root Zone will be impacted. Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i></p>	Retain



Tree #	Tag #	Common Name <i>Botanical Name</i>	Located on the Survey	DBH (m.)	C-Rad (m.)	LCR (%)	Comments	Retain / Remove
OS 05	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	0.60	-	60	<p>HANDPLOTTED</p> <p>Good form and structure. OS 03 – OS 05 are part of a larger grouping of trees with approximately 6.0 meters dripline(s) that extend to subject property line. ROOTS – Interconnected within grouping and likely extending onto subject property. The dash (“-”) signifies the arborist did not have enough access to get an accurate measurement.</p> <p><i>BC Plant Health Care root radar results: May have structural, lateral, and feeder roots growing towards the east in the 0 – 20 cm depth range. About 27% of Critical Root Zone will be impacted. Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i></p>	Retain
OS 06	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	90	-	75	<p>Good form and structure. CROWN – Dripline extends 3.5 meters onto subject property. The dash (“-”) signifies the arborist did not have enough access to get an accurate measurement.</p> <p><i>BC Plant Health Care root radar results: The tree is about 6 meters from the proposed development. Critical Root Zone does not enter the subject lot. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i></p>	Retain



Tree #	Tag #	Common Name <i>Botanical Name</i>	Located on the Survey	DBH (m.)	C-Rad (m.)	LCR (%)	Comments	Retain / Remove
OS 07	No tag	Western redcedar <i>Thuja plicata</i>	Yes	60	-	75	<p>Good form and structure. CROWN – Dripline extends 3.8 meters onto subject property. The dash (“-”) signifies the arborist did not have enough access to get an accurate measurement.</p> <p><i>BC Plant Health Care root radar results: May have structural, lateral, and feeder roots growing towards its southeast in the 0 – 20 cm depth range. About 6% of Critical Root Zone may be impacted. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i></p>	Retain
OS 08	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	95	-	50	<p>Good form and structure. CROWN – Dripline extends 7.0 meters onto subject property. The dash (“-”) signifies the arborist did not have enough access to get an accurate measurement.</p> <p><i>BC Plant Health Care root radar results: Assessment blocked by Tree 376 and shrubs. About 25% of Critical Root Zone will be impacted. Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i></p>	Retain
Trees OS 9 – OS 11 form the edge of a larger grouping of private off-site trees.								
OS 9	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	0.66	6.0	50	Good form and structure.	Retain
OS 10	No tag	Western redcedar <i>Thuja plicata</i>	Yes	0.36	4.0	80	<p>Fair form and structure. TRUNK – Previously topped.</p>	Retain



Tree #	Tag #	Common Name <i>Botanical Name</i>	Located on the Survey	DBH (m.)	C-Rad (m.)	LCR (%)	Comments	Retain / Remove
OS 11	No tag	Western redcedar <i>Thuja plicata</i>	Yes	0.36	4.0	80	Fair form and structure. TRUNK – Previously topped.	Retain
The following trees are straddling the City of White Rock property.								
SH 01	No tag	Common privet hedge <i>Ligustrum vulgare</i>	Yes	-	1.30	-	Height = 2.2M The dash (“-”) signifies the arborist did not have enough access to get an accurate measurement. Shared with 14937 Thrift Ave.	Retain
SH 02	No tag	Boxwood hedge <i>Buxus Sempervirens</i>	Yes	-	1.00	-	Height = 2.0M The dash (“-”) signifies the arborist did not have enough access to get an accurate measurement. Shared with 14937 Thrift Ave.	Retain
SH 03	No tag	Common privet hedge <i>Ligustrum vulgare</i>	Yes	-	1.5	-	Height = 2.5M The dash (“-”) signifies the arborist did not have enough access to get an accurate measurement. Shared with 14937 Thrift Ave.	Retain
SH 04	No tag	English laurel <i>Prunus laurocerasus</i>	Yes	-	2.2	-	Height = 5.0M The dash (“-”) signifies the arborist did not have enough access to get an accurate measurement. Shared with 1441 Vidal St.	Retain
SH 05	No tag	English laurel <i>Prunus laurocerasus</i>	Yes	-	1.80	-	Height = 3.5M The dash (“-”) signifies the arborist did not have enough access to get an accurate measurement. Shared with 1443-45 Vidal St.	Retain
SH 06	372	Cherry <i>Prunus spp.</i>	Yes	0.58	5.50	30	Growing within the SH 04 hedge. Shared with 1441 Vidal St.	Retain
The following trees belong to the City of White Rock.								
C 1	No tag	Pyramidalis hedge <i>Thuja occidentalis</i> 'Pyramidalis'	Yes	-	1.0	-	HANDPLOTTED Height = 6.0M The dash (“-”) signifies the arborist did not have enough access to get an accurate measurement.	Retain



Tree #	Tag #	Common Name <i>Botanical Name</i>	Located on the Survey	DBH (m.)	C-Rad (m.)	LCR (%)	Comments	Retain / Remove
C 2	No tag	Mixed hedge	No	-	2.50	-	HANDPLOTTED Height = 6.0M The dash ("-") signifies the arborist did not have enough access to get an accurate measurement.	Retain



APPENDIX A – GLOSSARY OF KEY TERMS

Abutment: A structure built to support the lateral pressure of an arch or span, e.g., at the ends of a bridge.

Adapted Trunk Diameter Method: This method uses the trees age and tolerance to construction damage to determine the factor that will be multiplied by the diameter to provide a sufficient tree protection zone given these factors.

Age: The relative age (young, intermediate, mature) within the particular stand of trees or forest.

Algae: Is a simple, nonflowering plant (includes seaweeds and many single-celled forms). They do contain chlorophyll (but lack true stems, roots, and vascular tissue)

ALR: The Agricultural Land Reserve in which agriculture is recognized as the priority.

Bole: The stem or trunk of a tree.

Chlorotic: Yellowing of plant tissues caused by nutrient deficiency &/or pathogen.

Co-dominant Leaders: Forked dominant stems nearly the same size in diameter, arising from a common junction.

Co-dominant Within Stand: Individual tree whose height is generally equal to trees (regardless of species) within the same stand.

Compaction: Compression of the soil that breaks down soil aggregates and reduces soil volume and total pore space, especially macropore space.

Conk: A fungal fruiting structure typically found on trunks and indicating internal decay.

Dead Standing: A tree that has died but is still standing erect.

DBH: The Diameter of the tree at 1.40 meters above the ground.

Dominant Within Stand: Individual tree whose height is significantly greater than adjacent trees (regardless of species) within the same stand.

C-rad: Crown radius, is the dripline measured from the edge of the trunk to the outermost branches of the crown.

CRT: Critical Root Zone

CRZ: Critical Root Zone - The area between the trunk and to the end of the Drip Line.

Fair: Healthy but has some defects such as co-dominant trunk, dead branches.

Feeder Roots: The smaller roots responsible for water and nutrient absorption and gas exchange. These roots can extend far beyond the Drip Line (or outer canopy) of the tree.

Fungus (singular) / Fungi (plural): Unicellular, multicellular or syncytial spore-producing organisms that feed on organic matter (including molds, yeast, mushrooms and toadstools)

Girdling Root: Root that encircles all or part of the trunk of a tree or other roots and constricts the vascular tissue and inhibits secondary growth and the movement of water.

Good: Good form and structure, healthy with no defects.

Hazardous: Significant hazard exists with a high risk of immediate failure; which could result in serious damage to property or



person(s).

Height: Height of tree is approximate.

LCR: Live Crown Ratio – The ratio of crown length to total tree length.

Level 1 Limited Visual Assessment: Limited visual assessment looking for obvious defects such as, but not limited to dead trees, large cavity openings, large dead or broken branches, fungal fruiting structures, large cracks, and severe leans.

Level 2 Basic Visual Assessment: Detailed visual inspection (aboveground roots, trunk, canopy) of tree(s) may include the use of simple tools to perform assessment (i.e. sounding mallet, trowel, measuring tape, binoculars). The assessment does not include advanced resistance drilling of trunk.

Level 3 Advanced Assessment: To provide detailed information about specific tree parts, defects, targets, or side conditions. May include aerial inspection, resistance drilling of tree parts, laboratory diagnosis of fungal or plant tissue.

Mildew: Is a minute powdery or web-like fungi (of different colours) that is found on diseased or decaying substances.

Moss: A small, green, seedless plant that grows on stones, trees or ground.

No Disturbance Zone: (Trunk Diameter x 6) + Trunk Radius + (60 cm excavation zone). For example, a 50-cm diameter tree would have a No Disturbance Zone = 3.85 meters measured from the edge of the trunk.

Poor: multiple defects, disease, poor structure and or form, root and or canopy damage.

Phloem: Plant vascular tissue that transports sugar and growth regulators. Situated on the inside of the bark, just outside the cambium. Is bidirectional (transports up and down). Contrast with xylem.

Phototropic: Growth toward light source or stimulant.

Retain & Monitor: Monitor health and condition of tree every 12 months for signs of deterioration.

Root Crown: Also, called the root collar, it includes the flare at the base of the trunk and the initial roots that develop below the trunk. These roots generally taper and subdivide rapidly to form the root system of the tree.

SPEA: Streamside Protection and Enhancement Area

Spiral Decline: The health and condition of the tree is deteriorating.

Sub-dominant Within Stand: Individual tree whose height is significantly less than adjacent trees (regardless of species) within the same stand.

Suppressed: Individual tree whose growth, health and condition is negatively impacted by adjacent tree(s).

TPZ: Tree Protection Zone - The area between the trunk and the Tree Protection Barrier.

Wildlife Tree: A tree or a group of trees that are identified to be retained to provide future wildlife habitat. Wildlife habitat can exist in tree risks (cavities, dead snags, broken tops). Often times the tree risk to potential targets (people & property) is reduced by removing that part of the tree posing the risk of failure, but the tree (or portion of) is retained to provide future habitat.

Witches Broom: A dense mass of shoots growing from a single point, with the resulting structure resembling a broom or a bird's nest.

Xylem: Thin overlapping cells that helps provide support and that conducts water and nutrients upward from the roots all the way to the leaves.

APPENDIX B – PHOTOS



Fig. 2 - View facing south along Vidal Street to Thrift Avenue.

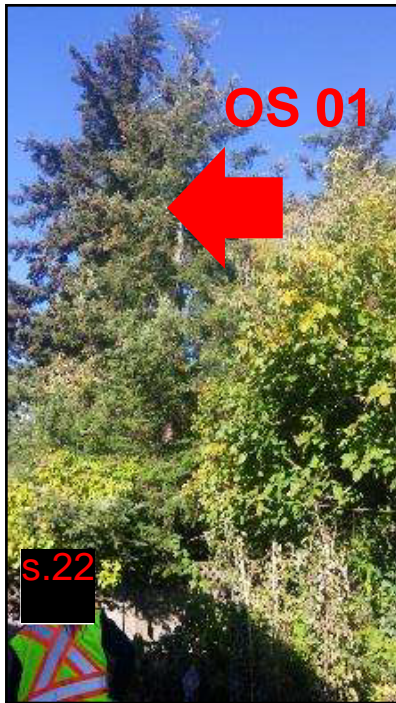


Fig. 3 – Off-site Douglas-fir tree



Fig. 4 – Tree 03 growing within S4



Fig. 5 – View of Trees OS2 – OS8



Fig. 6 – Stand of off-site conifers located directly west of 1441/1443-45/1465 Vidal Street.



Fig. 7 – View facing north/northwest. OS 9 – OS 11 make up part of the edge of a larger grouping of conifers.



Fig. 8 – Alternate view of Trees OS 9 – OS 11

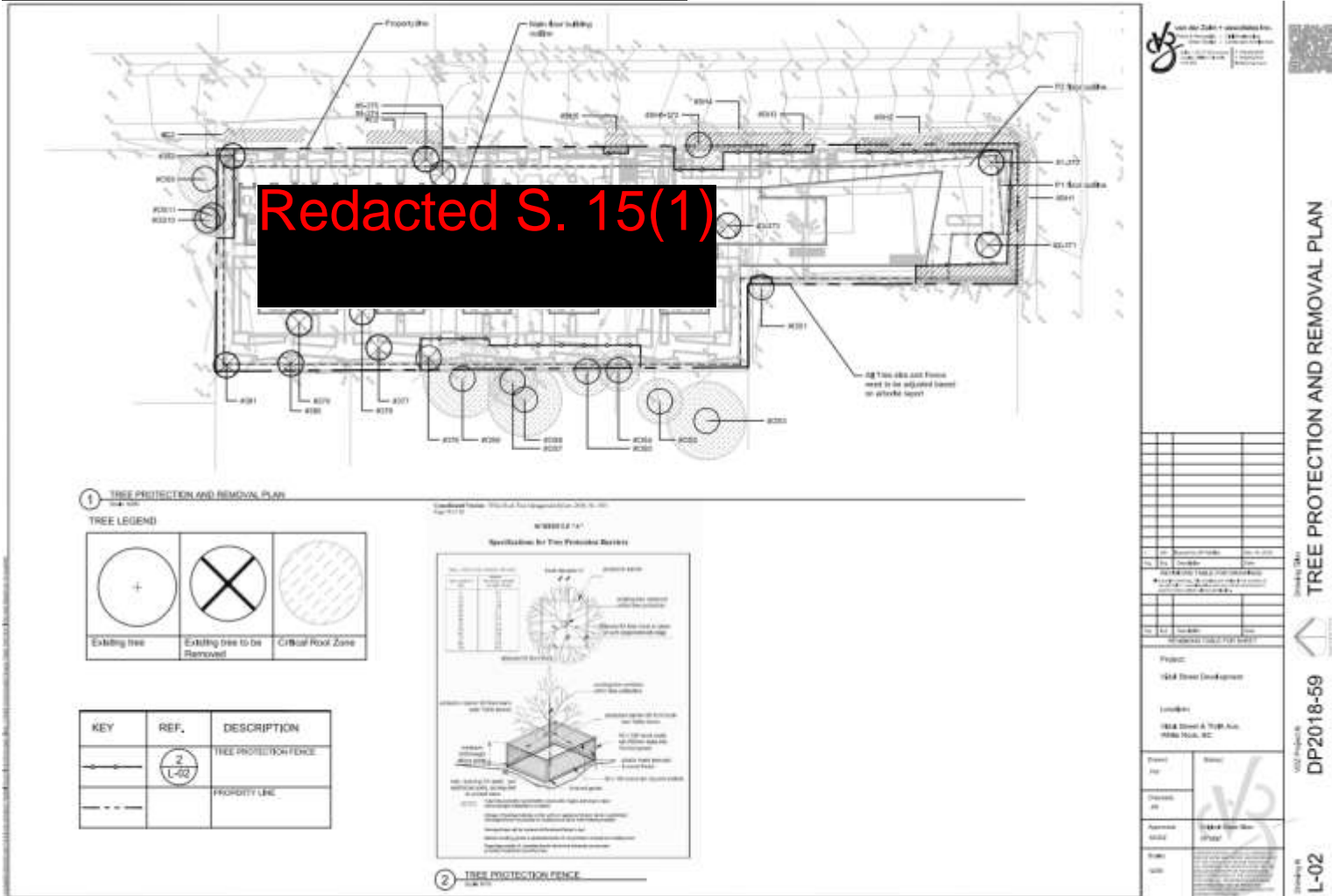


Fig. 9 – Red alder located on 1465 Vidal Street.





APPENDIX C – TREE RETENTION AND REMOVAL PLAN



TREE PROTECTION AND REMOVAL PLAN

DP2018-59

L-02



APPENDIX D – CONSTRUCTION ACTIVITY AROUND TREE PROTECTION ZONE

Tree Protection Fencing

Specifications for Tree Protection Barriers

TRUNK DIAMETER (DM)	MINIMUM PROTECTION DISTANCE (M FROM TRUNK)
X	6X
20	1.2
25	1.5
30	1.8
35	2.1
40	2.4
45	2.7
50	3.0
55	3.3
60	3.6
75	4.5
90	5.0
100	6.0

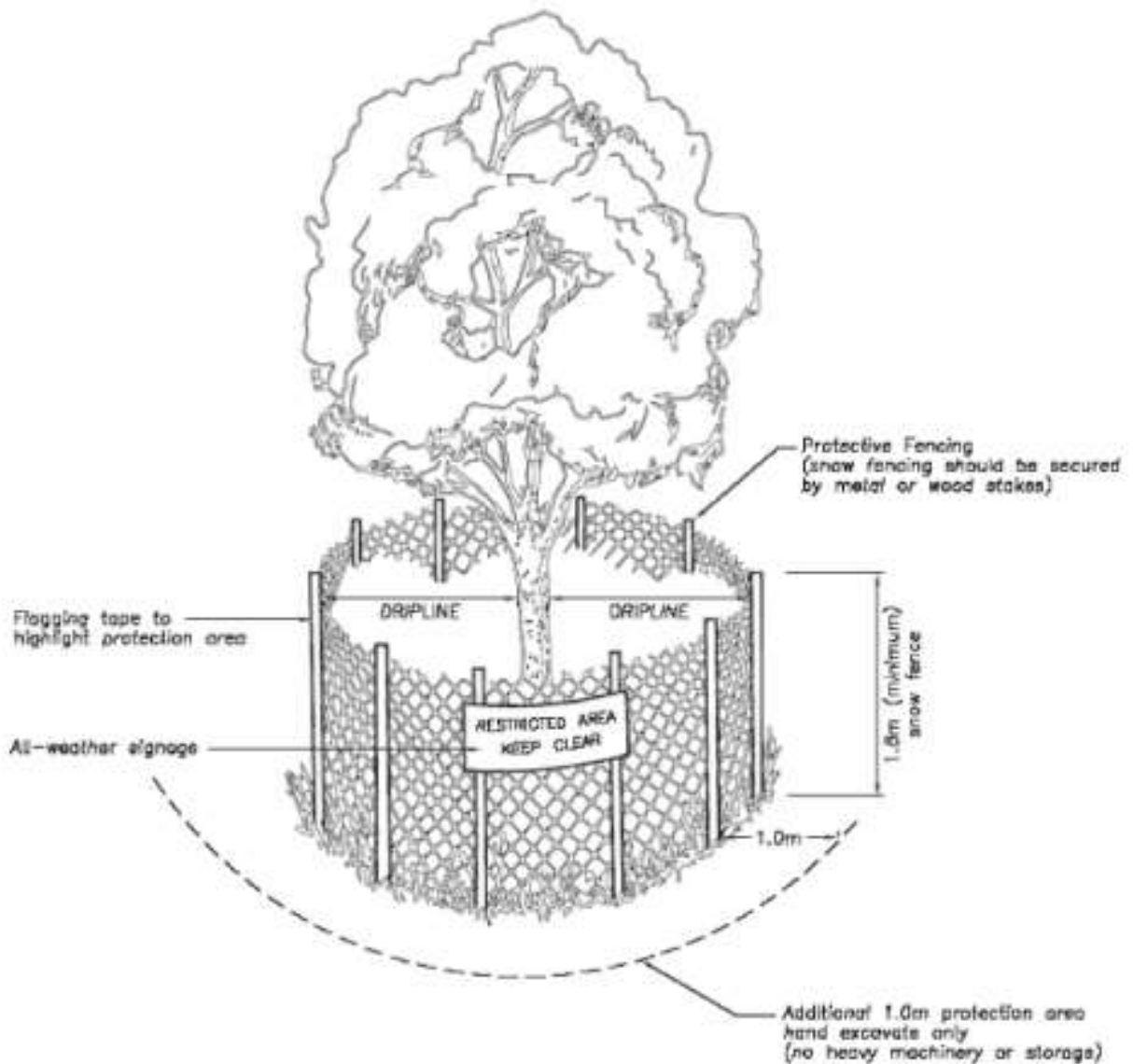
NOTES

- Install tree protection barrier before construction begins and keep in place until landscape installation is complete.
- Storage of building materials & litter within or against protection barrier is prohibited. Developer/Owner responsible for maintenance within Tree Protection Barrier.
- Damaged trees will be replaced at Developer/Owner's cost.
- Maintain existing grades at protection barrier for all protected retained and existing trees.
- Regrading outside of protection barrier should not adversely compromise protected retained and existing trees.

TREE PROTECTION

How do I safely retain trees on, or adjacent to, the property?

Prior to construction activity you should erect temporary fencing at the dripline of the tree to protect the roots and canopy.





General Requirements and Limitations for Operations Within the Tree Protection Zone

- The Contractor shall not engage in any construction activity within the Tree Protection Zone (TPZ) without the approval of the Project Arborist including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree Protection Zone maybe indicated on the drawings along with any required remedial activity as listed below.
- In the event that construction activity is unavoidable within the Tree Protection Zone, notify the Project Arborist and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree Protection Zone from the activity. Remedial actions shall include but shall not be limited to the following:
- In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and/or Air Spade. If any excavation work is required within the Tree Protection Zone (TPZ), the Project Arborist must be present during excavation, and a trench should be 'hand dug' to a depth of 60 cm outside the Drip Line, to uncover any potential roots. The Project Arborist should cleanly prune roots and recommend the appropriate treatment for any structural roots encountered.
- Knife excavation where indicated or with other low impact equipment that will not cause damage to the tree, roots soil.
- When encountered, exposed roots, 1 inches and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the Project Arborist. Excavation shall be tunnelled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.
- Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be **RETAINED** when specifically indicated by the Project Arborist. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboriculture practices (ANSI A300, part 8) and be performed under supervision of the Project Arborist.
- Do not permit foot traffic, scaffolding or the storage of materials within the Tree Protection Zone.
- Protect the Tree Protection Zone at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves and roots of all plants; and contamination of the soil, bark or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the Project Arborist of any spills, compaction or damage and take corrective action immediately using methods approved by the Project Arborist.



APPENDIX E – LIMITATIONS

This report is valid for the day the trees were reviewed. This report is not to be re-printed, copied, published or distributed without prior approval by VDZ + A Consulting Inc.

Sketches, diagrams and photographs contained in this report being intended as visual aids, should not be construed as engineering reports or legal surveys.

Only the subject tree(s) was inspected and no others. This report does not imply or in any other way infer that other trees on this site or near this site are sound and healthy.

The tendency of trees or parts of trees to fall due to environmental conditions and internal problems are unpredictable. Defects are often hidden within the tree or underground. The project arborist has endeavored to use his skill, education and judgment to assess the potential for failure, with reasonable methods and detail. It is the owner's responsibility to maintain the trees and inspect the trees to reasonable standards and to carry out recommendations for mitigation suggested in this report.



APPENDIX F - REFERENCES

Bond, Jerry & Buchanan, Beth (2006) *Best Management Practices: Tree Inventories*, International Society of Arboriculture, Champaign, IL.

Dunster, Dr. Julian (2003) *Preliminary Species Profiles for Tree Failure Assessment*. ISA Pacific Northwest Chapter, Silverton, OR, USA

Dunster, Dr. Julian & Edmonds, Dr. R. (2014) *Common Fungi Affecting Pacific Northwest Trees*, ISA Pacific Northwest Chapter, Silverton, OR, USA

Fite, Kelby & Smiley, E. Thomas (2016) *Best Management Practices: Managing Trees During Construction*, International Society of Arboriculture, Champaign, IL.

Sibley, David Allen (2009) *The Sibley Guide to Trees*. Alfred A. Knopf, New York, NY

Smiley, E.T., Matheny, N., Lilly, S. (2011) *Best Management Practises: Tree Risk Assessment*. International Society of Arboriculture, Champaign, IL.

BC PLANT HEALTH CARE INC.

ARBORIST REPORT

JOB NAME: van der Zalm Associates Inc. 20181211

RE: Arborist Report for a Tree Root Mapping

SITE: 1441, 1443-45, 1465 Vidal St, White Rock, BC V4B 3T6

PREPARED FOR: van der Zalm + Associates Inc.
Austin Peterson
#1 – 20177 97 Ave, Langley, BC V1M 4B9
Phone: 604-882-0024
Fax: 604-882-0042
Email: austin@vdz.ca

DATE: March 18th, 2019

PROJECT ARBORIST: Philip Kin Cho
ISA Certified Arborist #HK-1086A
ISA Tree Risk Assessment Qualification
Forester in Training #5727
BSSc, MSc, MSFM

REVIEWED BY: Thomas Walz
ISA Board Certified Master Arborist #PN-5960BT
ISA Tree Risk Assessment Qualification
WUAA/HEBC Falling & Bucking Endorsement #98
TCIA Certified Treecare Safety Professional #866
BC C of Q Arborist Technician #00017-TA-10
BC C of Q Climbing Arborist #00007-TB-13
ITA Registered Climbing Arborist Assessor
Member – American Society of Consulting Arborists

18465 53rd Avenue | Phone: 604-575-8727
Surrey, BC, V3S 7A4 | Fax: 604-576-2972
Email: info@bcplanthealthcare.com
24 Hour Emergency Pager 604-607-1616



Keeping it **Green**... One Tree at a Time. TM

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1.0 Introduction

BC Plant Health Care Inc. has been contracted by Austin Peterson of van der Zalm + Associates Inc. to provide a written report following root and soil exploration for a stand of on-site and off-site trees at 1441, 1443-45, 1465 Vidal St, White Rock. The scope of work was to utilize ground penetrating radar (GPR) to locate and map tree roots of #376, OS2, OS3, OS4, OS5, OS6, OS7, and OS8 within 6 m of the west property line where allowable, and examine the soil profile to a depth of 1 m below grade. The purpose of the assignment was to provide soil profile cross sectional scans, root density maps, and morphology maps to assist with the management decisions and preservation of the trees.

I, Philip Kin Cho, of BC Plant Health Care Inc. performed the field work on March 5th, 2019. This report includes photographs of our site and tree observations, line scan graphs, root density heat maps, *Aerial Site Map*, *Site Map*, *Root Detection Maps*, *Root Morphology Map*, and *Development Site Plan*.

This report was completed on March 18th, 2019.

2.0 Observations

On-site tree #376 (red alder) is located at 1465 Vidal St, White Rock. Tree #376 has a poor structure with multiple trunks. Decay was also observed at the trunk collar of tree #376.

Off-site trees OS2 (paper birch), OS3 (Douglas-fir), OS4 (Douglas-fir), OS5 (Douglas-fir), OS6 (Douglas-fir), OS7 (western redcedar), and OS8 (Douglas-fir) are located west of the property line of 1441, 1443-45, 1465 Vidal St, White Rock.

The location of these trees is indicated on the attached *Site Map*. The estimated diameter at breast height (DBH) of the trees was provided by van der Zalm + Associates Inc. With reference to the *White Rock Tree Management Bylaw, 2008 No. 1831*, the City recognizes critical root zone (CRZ) of the trees as the area of land surrounding the trunk of a tree contained within a circle of radius equal to the DBH of the tree multiplied by 6, and CRZ of the trees is indicated on the attached *Site Map*.



Figure 1. Backyard of 1441 Vidal St, White Rock, viewing west.



Figure 2. Backyard of 1441 Vidal St, White Rock, viewing northwest.



Figure 3. Backyard of 1443 Vidal St, White Rock, viewing west.



Figure 4. Backyard of 1443 Vidal St, White Rock, viewing northwest.



Figure 5. Backyard of 1445 Vidal St, White Rock, viewing southwest.



Figure 6. Backyard of 1445 Vidal St, White Rock, viewing west.



Figure 7. 1465 Vidal St, White Rock, viewing southwest.

3.0 Testing and Analysis

The site was plotted and measured prior to GPR testing to set up grids. Calibration of the unit was done to accurately detect for the reflection, refraction and attenuation of GPR at 900 MHz. Upon analysis of the data, [3] depth zones were created for identifying and discussing rooting habit: 0-20 cm; 20-40 cm; 40-60 cm.

3.1 Group 1 - 1441 Vidal St, White Rock - Trees OS2 & OS3

GPR testing was conducted on the soil surface at the east of trees OS2 and OS3 at 1441 Vidal St, White Rock:

- Measurement 1.1 – 16.4 m in length, 12.0 m from centre of tree OS2 at nearest point
- Measurement 1.2 – 16.6 m in length, 11.4 m from centre of tree OS2 at nearest point
- Measurement 1.3 – 16.7 m in length, 10.8 m from centre of tree OS2 at nearest point
- Measurement 1.4 – 16.8 m in length, 10.2 m from centre of tree OS2 at nearest point
- Measurement 1.5 – 14.6 m in length, 9.6 m from centre of tree OS2 at nearest point
- Measurement 1.6 – 15.1 m in length, 9.0 m from centre of tree OS2 at nearest point
- Measurement 1.7 – 17.3 m in length, 8.4 m from centre of tree OS2 at nearest point
- Measurement 1.8 – 17.1 m in length, 7.8 m from centre of tree OS2 at nearest point
- Measurement 1.9 – 17.1 m in length, 7.2 m from centre of tree OS2 at nearest point
- Measurement 1.10 – 16.7 m in length, 6.0 m from centre of tree OS2 at nearest point

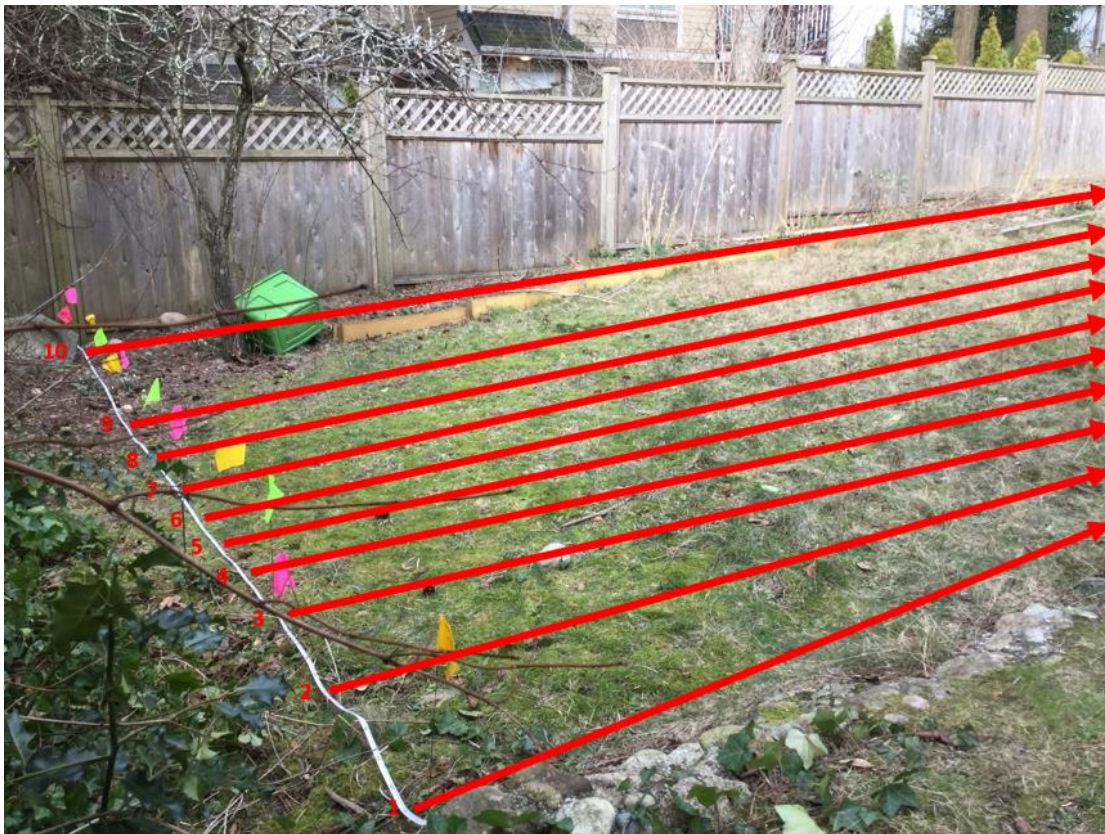


Figure 8. Location of Measurements 1.1 to 1.10.

Root density maps have been produced for Group 1, and for each depth range. The color scale indicator on the right-hand side of the graph illustrates the concentration or number of roots within the given area.

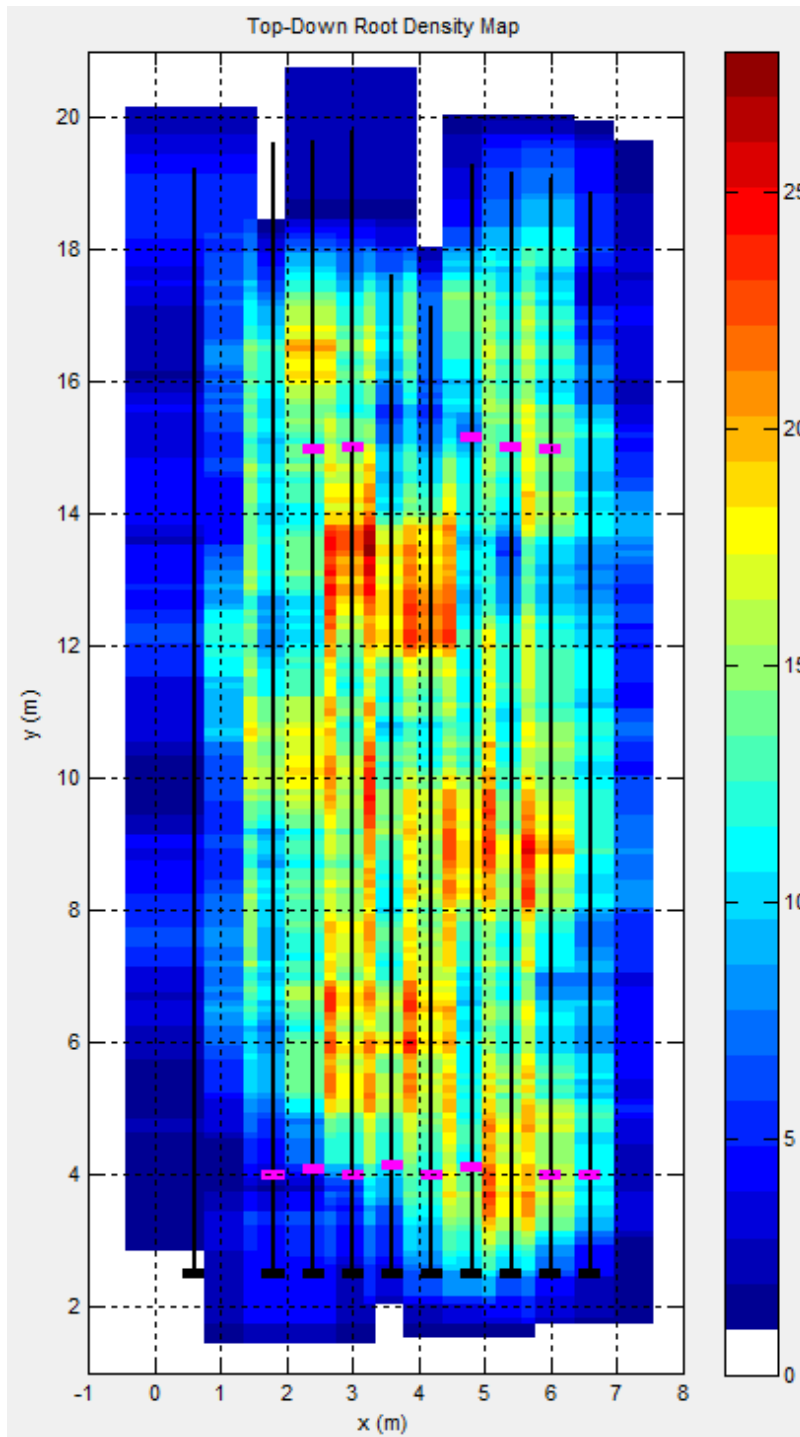


Figure 9. Top-down root density map at 0-60 cm depth of Group 1.

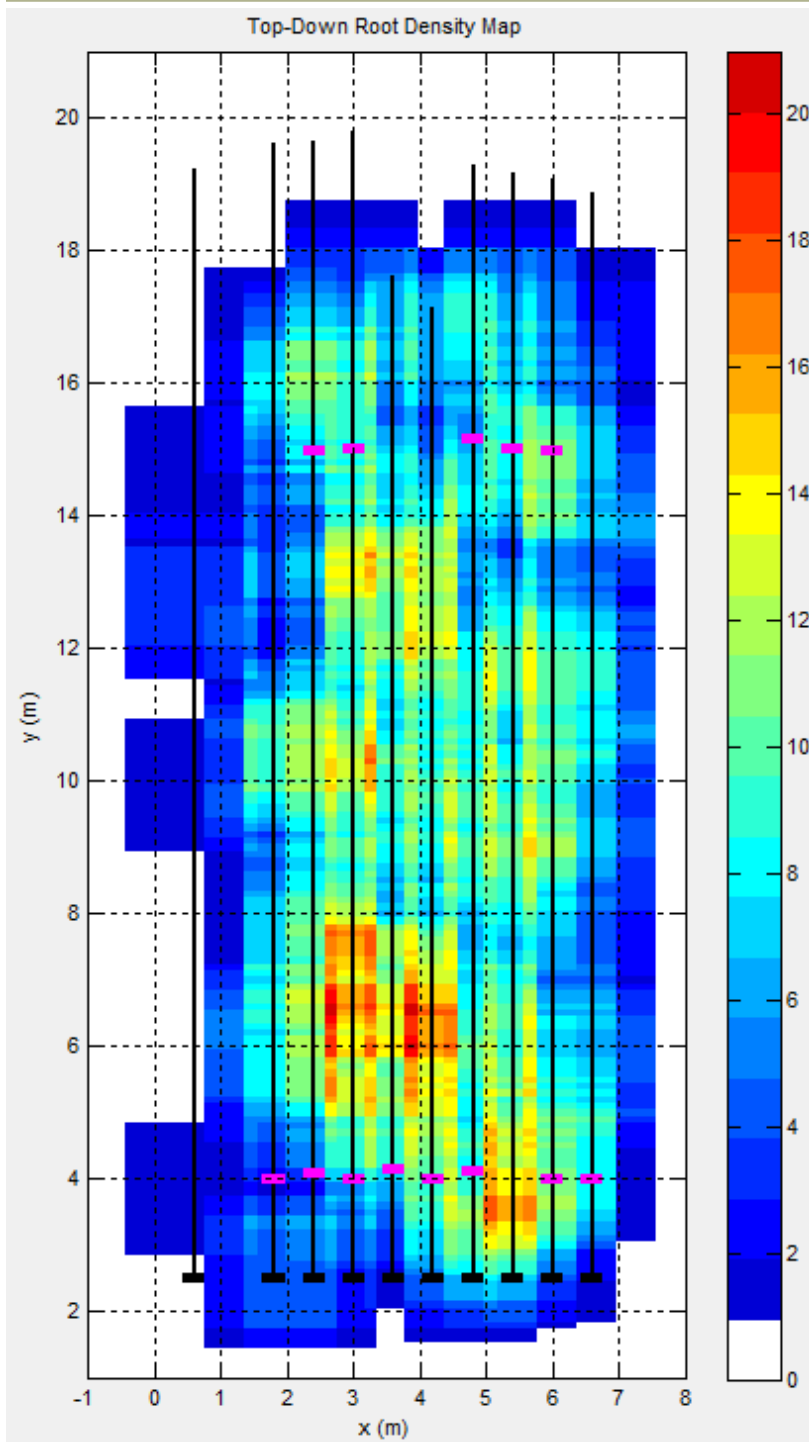


Figure 10. Top-down root density map at 0-20 cm depth of Group 1.

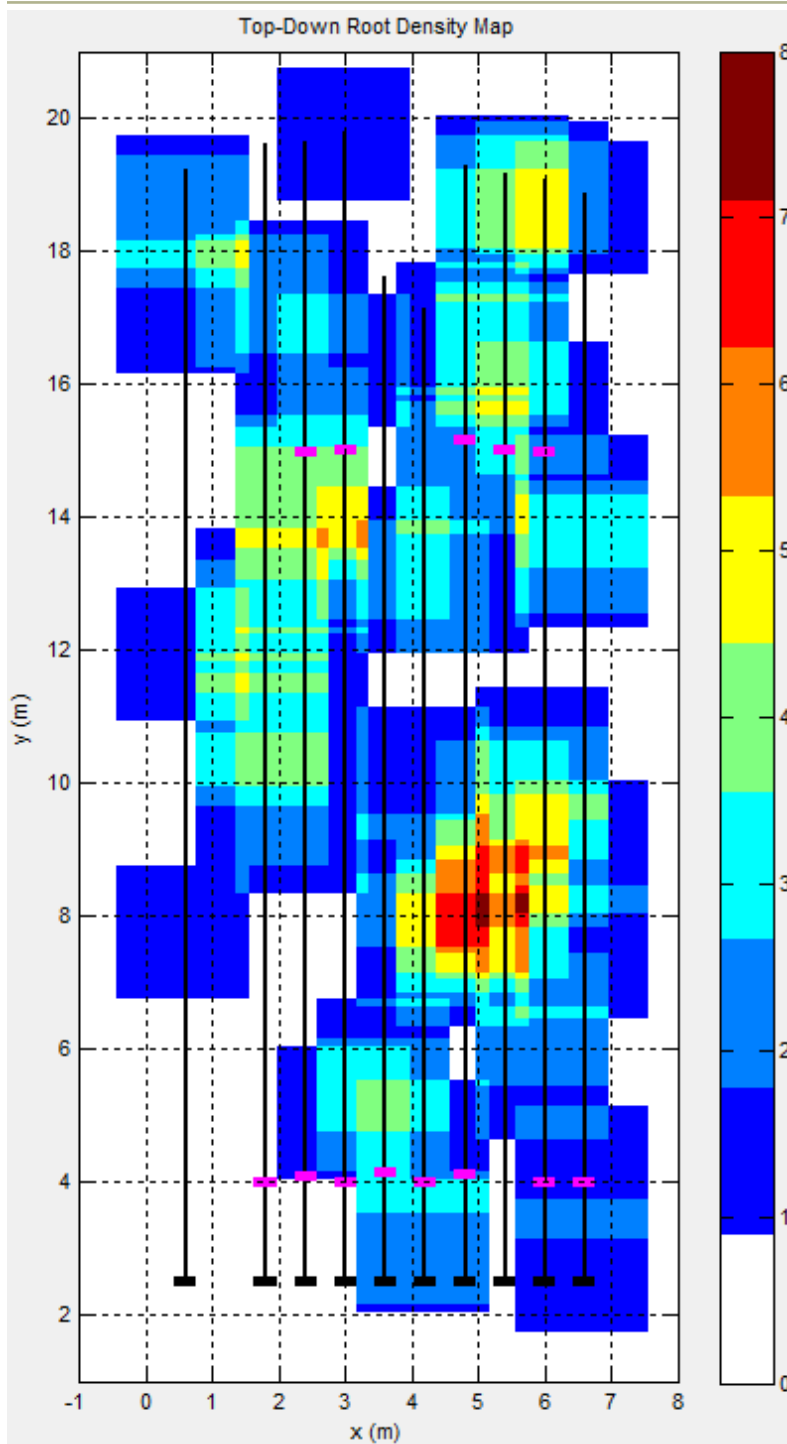


Figure 11. Top-down root density map at 20-40 cm depth of Group 1.

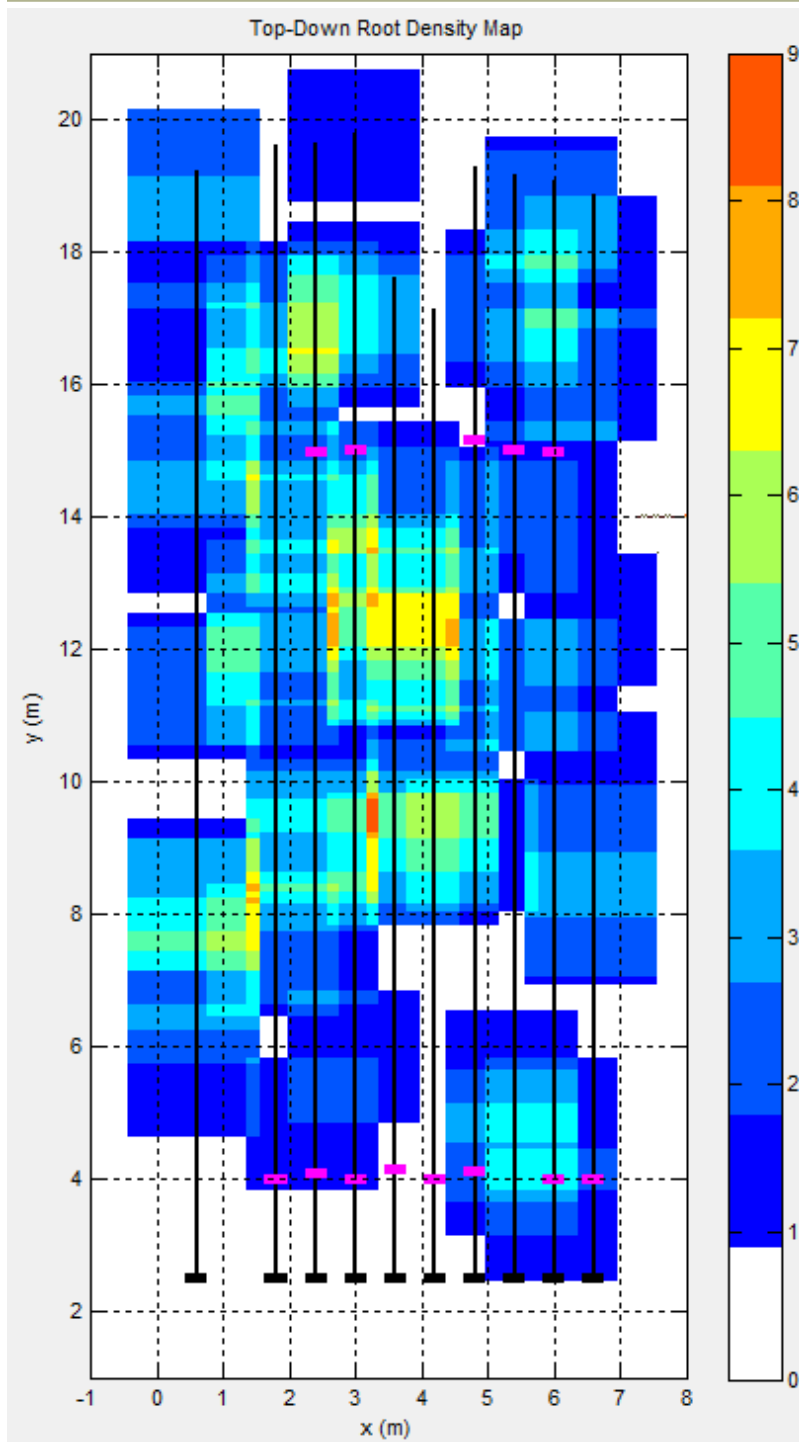


Figure 12. Top-down root density map at 40-60 cm depth of Group 1.

3.2 Group 2 - 1443 Vidal St, White Rock - Trees OS4 & OS5

GPR testing was conducted on the soil surface at the east of trees OS4 and OS5 at 1443 Vidal St, White Rock:

- Measurement 2.1 – 9.5 m in length, 8.3 m from centre of tree OS5 at nearest point
- Measurement 2.2 – 9.5m in length, 7.7 m from centre of tree OS5 at nearest point
- Measurement 2.3 – 9.5 m in length, 7.1 m from centre of tree OS5 at nearest point
- Measurement 2.4 – 9.5 m in length, 6.5 m from centre of tree OS5 at nearest point
- Measurement 2.5 – 9.7 m in length, 5.9 m from centre of tree OS5 at nearest point
- Measurement 2.6 – 9.4 m in length, 5.3 m from centre of tree OS5 at nearest point
- Measurement 2.7 – 6.0 m in length, 4.7 m from centre of tree OS5 at nearest point
- Measurement 2.8 – 6.0 m in length, 4.1 m from centre of tree OS5 at nearest point
- Measurement 2.9 – 6.0 m in length, 3.5 m from centre of tree OS5 at nearest point
- Measurement 2.10 – 4.2 m in length, 2.9 m from centre of tree OS5 at nearest point
- Measurement 2.11 – 4.0 m in length, 2.3 m from centre of tree OS5 at nearest point
- Measurement 2.12 – 4.1 m in length, 1.7 m from centre of tree OS5 at nearest point
- Measurement 2.13 – 4.1 m in length, 1.1 m from centre of tree OS5 at nearest point

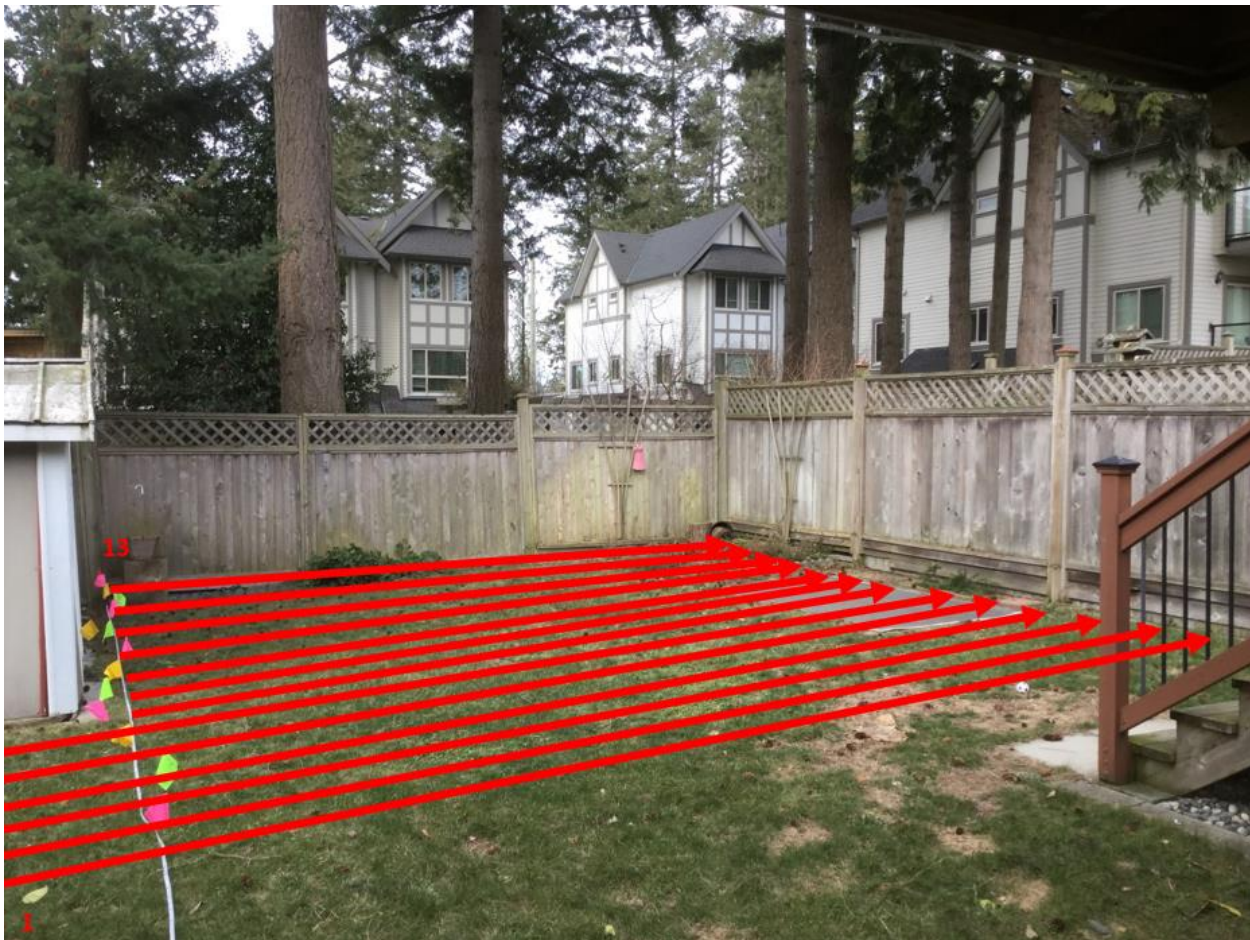


Figure 13. Location of Measurements 2.1 to 2.13.

Root density maps have been produced for Group 2, and for each depth range. The color scale indicator on the right-hand side of the graph illustrates the concentration or number of roots within the given area.

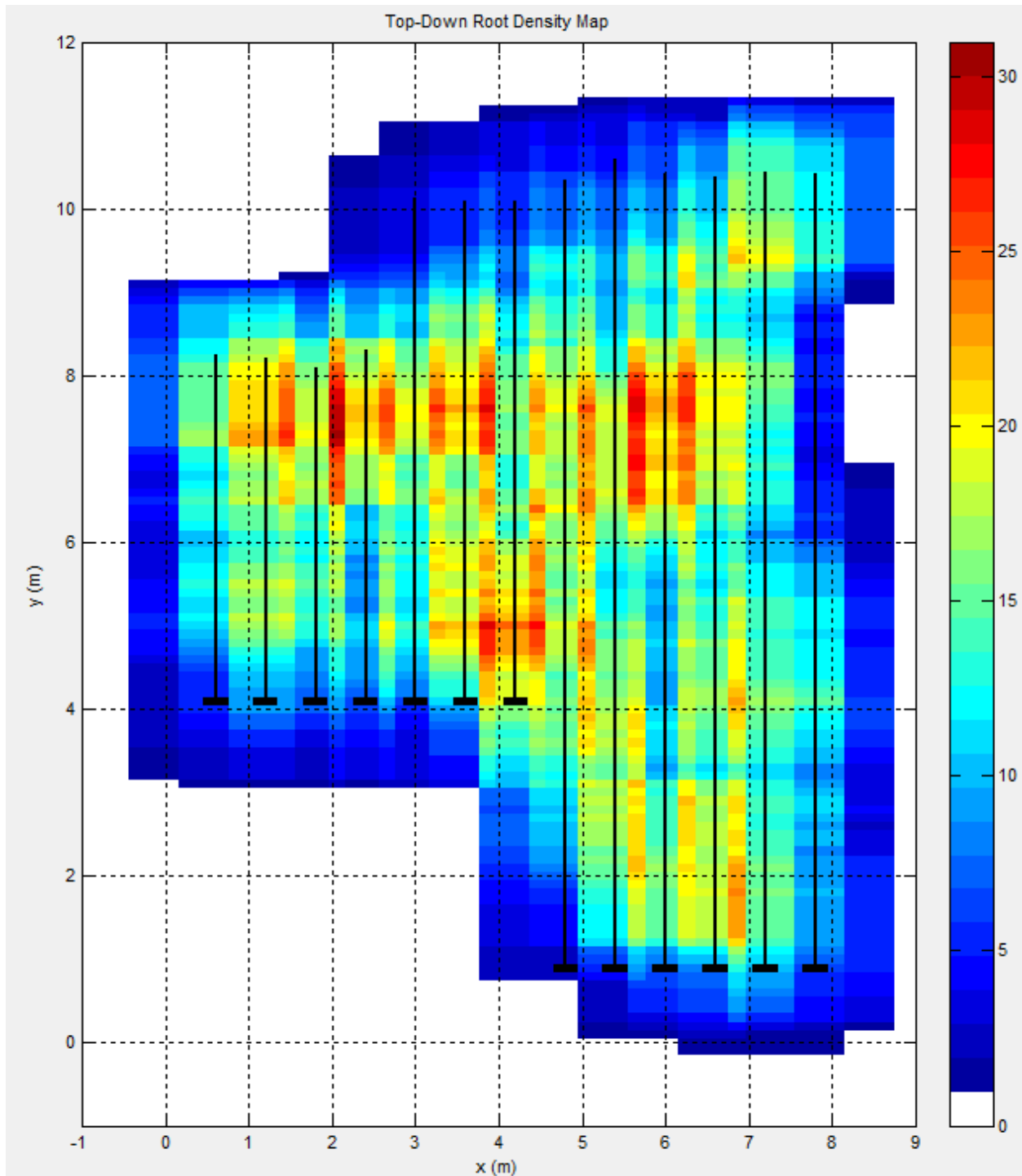


Figure 14. Top-down root density map at 0-60 cm depth of Group 2.

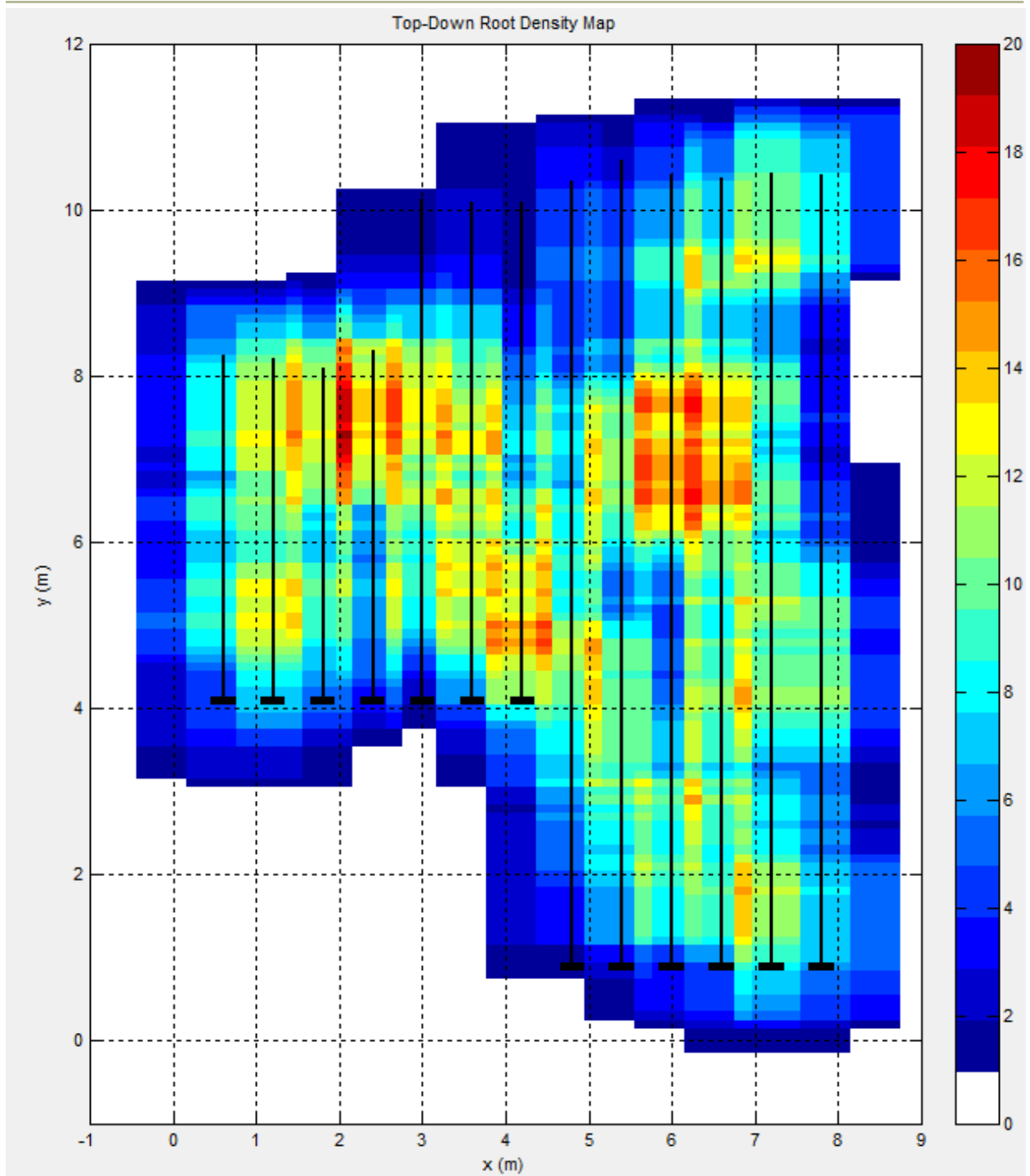


Figure 15. Top-down root density map at 0-20 cm depth of Group 2.

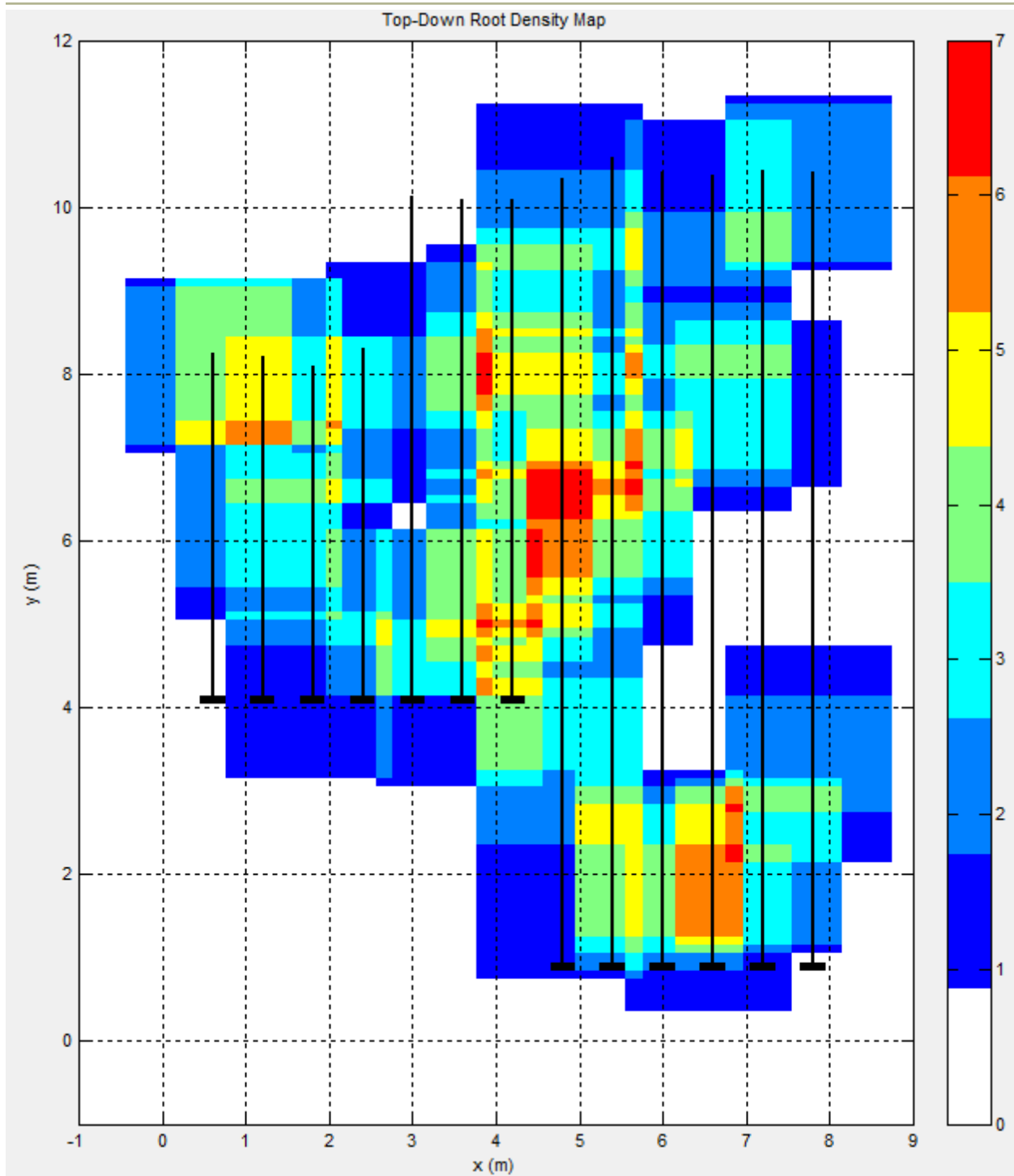


Figure 16. Top-down root density map at 20-40 cm depth of Group 2.

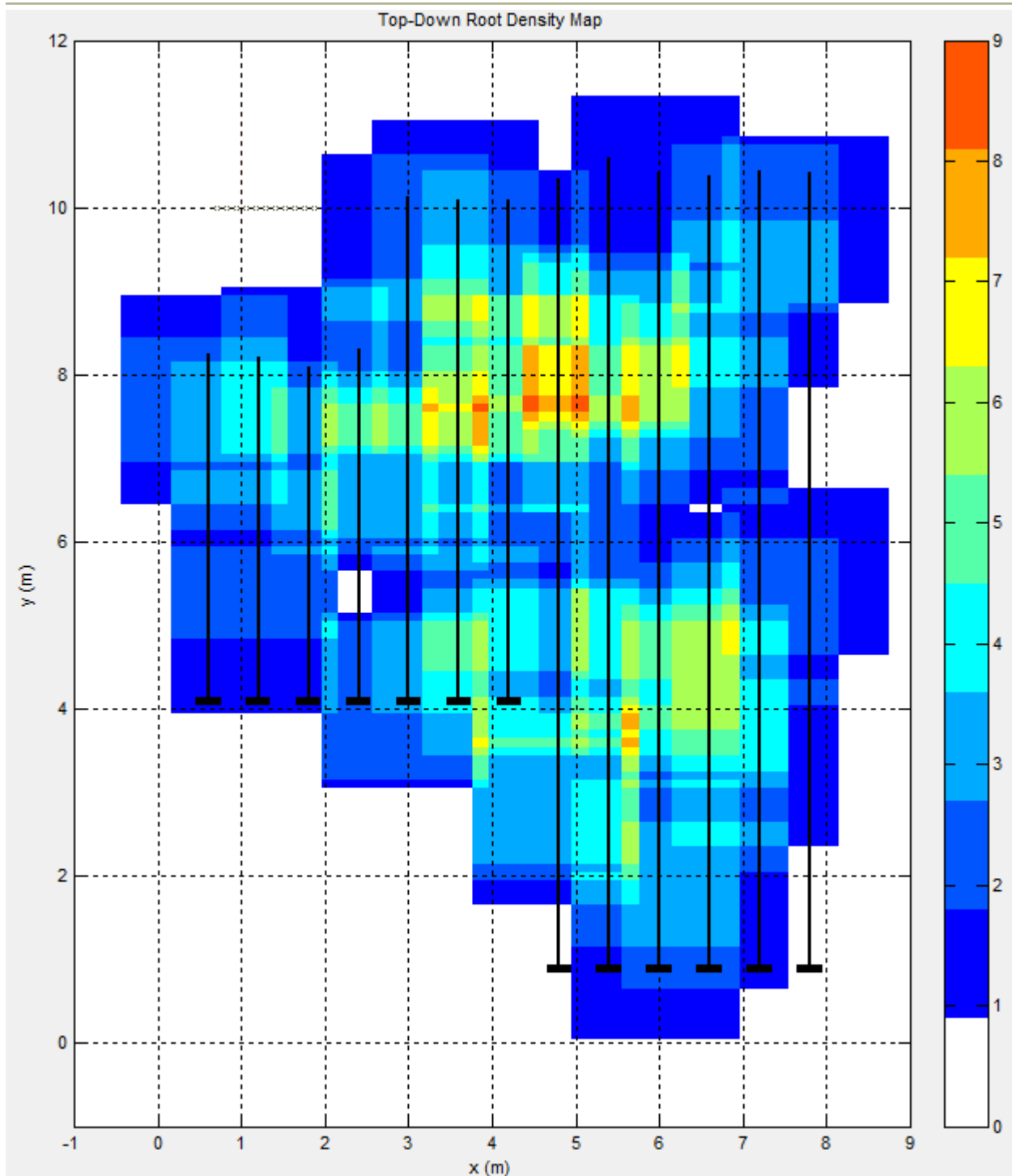


Figure 17. Top-down root density map at 40-60 cm depth of Group 2.

3.3 Group 3 - 1445 Vidal St, White Rock - Trees OS6 & OS7

GPR testing was conducted on the soil surface at the east of trees OS6 and OS7 at 1445 Vidal St, White Rock:

- Measurement 3.1 – 9.5 m in length, 12.1 m from centre of tree OS6 at nearest point
- Measurement 3.2 – 9.5 m in length, 11.5 m from centre of tree OS6 at nearest point
- Measurement 3.3 – 9.5 m in length, 10.9 m from centre of tree OS6 at nearest point
- Measurement 3.4 – 9.5 m in length, 10.3 m from centre of tree OS6 at nearest point
- Measurement 3.5 – 9.5 m in length, 9.7 m from centre of tree OS6 at nearest point
- Measurement 3.6 – 9.5 m in length, 9.1 m from centre of tree OS6 at nearest point
- Measurement 3.7 – 9.5 m in length, 8.5 m from centre of tree OS6 at nearest point
- Measurement 3.8 – 9.5 m in length, 7.9 m from centre of tree OS6 at nearest point
- Measurement 3.9 – 9.5 m in length, 6.7 m from centre of tree OS6 at nearest point
- Measurement 3.10 – 9.5 m in length, 6.1 m from centre of tree OS6 at nearest point

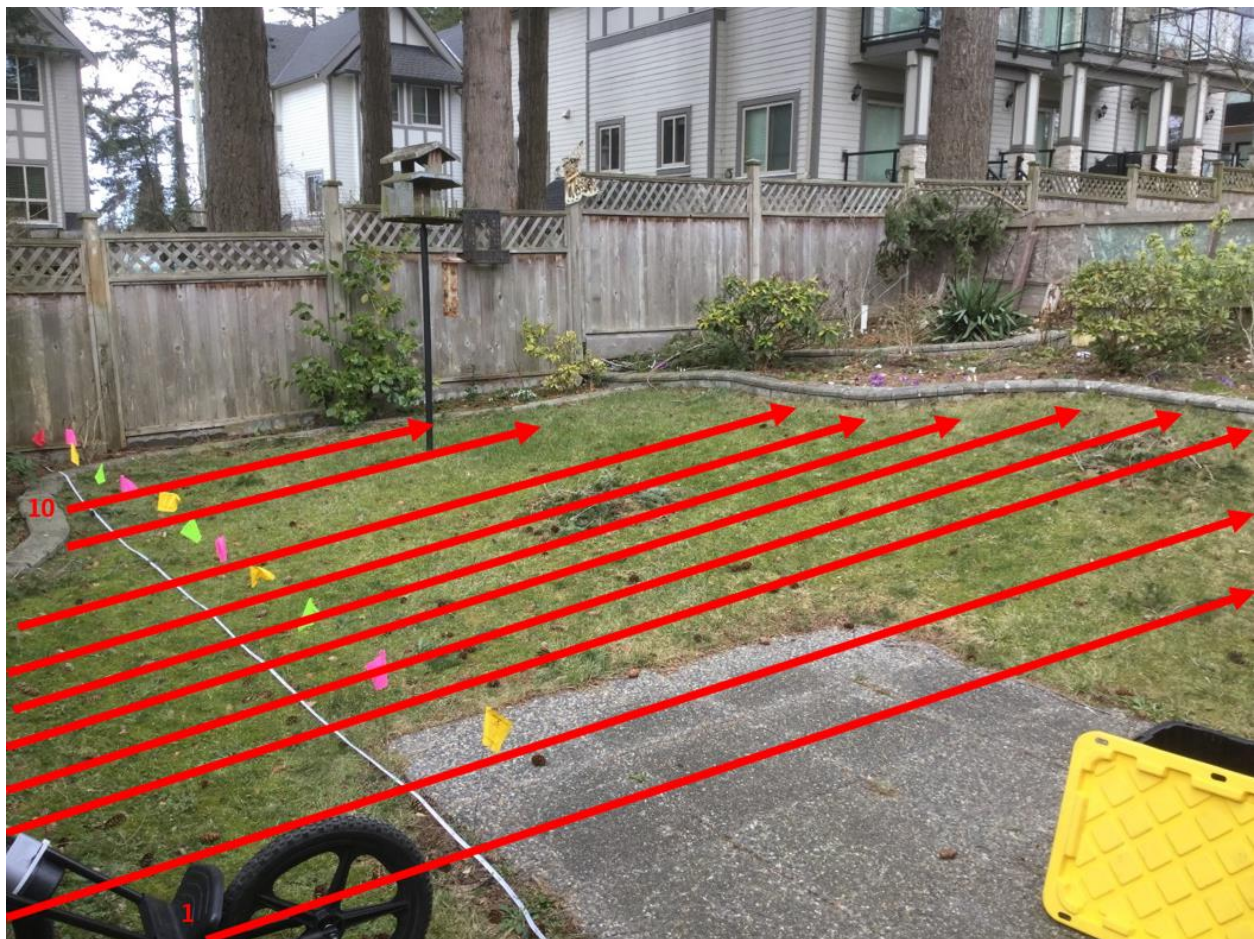


Figure 18. Location of Measurements 3.1 to 3.10.

Root density maps have been produced for Group 3, and for each depth range. The color scale indicator on the right-hand side of the graph illustrates the concentration or number of roots within the given area.

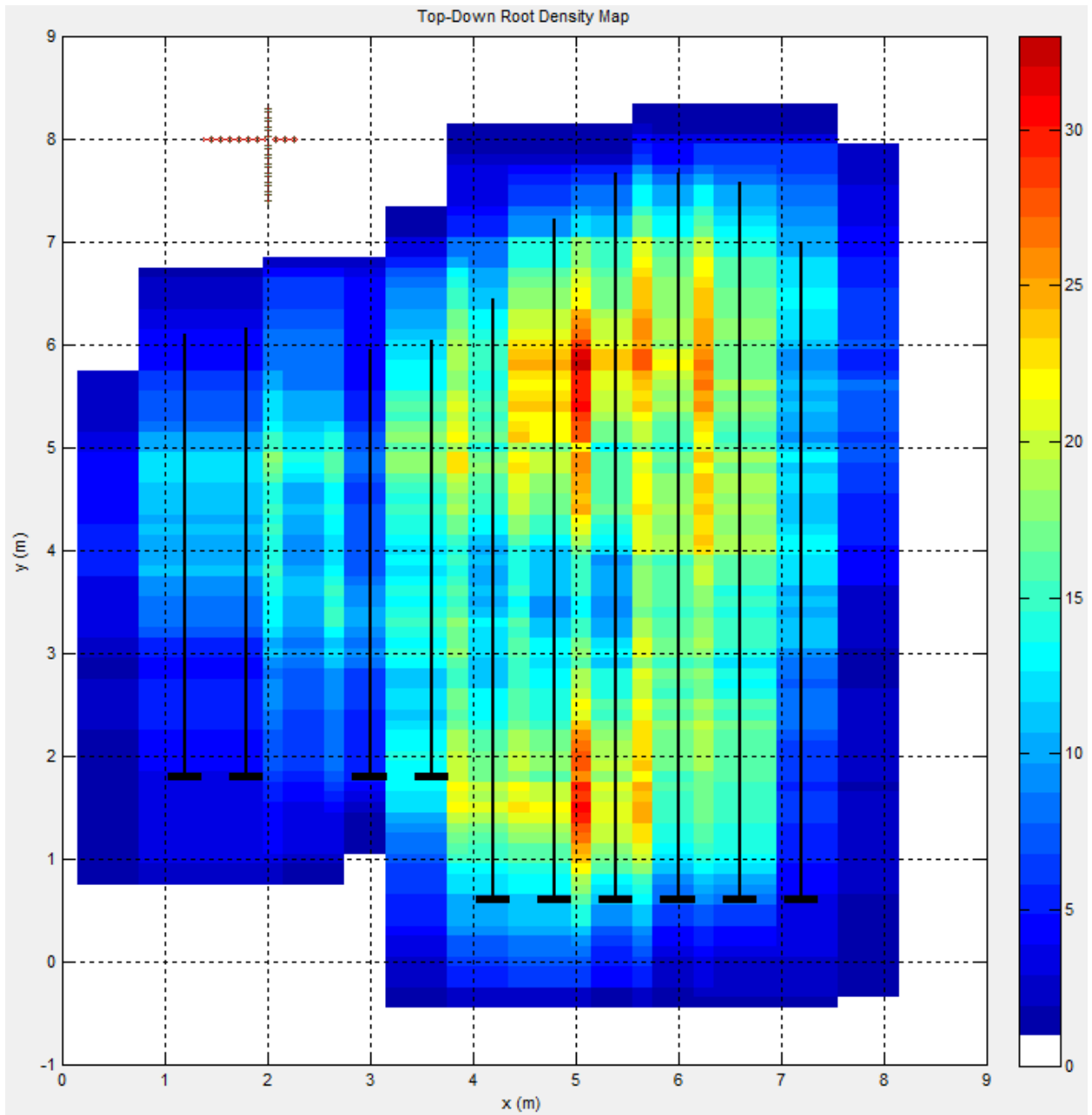


Figure 19. Top-down root density map at 0-60 cm depth of Group 3.

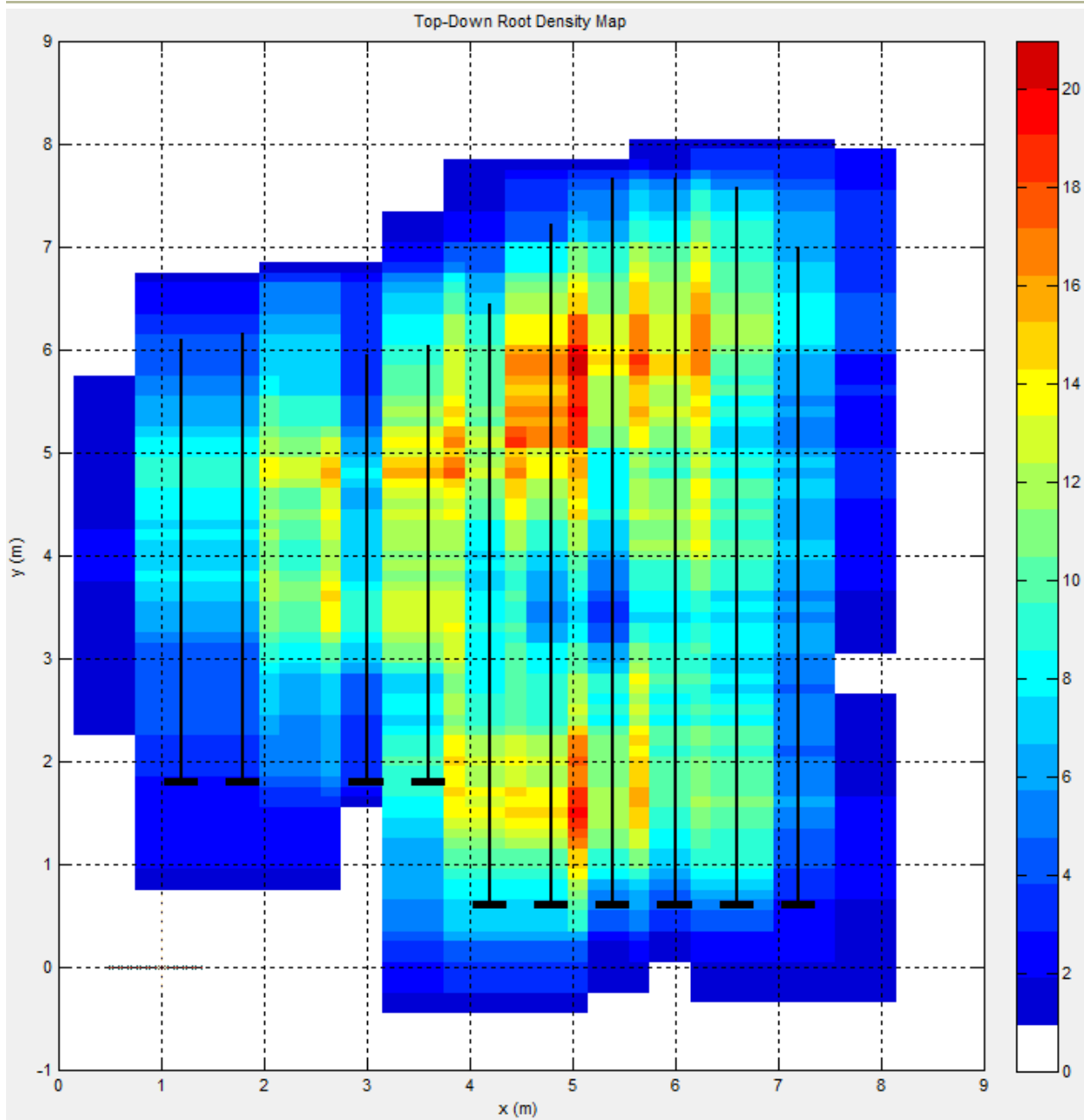


Figure 20. Top-down root density map at 0-20 cm depth of Group 3.

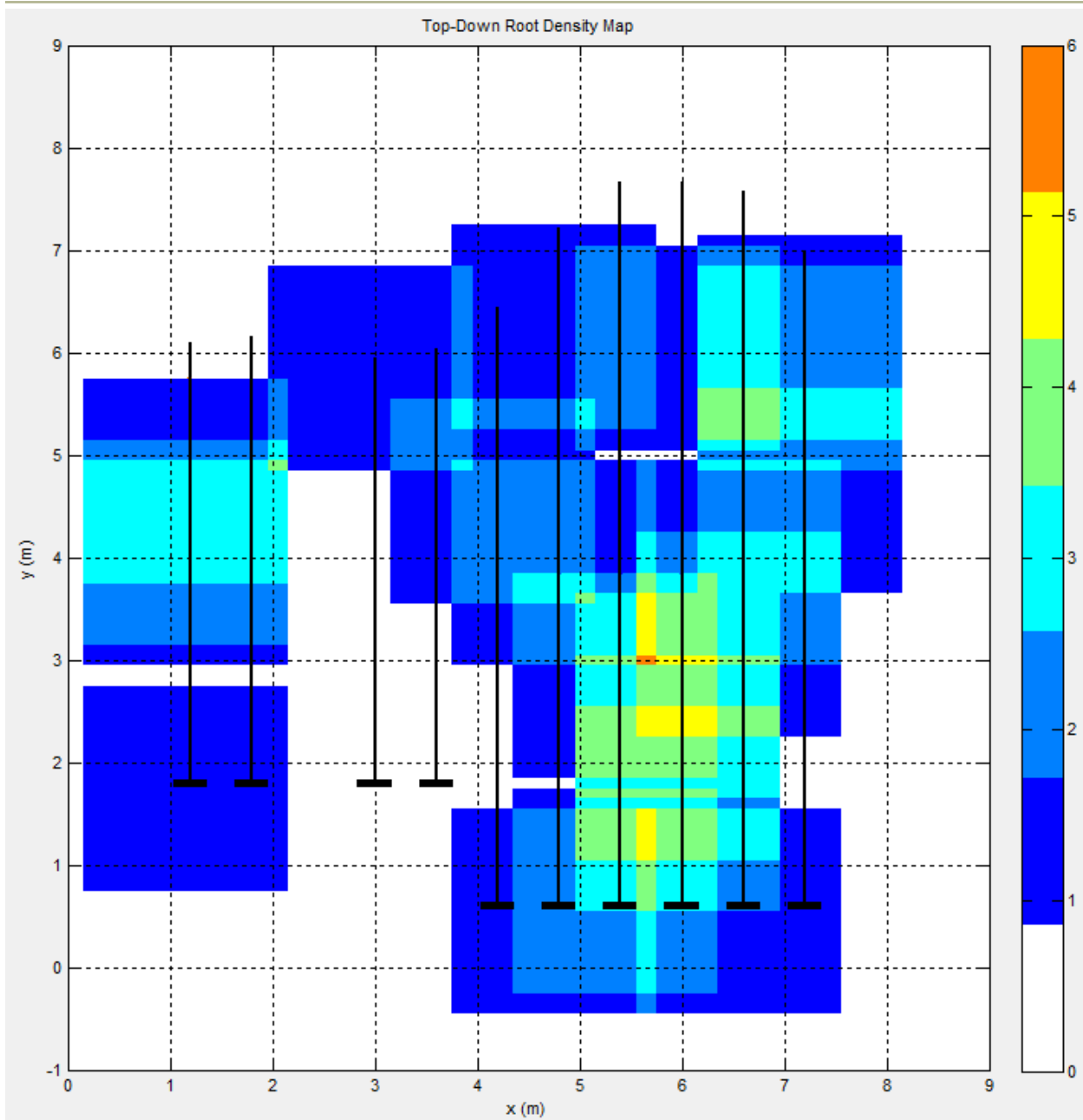


Figure 21. Top-down root density map at 20-40 cm depth of Group 3.

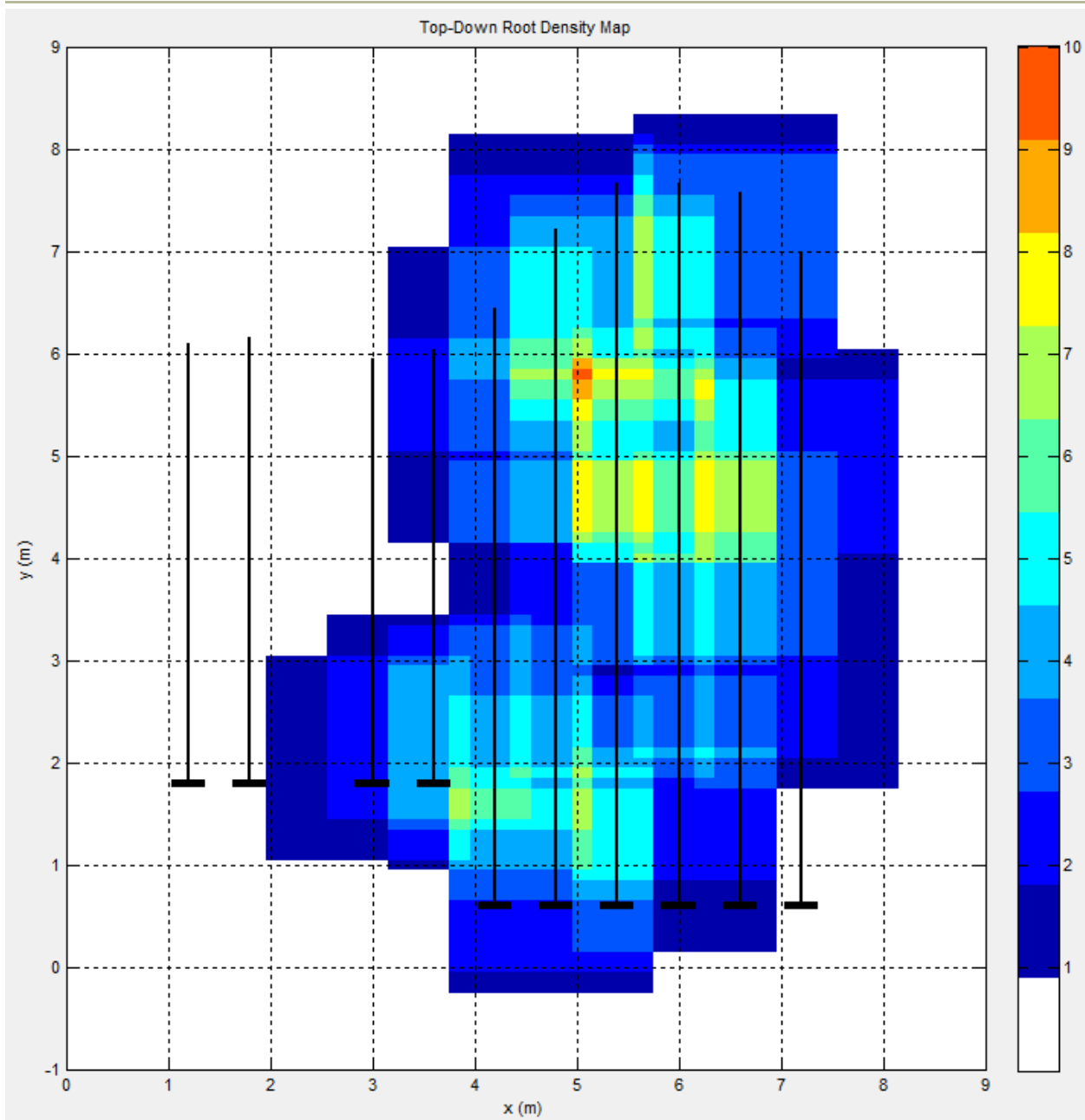


Figure 22. Top-down root density map at 40-60 cm depth of Group 3.

3.4 Group 4 - 1465 Vidal St, White Rock - Trees #376 and OS8

GPR testing was conducted on the soil surface at the east of trees #376 and OS8 at 1465 Vidal St, White Rock:

- Measurement 4.1 – 6.2 m in length, 7.8 m from centre of tree #376 at nearest point
- Measurement 4.2 – 5.5 m in length, 7.2 m from centre of tree #376 at nearest point
- Measurement 4.3 – 5.3 m in length, 6.6 m from centre of tree #376 at nearest point
- Measurement 4.4 – 6.1 m in length, 6.0 m from centre of tree #376 at nearest point
- Measurement 4.5 – 3.2 m in length, 5.4 m from centre of tree #376 at nearest point
- Measurement 4.6 – 2.6 m in length, 4.8 m from centre of tree #376 at nearest point
- Measurement 4.7 – 2.8 m in length, 4.2 m from centre of tree #376 at nearest point
- Measurement 4.8 – 3.5 m in length, 3.6 m from centre of tree #376 at nearest point
- Measurement 4.9 – 3.2 m in length, 3.0 m from centre of tree #376 at nearest point
- Measurement 4.10 – 2.2 m in length, 2.4 m from centre of tree #376 at nearest point
- Measurement 4.11 – 1.5 m in length, 0.6 m from centre of tree #376 at nearest point
- Measurement 4.12 – 1.8 m in length, 0.0 m from centre of tree #376 at nearest point
- Measurement 4.13 – 2.1 m in length, 0.6 m from centre of tree #376 at nearest point
- Measurement 4.14 – 1.4 m in length, 1.2 m from centre of tree #376 at nearest point
- Measurement 4.15 – 0.9 m in length, 1.8 m from centre of tree #376 at nearest point
- Measurement 4.16 – 1.0 m in length, 2.4 m from centre of tree #376 at nearest point
- Measurement 4.17 – 4.7 m in length, 3.0 m from centre of tree #376 at nearest point
- Measurement 4.18 – 5.9 m in length, 3.6 m from centre of tree #376 at nearest point
- Measurement 4.19 – 3.9 m in length, 4.2 m from centre of tree #376 at nearest point
- Measurement 4.20 – 4.1 m in length, 4.8 m from centre of tree #376 at nearest point



Figure 23. Location of Measurements 4.1 to 4.20.

Root density maps have been produced for Group 4, and for each depth range. The color scale indicator on the right-hand side of the graph illustrates the concentration or number of roots within the given area.

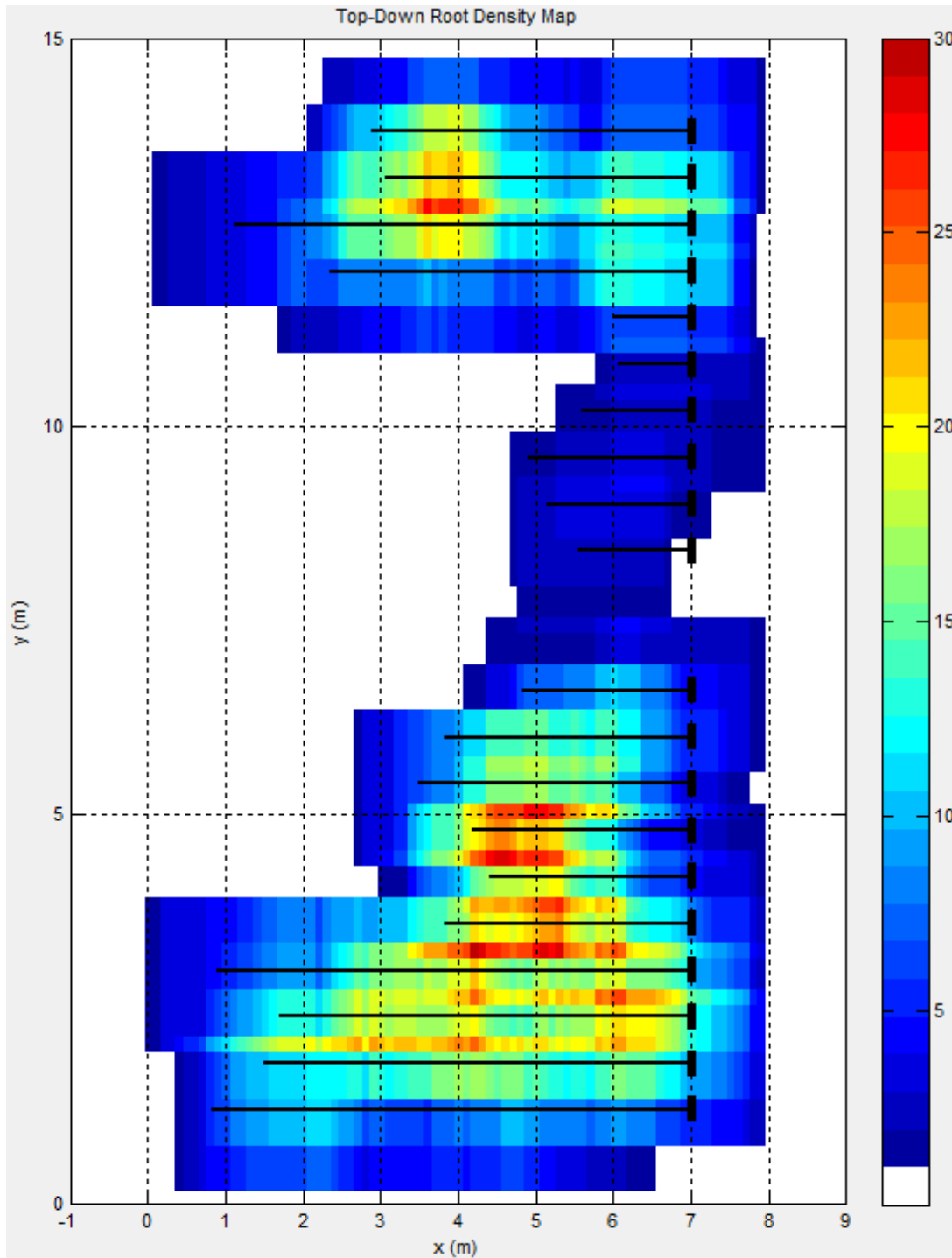


Figure 24. Top-down root density map at 0-60 cm depth of Group 4.

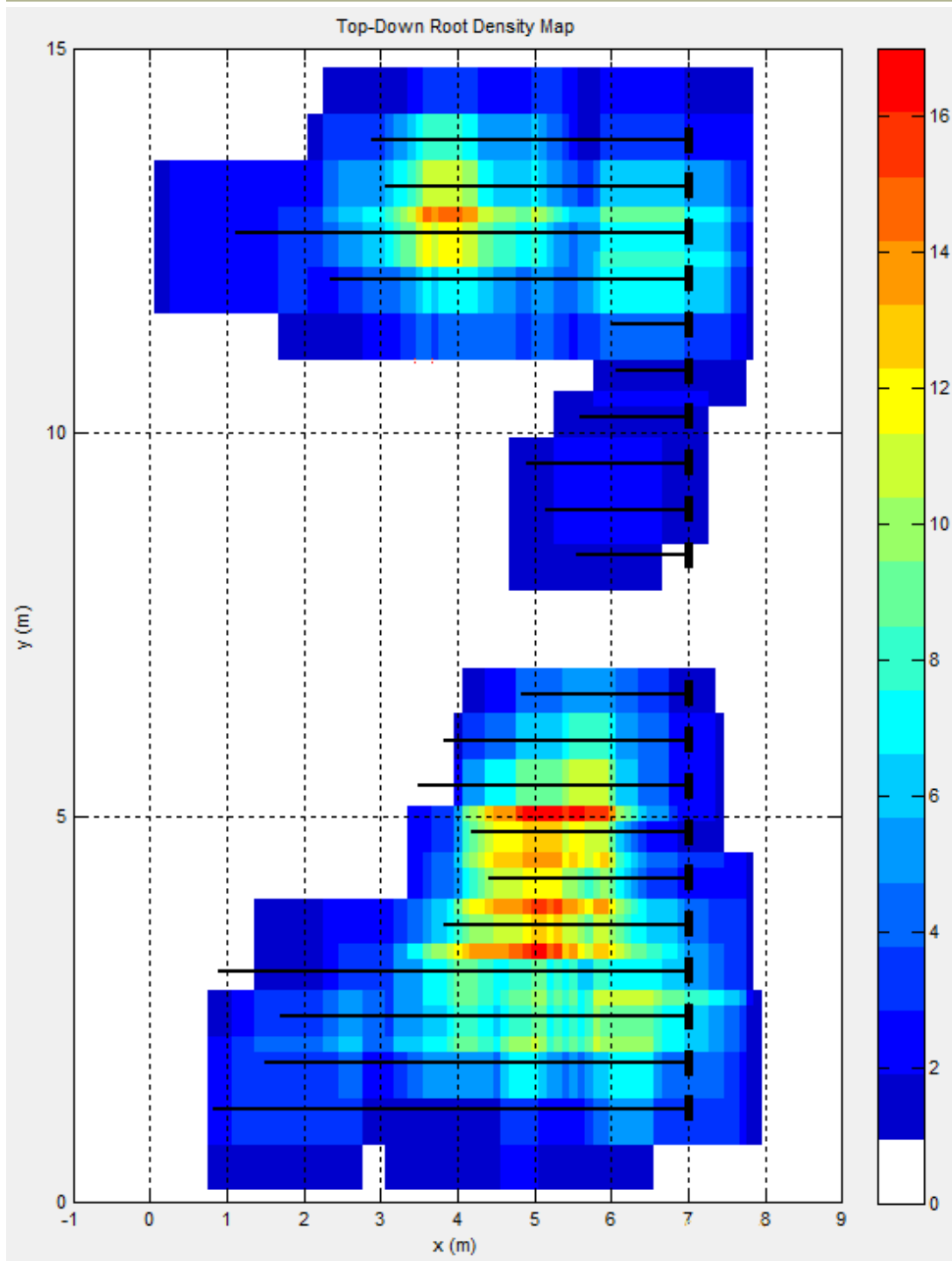


Figure 25. Top-down root density map at 0-20 cm depth of Group 4.

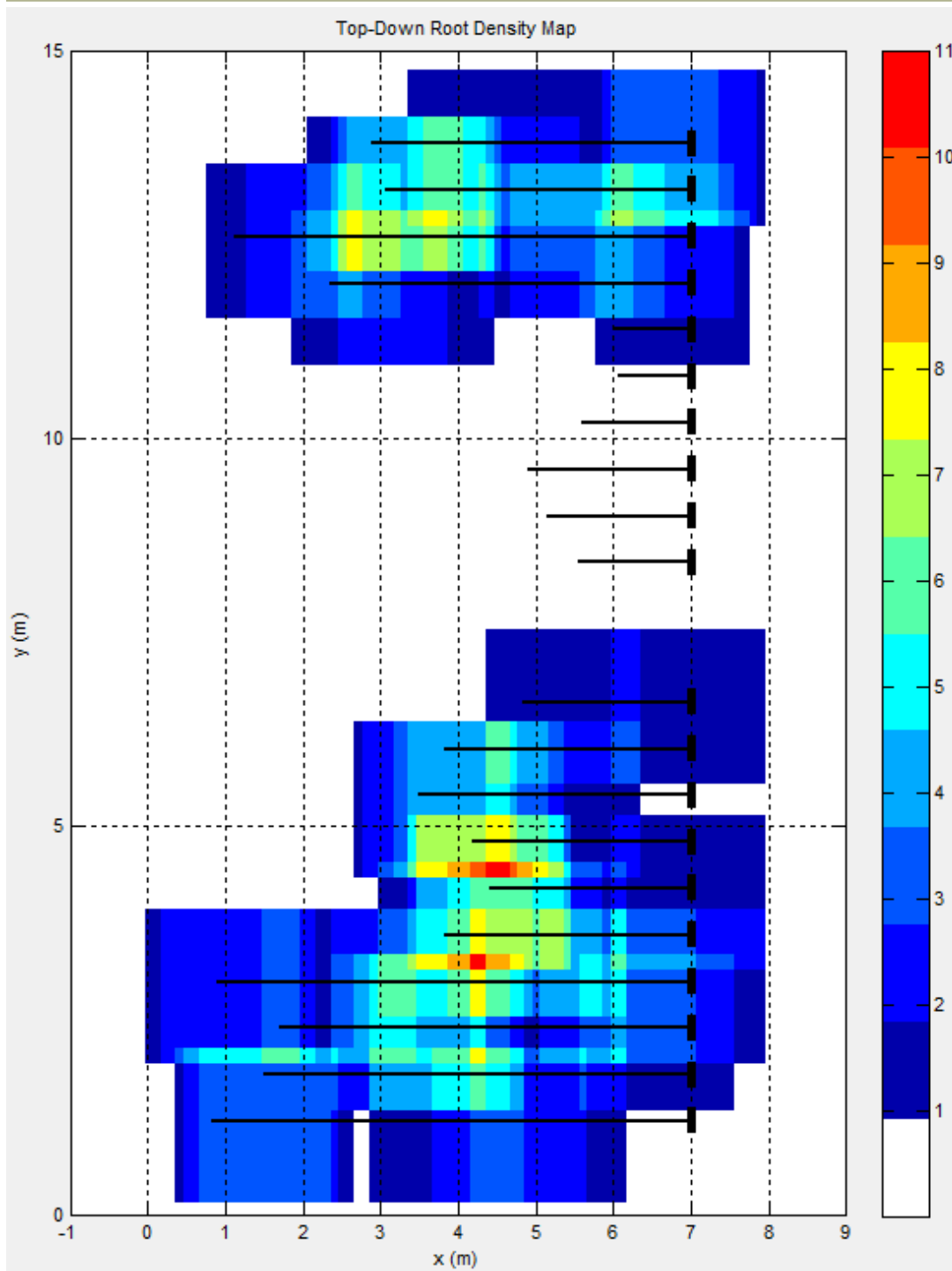


Figure 26. Top-down root density map at 20-40 cm depth of Group 4.

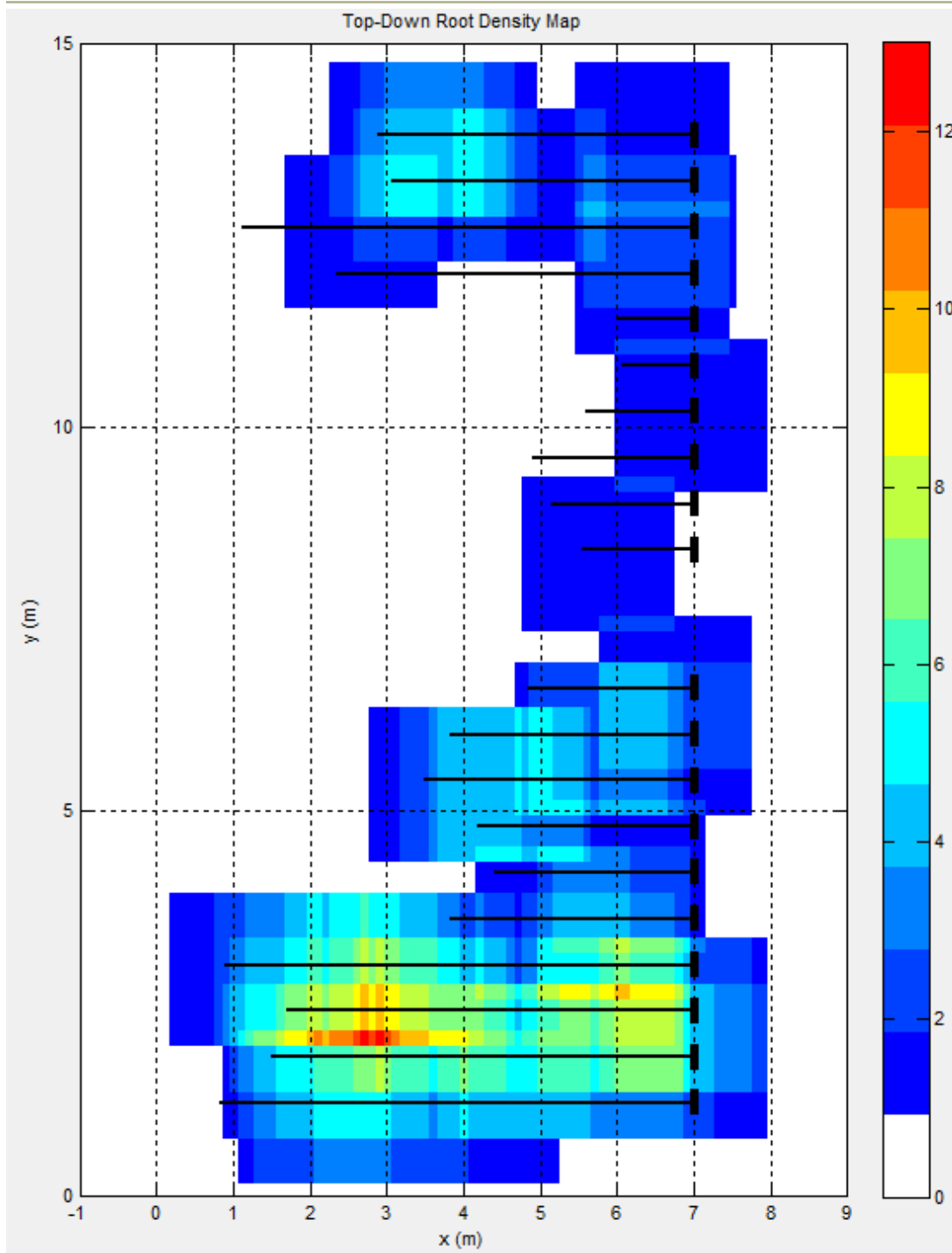


Figure 27. Top-down root density map at 40-60 cm depth of Group 4.

4.0 Discussion

4.1 Group 1 - 1441 Vidal St, White Rock - Trees OS2 & OS3

With reference to the top-down root density map at 0-20 cm depth of Group 1 (Figure 10), and measurements 1.6 to 1.8 (Attachment A), there are roots in the 0-20 cm depth range, and are likely to be comprised of feeder roots. Furthermore, trees OS2 and OS3 are about 6 m and 8 m from the proposed development respectively, and their CRZs do not enter the subject lot. The proposed development is unlikely to have a major impact to the CRZ of trees OS2 and OS3.

Trees OS2 and OS3 can be reasonably retained. Arborist oversight is recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature. It shall be determined by the project arborist if a tree protection barrier is installed at the Property Line for trees OS2 and OS3. Root pruning for trees OS2 and OS3 may be required to mitigate damage caused by the excavation process to create conditions for damaged roots to compartmentalize and restore typical root functions. Use of a pneumatic air excavation is recommended to expose tree roots for root pruning.

4.2 Group 2 - 1443 Vidal St, White Rock - Trees OS4 & OS5

GPR assessment for tree OS4 was blocked by a shed. Roots of tree OS4 are likely to be located to the northeast under the shed, as there did not appear to be a restriction to root growth (i.e. concrete slab) under the shed to decrease the availability of air, water, and nutrients. About 24% of the CRZ of tree OS4 will be impacted by the proposed retaining wall / landscape feature.

With reference to the top-down root density map at 0-20 cm depth of Group 2 (Figure 15), and measurements 2.12 and 2.13 (Attachment B), there are likely to be roots growing from the center of tree OS5 towards the east. These roots are primarily in the 0-20 cm depth range, and are likely to be comprised of structural, lateral and feeder roots. About 27% of the CRZ of tree OS5 will be impacted by the proposed retaining wall / landscape feature.

Trees OS4 and OS5 can be reasonably retained with no cut at Property Line, and designing a point-footing retaining wall with suspended beams. Arborist oversight is recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature. It shall be determined by the project arborist where a tree protection barrier should be installed for trees OS4 and OS5. Root pruning for trees OS4 and OS5 may be required to mitigate damage caused by the excavation process for point footings to create conditions for damaged roots to compartmentalize and restore typical root functions. Pruning of structural roots should be avoided. Use of a pneumatic air excavation is recommended to expose tree roots for root pruning.

4.3 Group 3 - 1445 Vidal St, White Rock - Trees OS6 & OS7

With reference to the top-down root density map at 0-20 cm depth of Group 3 (Figure 20), there are likely to be roots growing from the center of tree OS7 towards the southeast. These roots are primarily in the 0-20 cm depth range and are likely to be comprised of lateral and feeder roots. About 6% of the CRZ of tree OS7 will be impacted by the proposed retaining wall / landscape feature. Furthermore, tree OS6 is about 6 m from the proposed retaining wall, and its CRZ barely enters the subject lot. The proposed development is unlikely to have a major impact to the CRZ of trees OS6 and OS7.

Trees OS6 and OS7 can be reasonably retained. Arborist oversight is recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature. It shall be determined by the project arborist where a tree protection barrier is installed for trees OS6 and OS7. Root pruning for trees OS6 and OS7 may be required to mitigate damage caused by the excavation process for point footings to create conditions for damaged roots to compartmentalize and restore typical root functions. Pruning of structural roots should be avoided. Use of a pneumatic air excavation is recommended to expose tree roots for root pruning.

4.2 Group 4 - 1465 Vidal St, White Rock - Trees #376 and OS8

Tree #376 has a poor structure with multiple trunks. Decay was also observed at the trunk collar of tree #376. Tree #376 will conflict with the proposed retaining wall / landscape feature, and removal of it is recommended. It is not a suitable tree for constraint on development.

GPR assessment for tree OS8 was partially blocked by tree #376 and shrubs. About 25% of the CRZ of tree OS8 will be impacted by the proposed retaining wall / landscape feature. Tree OS8 can be reasonably retained with no cut at Property Line, and designing a point-footing retaining wall with suspended beams. Arborist oversight is recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature. It shall be determined by the project arborist where a tree protection barrier is installed for tree OS8. Root pruning for tree OS8 may be required to mitigate damage caused by the excavation process for point footings to create conditions for damaged roots to compartmentalize and restore typical root functions. Pruning of structural roots should be avoided. Use of a pneumatic air excavation is recommended to expose tree roots for root pruning.

5.0 Conclusions and Recommendations

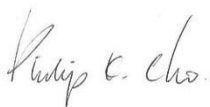
Tree #	Common Name	Comments	Recommendations
376	Red alder	Poor structure with multiple trunks and decay. Conflict with proposed development.	Remove.
OS2	Paper birch	Feeder roots detected in the 0-20 cm depth range. The tree is about 6 m from the proposed development. CRZ do not enter the subject lot.	Retain. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.
OS3	Douglas-fir	Feeder roots detected in the 0-20 cm depth range. The tree is about 8 m from the proposed development. CRZ do not enter the subject lot.	Retain. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.
OS4	Douglas-fir	Assessment blocked by a shed. Roots may grow towards the shed. About 24% of CRZ will be impacted.	Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.
OS5	Douglas-fir	May have structural, lateral and feeder roots growing towards the east in the 0-20 cm depth range. About 27% of CRZ will be impacted.	Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.
OS6	Douglas-fir	The tree is about 6 m from the proposed development. CRZ do not enter the subject lot.	Retain. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.

Tree #	Common Name	Comments	Recommendations
OS7	Western redcedar	May have structural, lateral and feeder roots growing towards its southeast in the 0-20 cm depth range. About 6% of CRZ may be impacted.	Retain. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.
OS8	Douglas-fir	Assessment blocked by tree #376 and shrubs. About 25% of CRZ will be impacted.	Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.

Should you have any questions or concerns, please do not hesitate to call me.

Yours truly,

BC PLANT HEALTH CARE INC.

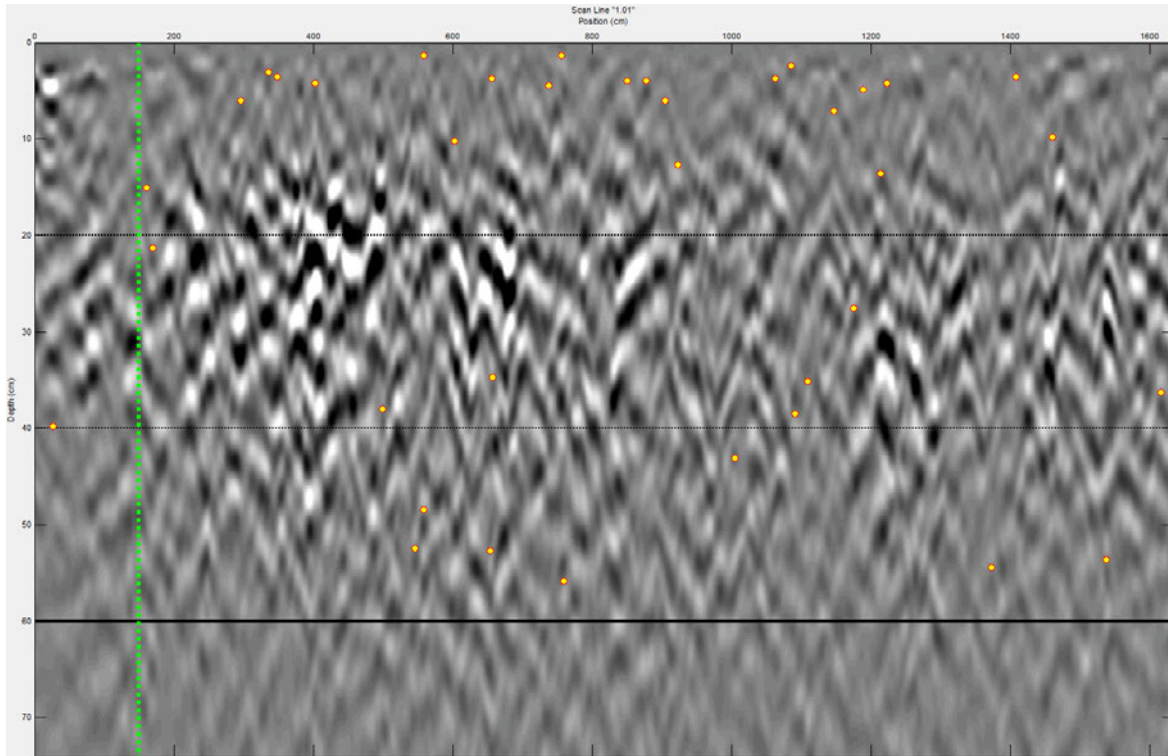


Philip Kin Cho

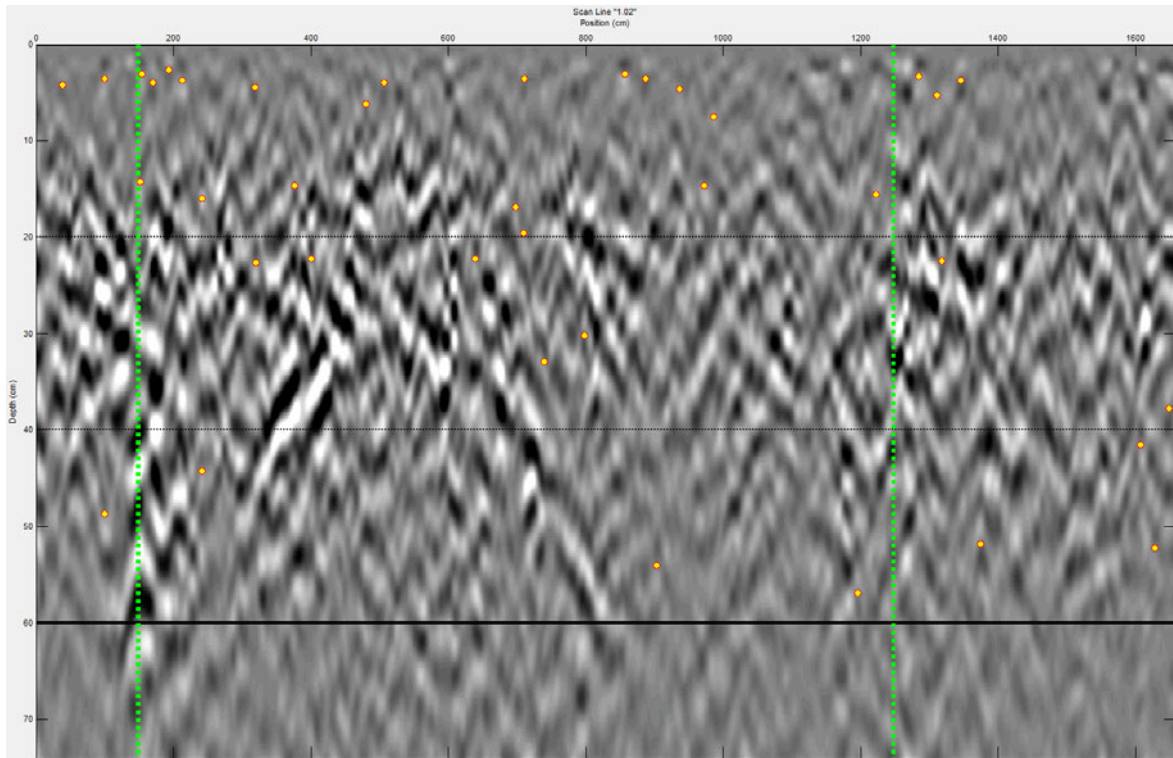
ISA Certified Arborist #HK-1086A
ISA Tree Risk Assessment Qualification
Forester in Training #5727
BSSc, MSc, MSFM

Attachments

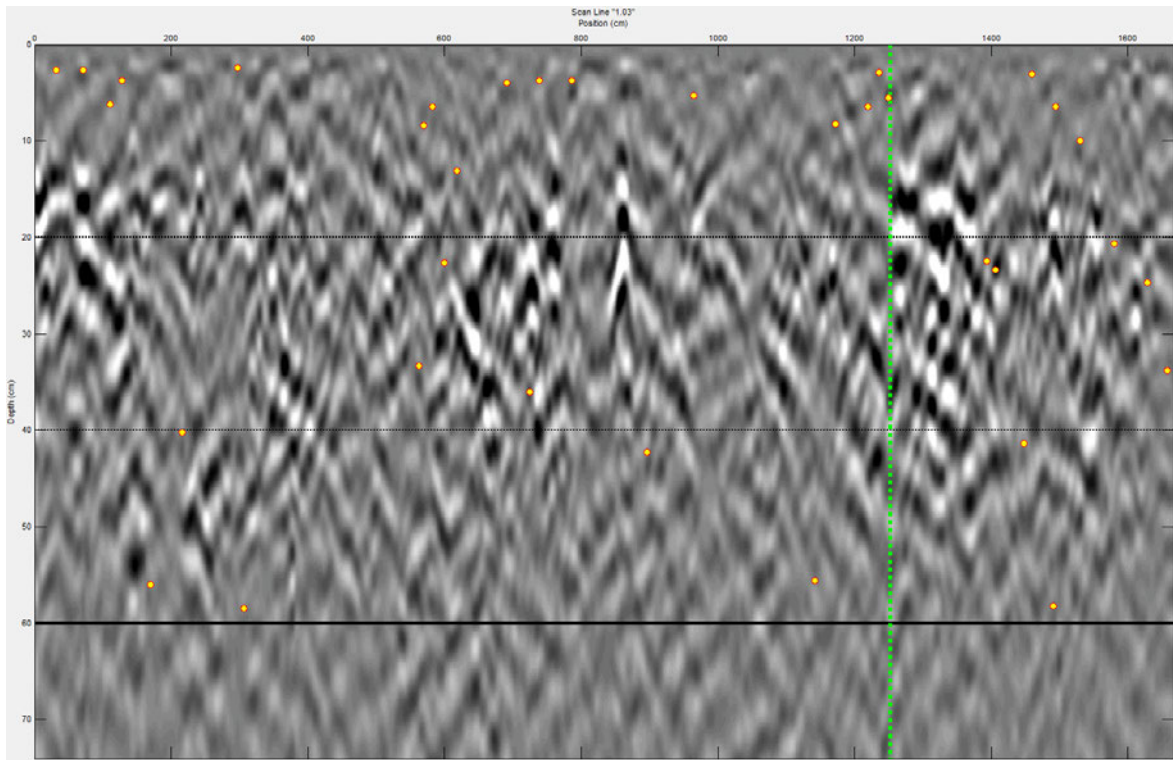
A. Soil Profile Cross Sectional Scans - Group 1



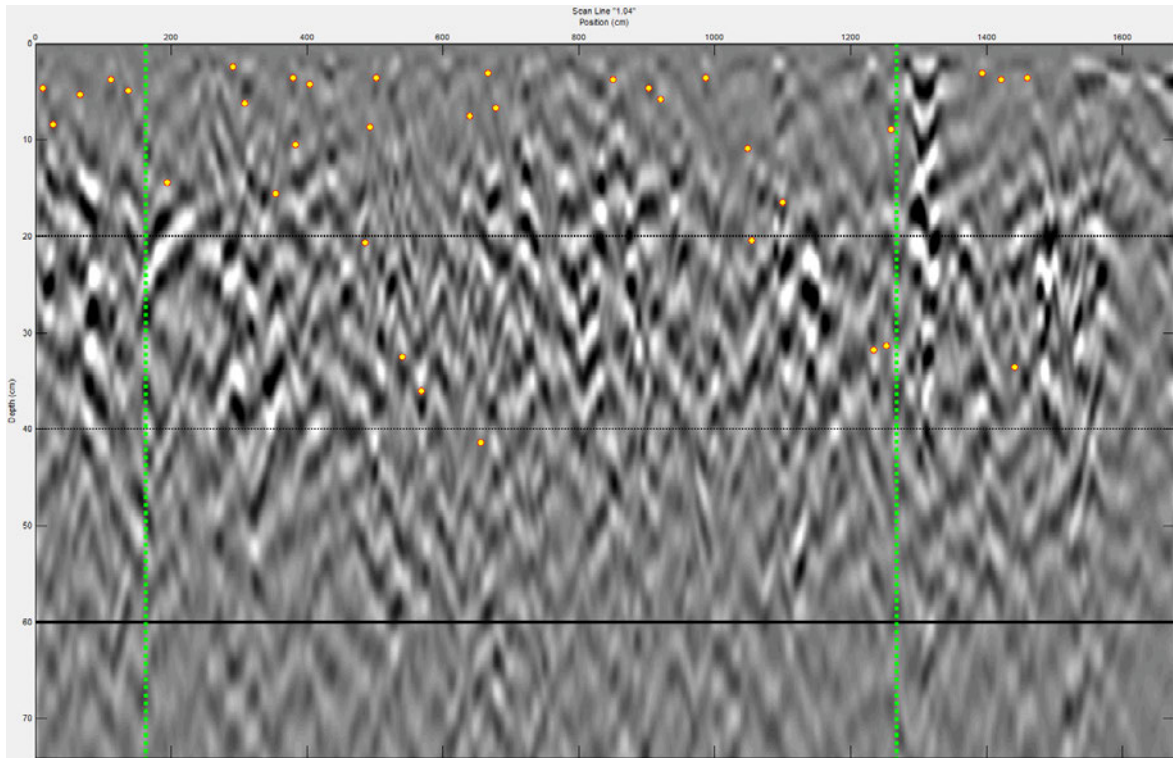
Measurement 1.1 – 16.4 m in length, 12.0 m from centre of tree OS2 at nearest point



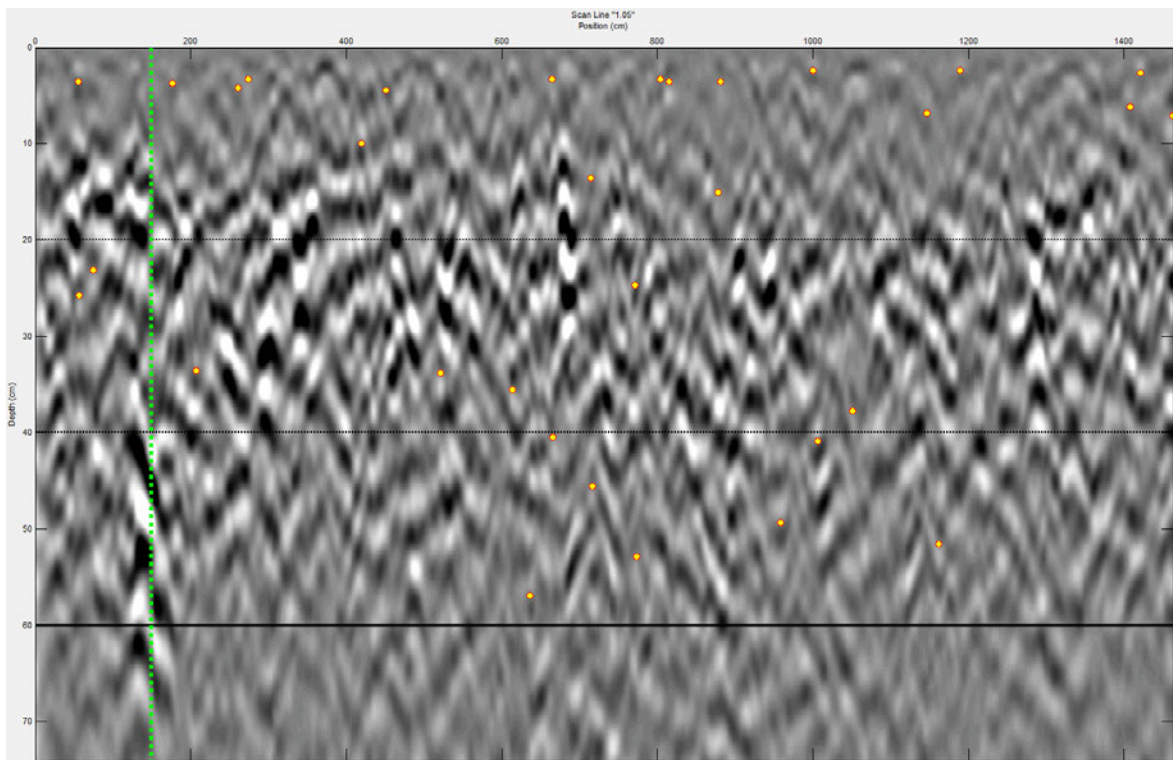
Measurement 1.2 - 16.6 m in length, 11.4 m from centre of tree OS2 at nearest point



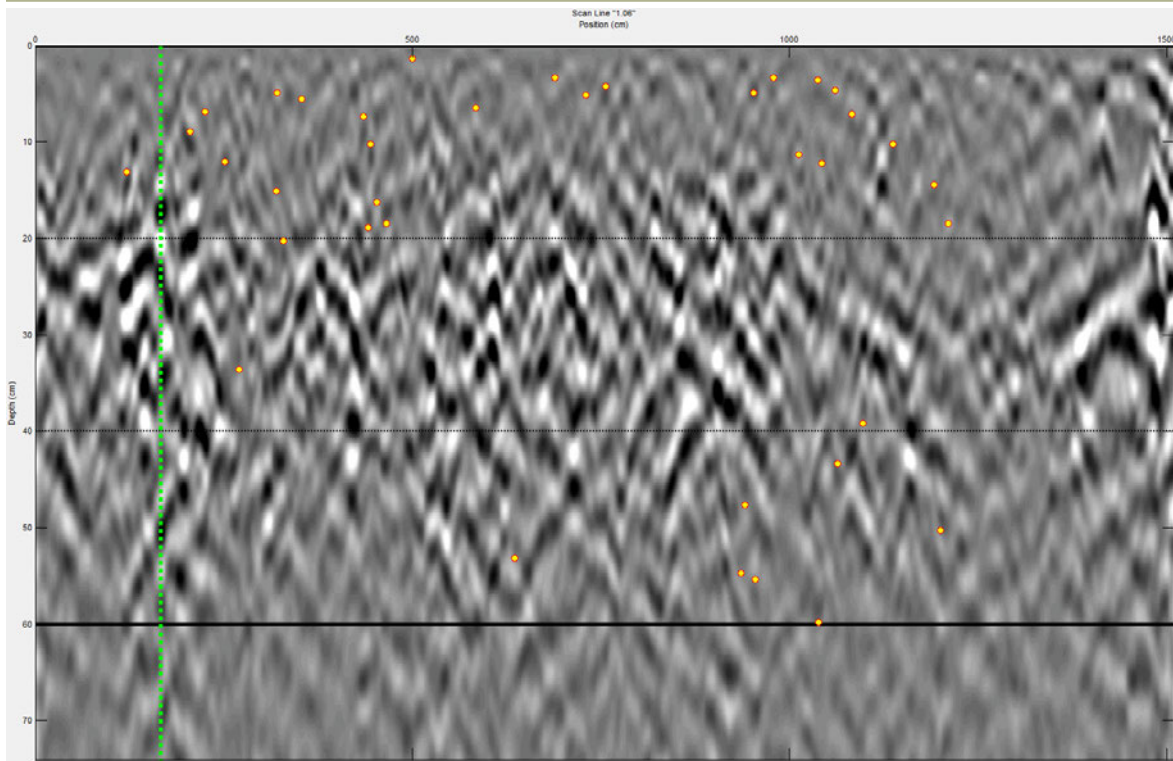
Measurement 1.3 - 16.7 m in length, 10.8 m from centre of tree OS2 at nearest point



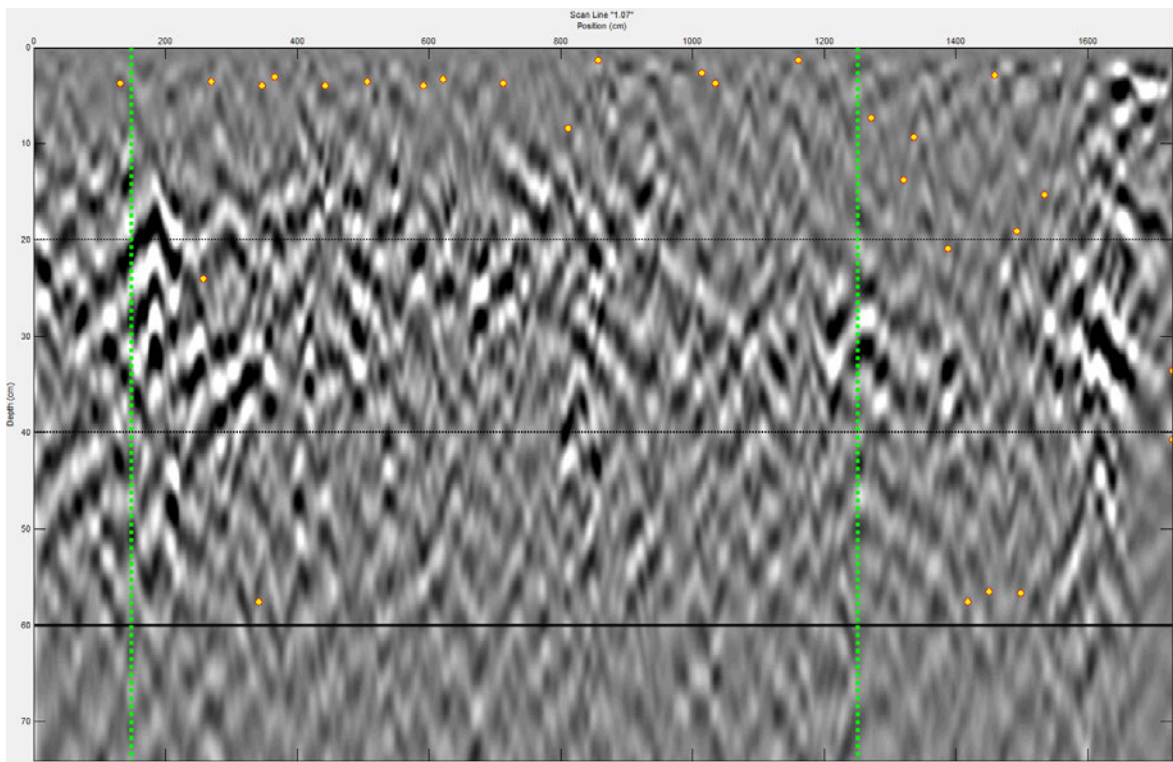
Measurement 1.4 - 16.8 m in length, 10.2 m from centre of tree OS2 at nearest point



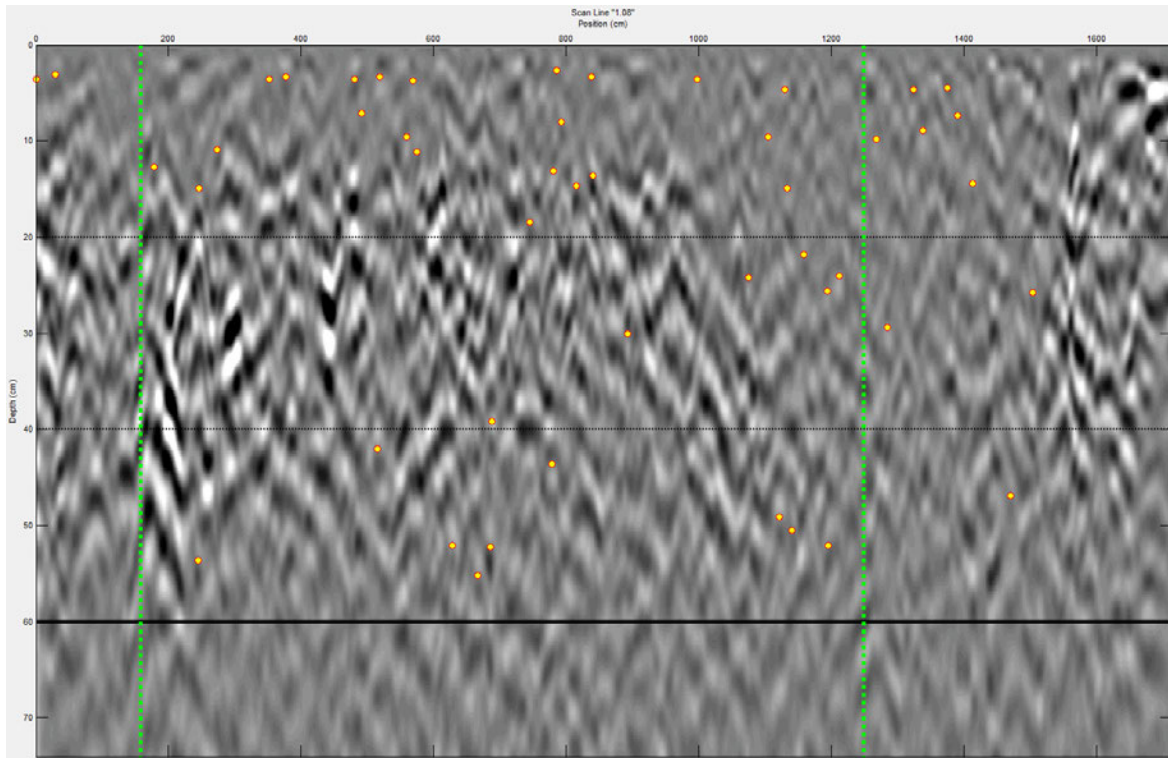
Measurement 1.5 - 14.6 m in length, 9.6 m from centre of tree OS2 at nearest point



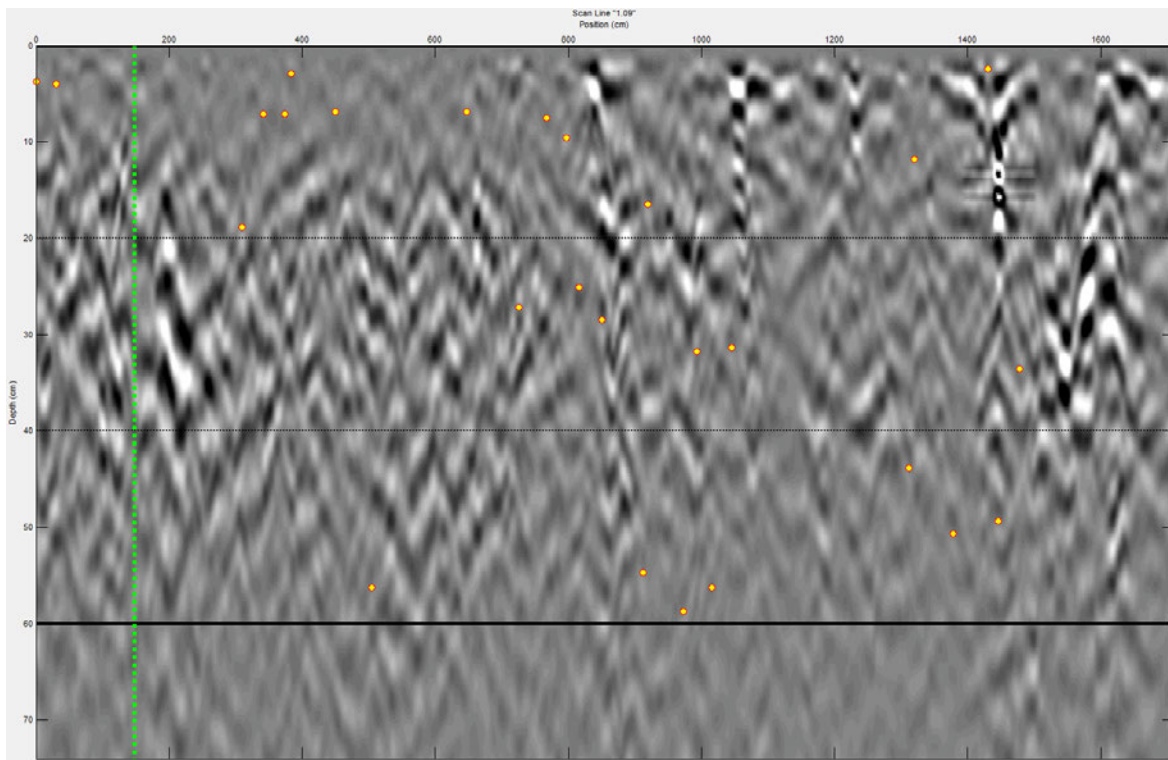
Measurement 1.6 - 15.1 m in length, 9.0 m from centre of tree OS2 at nearest point



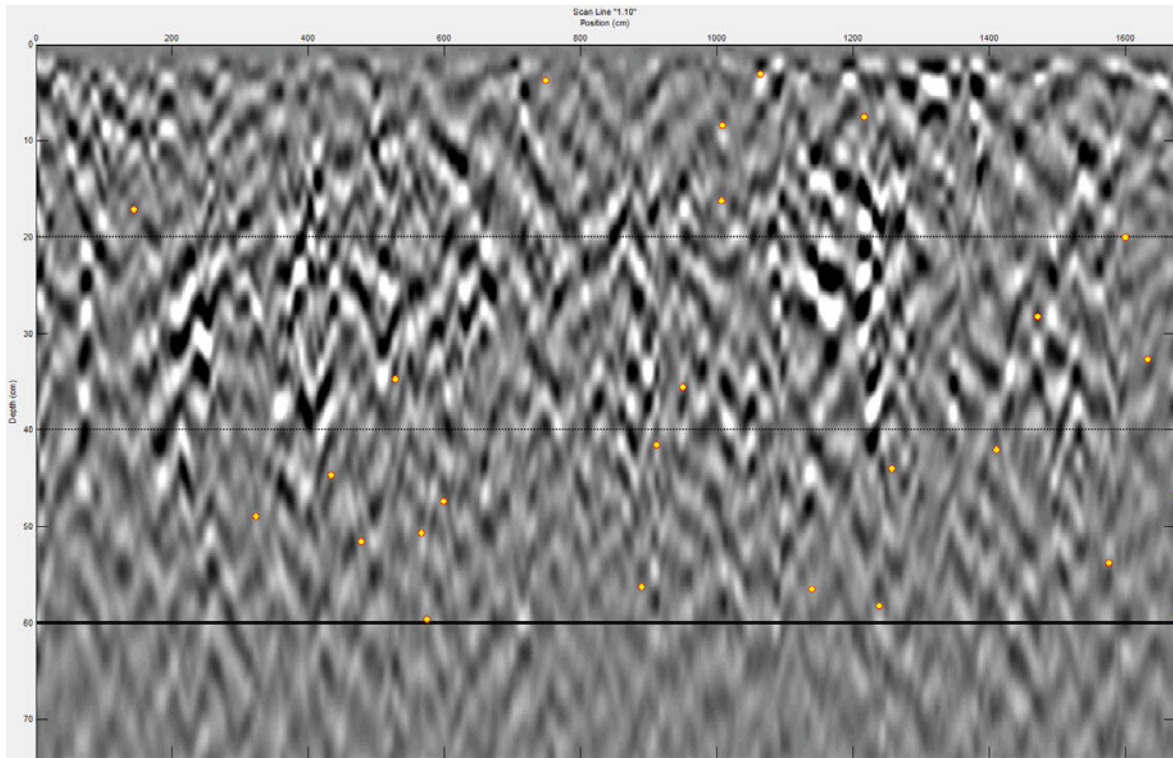
Measurement 1.7 - 17.3 m in length, 8.4 m from centre of tree OS2 at nearest point



Measurement 1.8 - 17.1 m in length, 7.8 m from centre of tree OS2 at nearest point

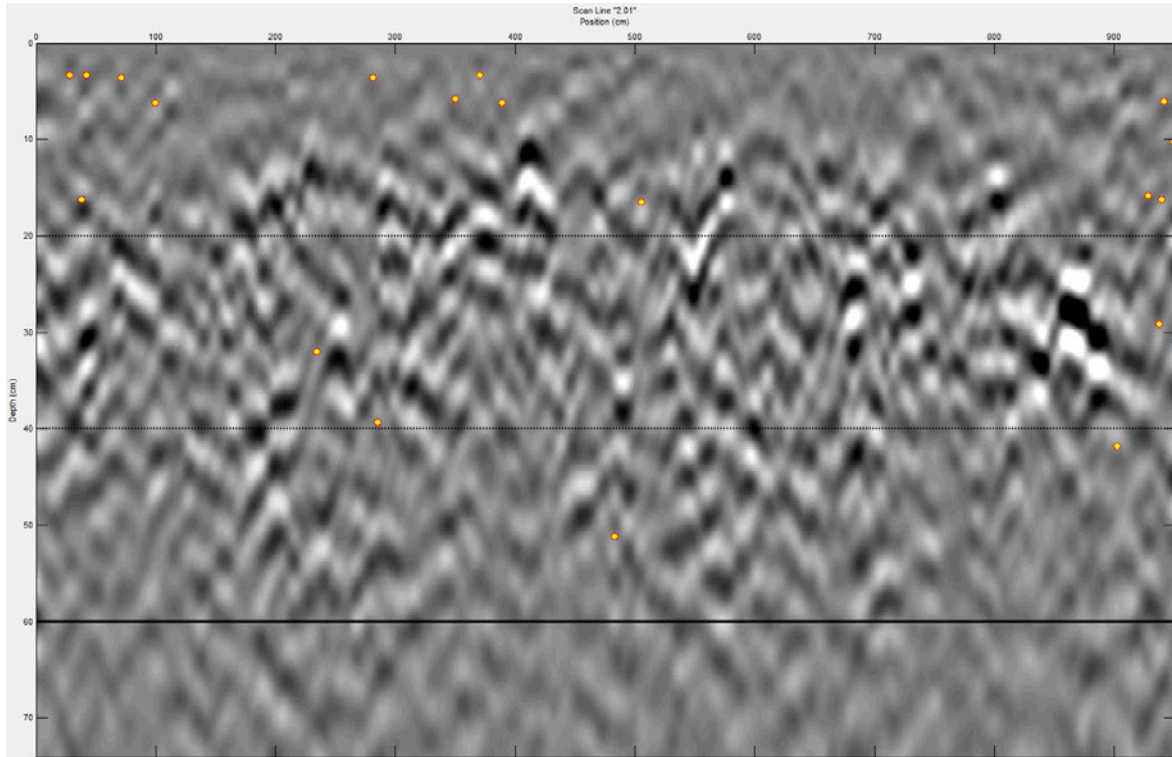


Measurement 1.9 - 17.1 m in length, 7.2 m from centre of tree OS2 at nearest point

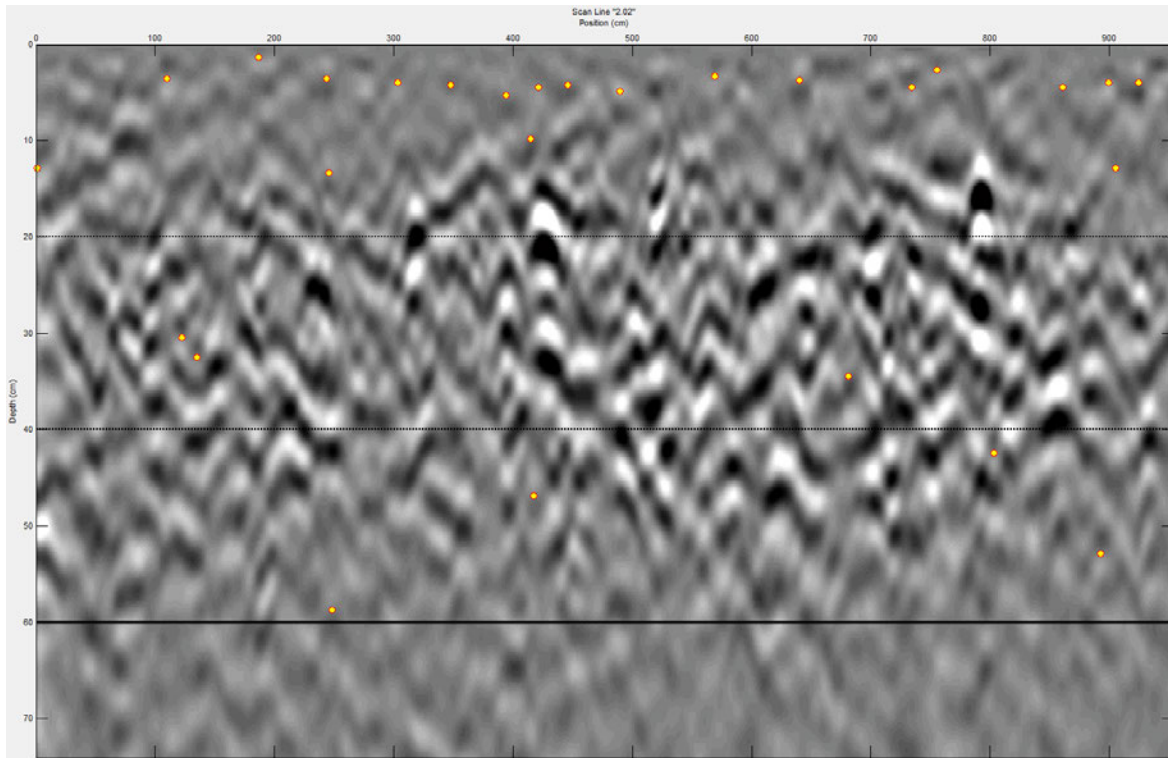


Measurement 1.10 - 16.7 m in length, 6.0 m from centre of tree OS2 at nearest point

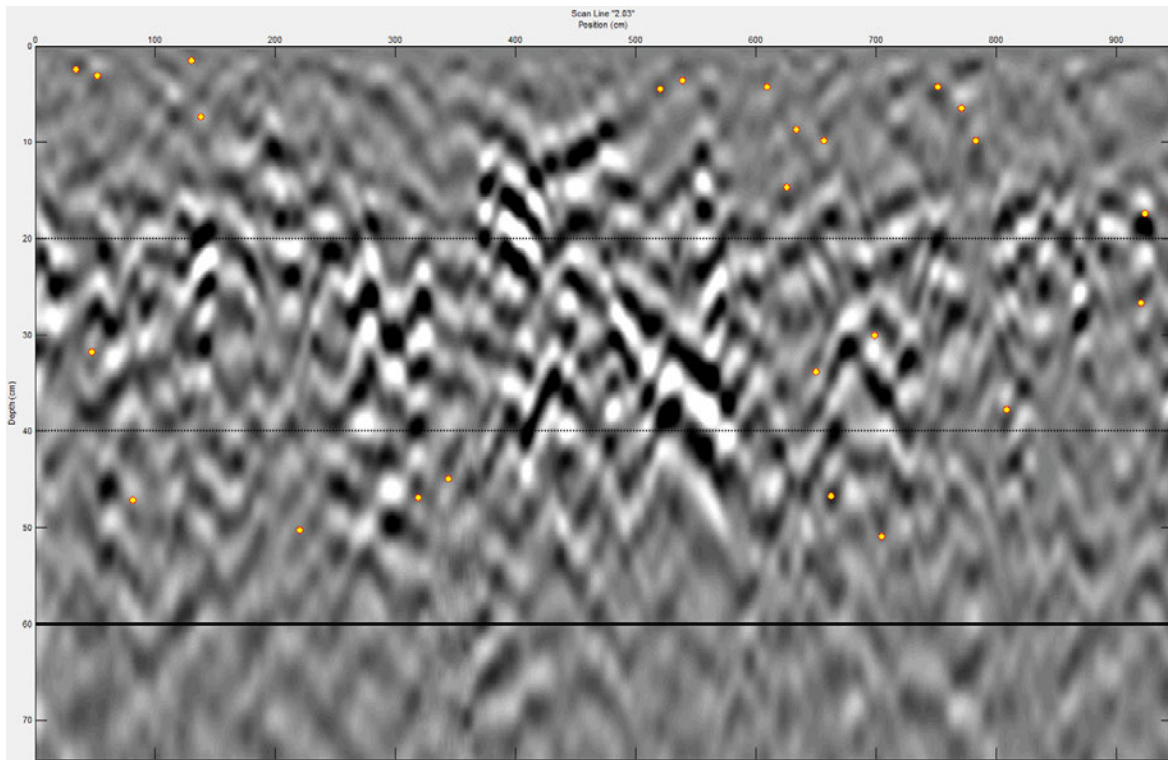
B. Soil Profile Cross Sectional Scans - Group 2



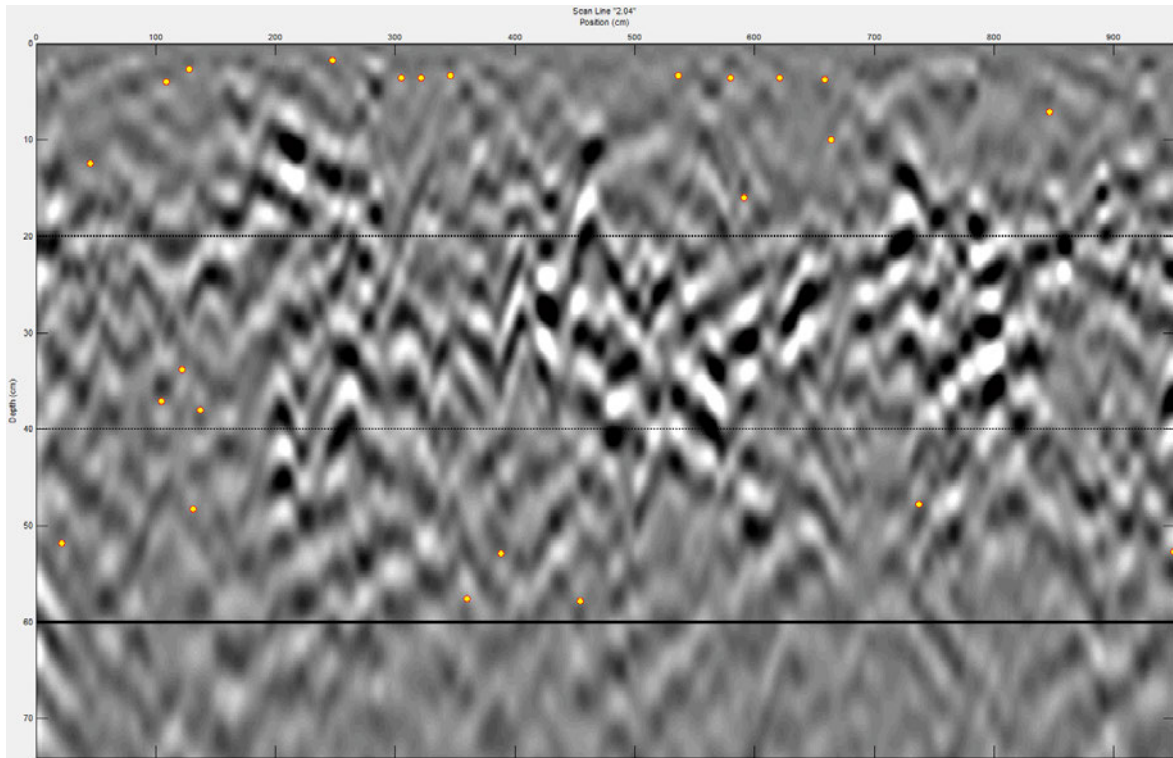
Measurement 2.1 – 9.5 m in length, 8.3 m from centre of tree OS5 at nearest point



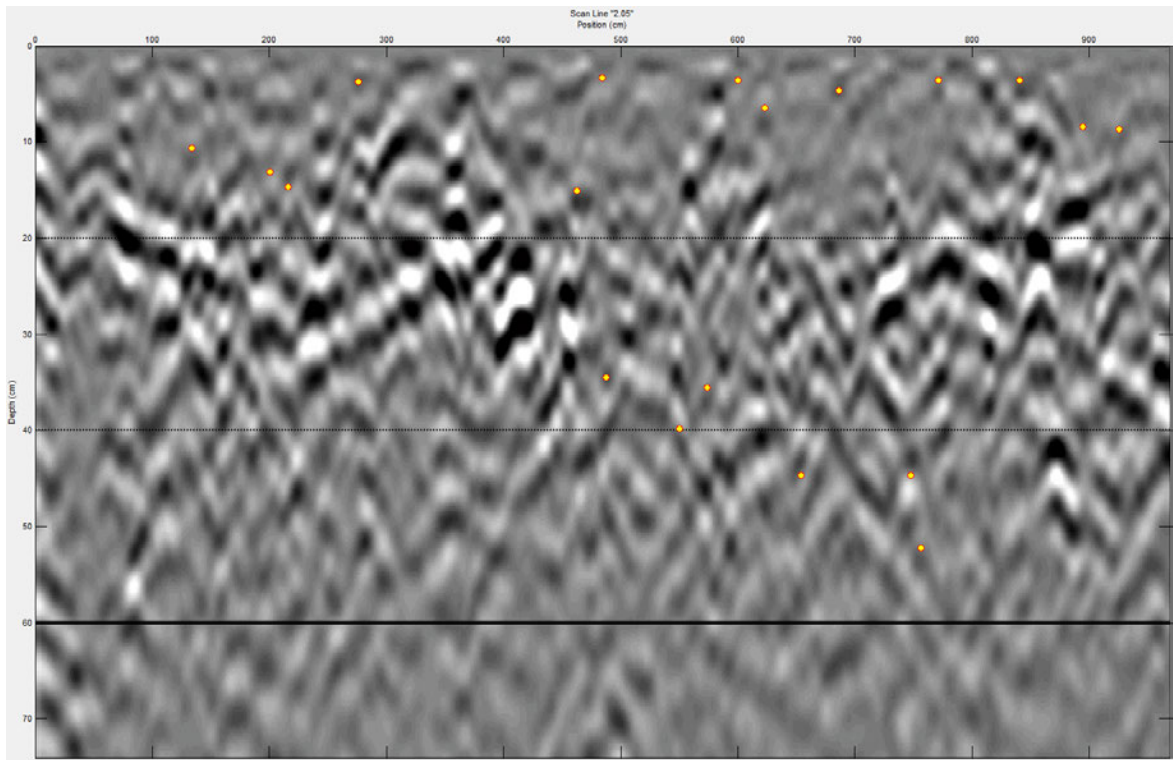
Measurement 2.2 - 9.5m in length, 7.7 m from centre of tree OS5 at nearest point



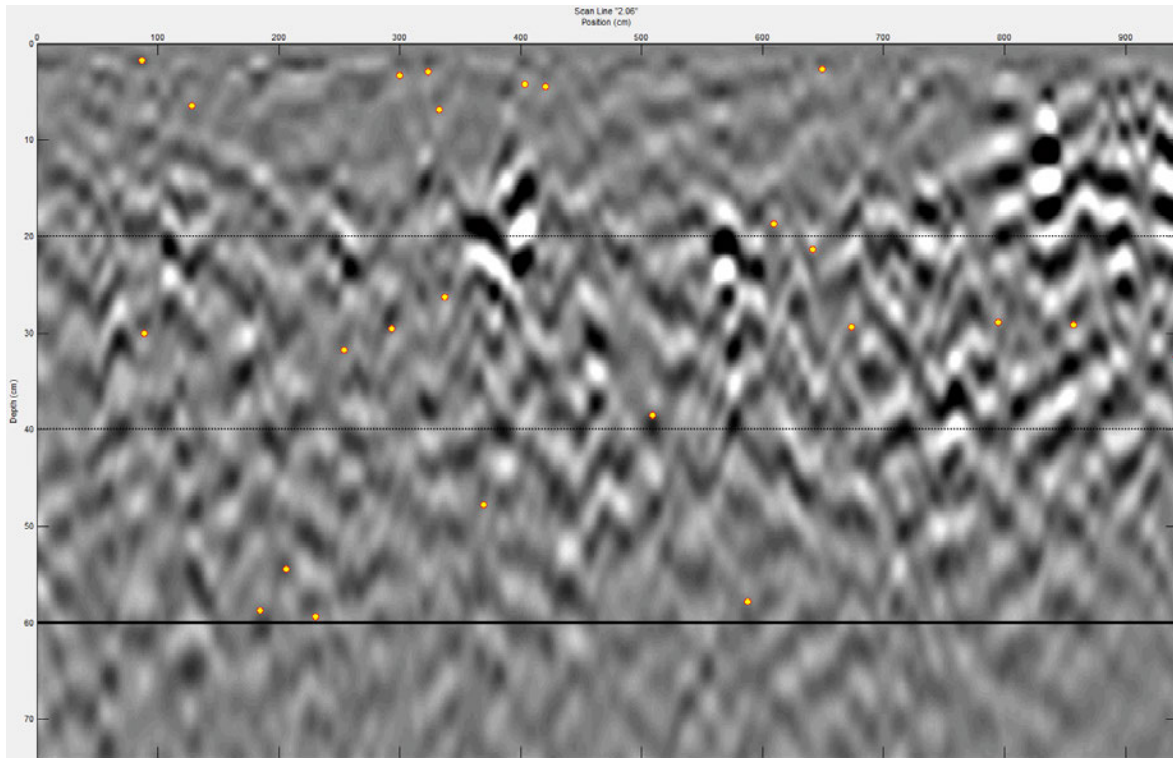
Measurement 2.3 - 9.5 m in length, 7.1 m from centre of tree OS5 at nearest point



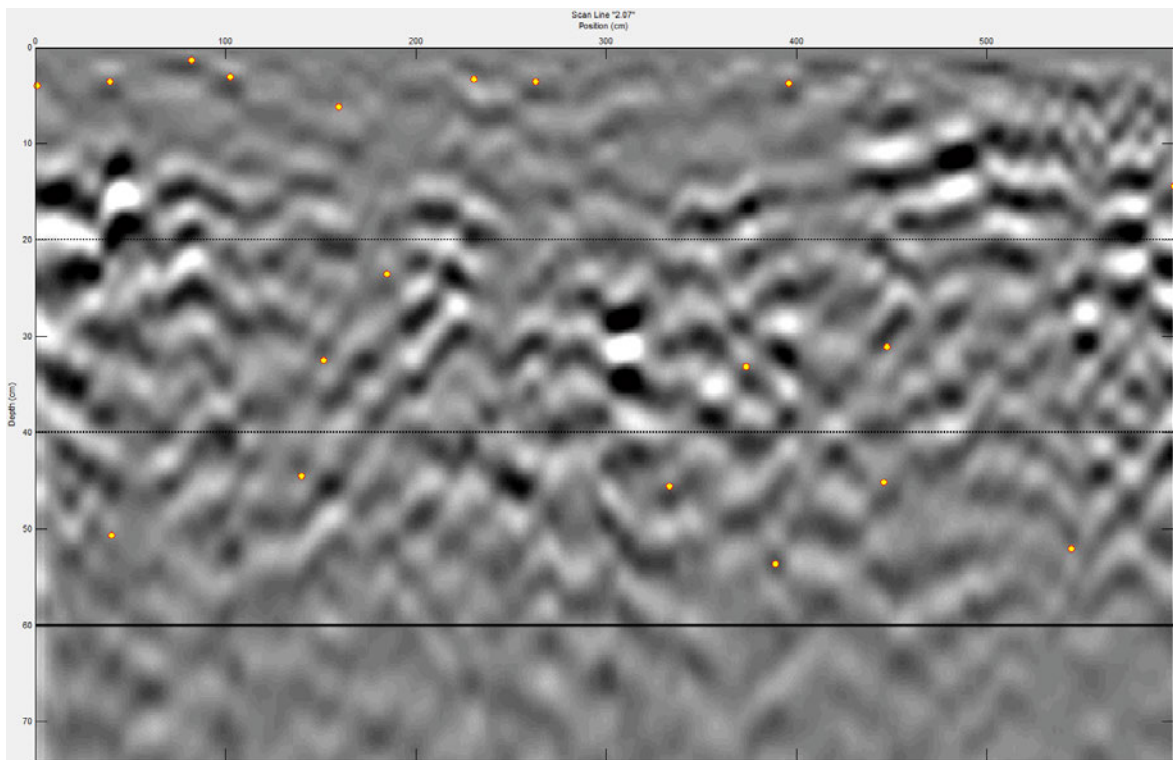
Measurement 2.4 – 9.5 m in length, 6.5 m from centre of tree OS5 at nearest point



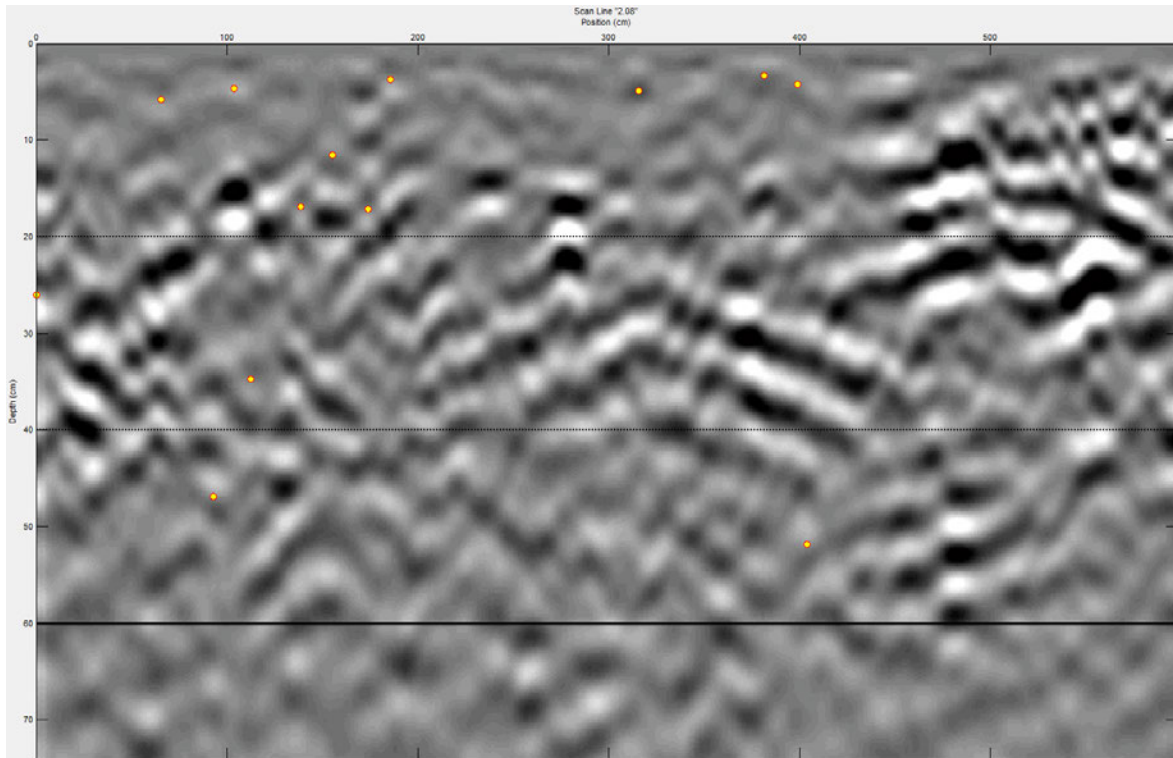
Measurement 2.5 – 9.7 m in length, 5.9 m from centre of tree OS5 at nearest point



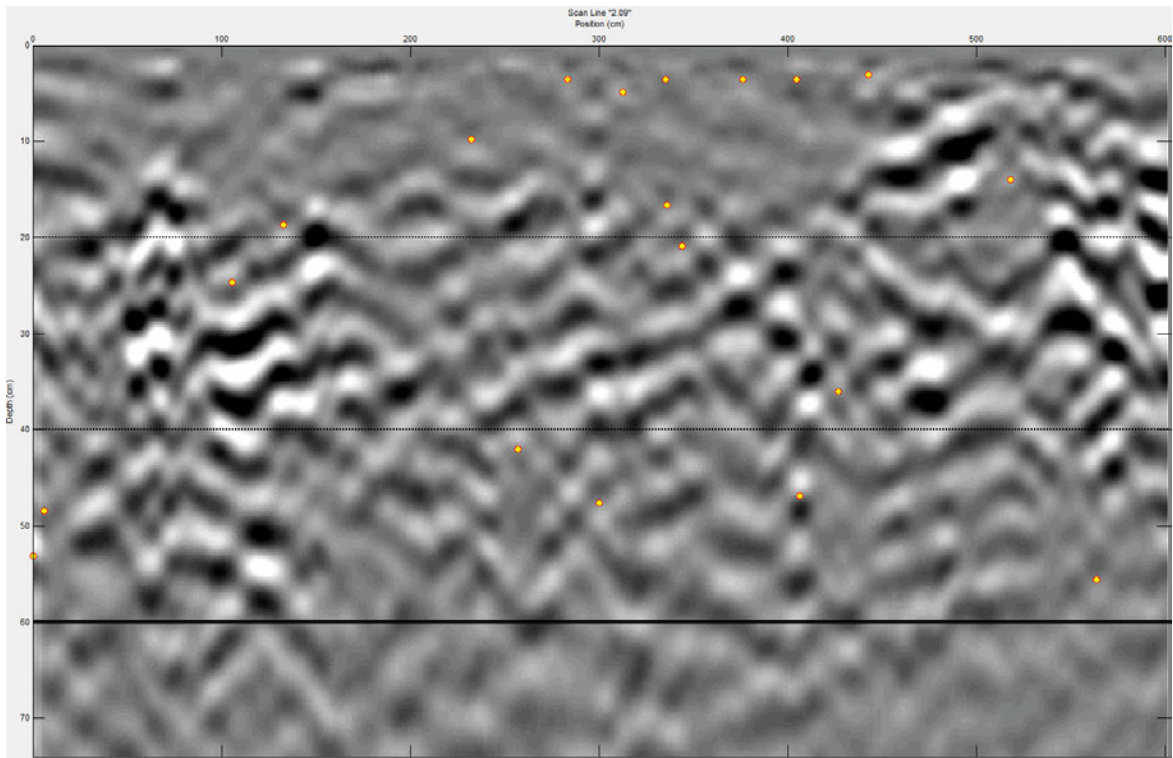
Measurement 2.6 – 9.4 m in length, 5.3 m from centre of tree OS5 at nearest point



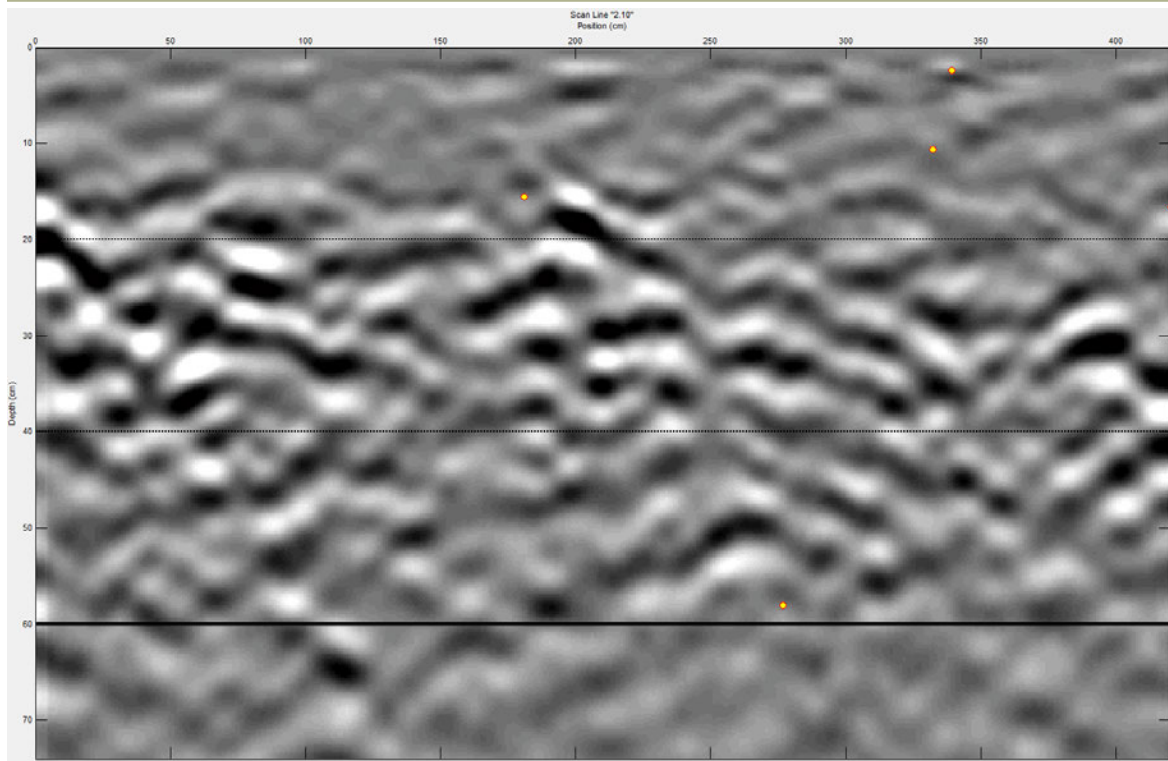
Measurement 2.7 – 6.0 m in length, 4.7 m from centre of tree OS5 at nearest point



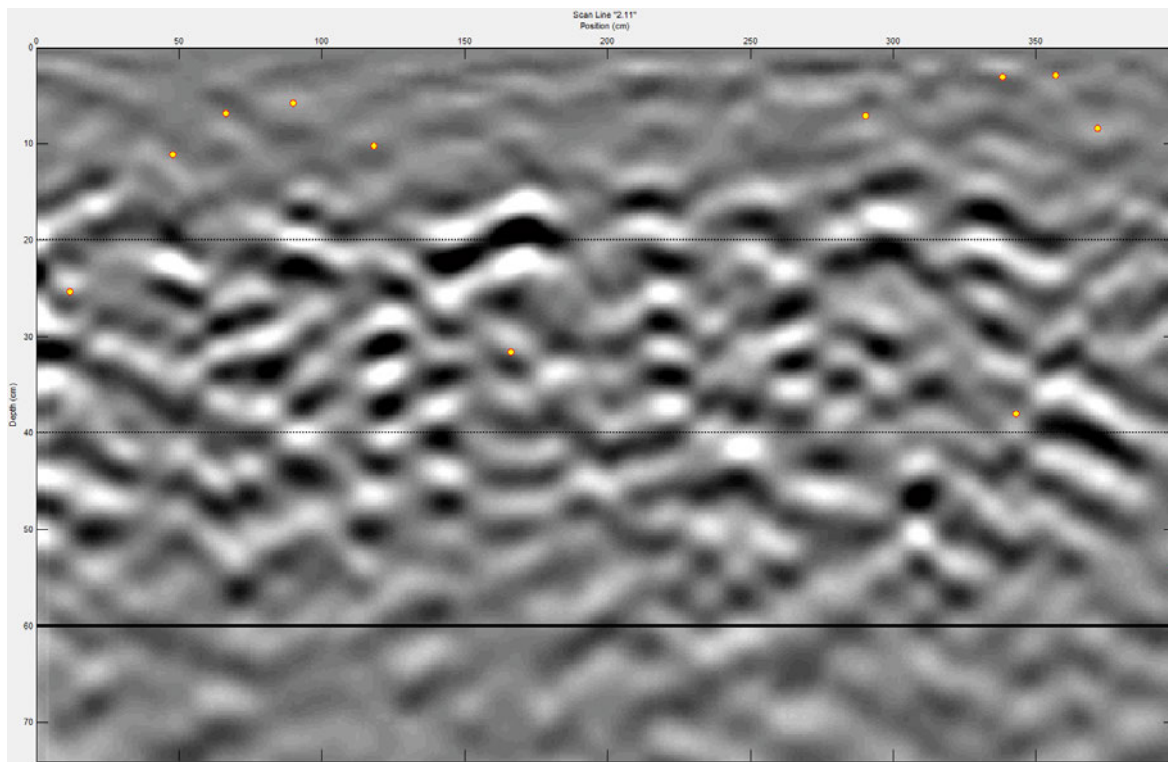
Measurement 2.8 – 6.0 m in length, 4.1 m from centre of tree OS5 at nearest point



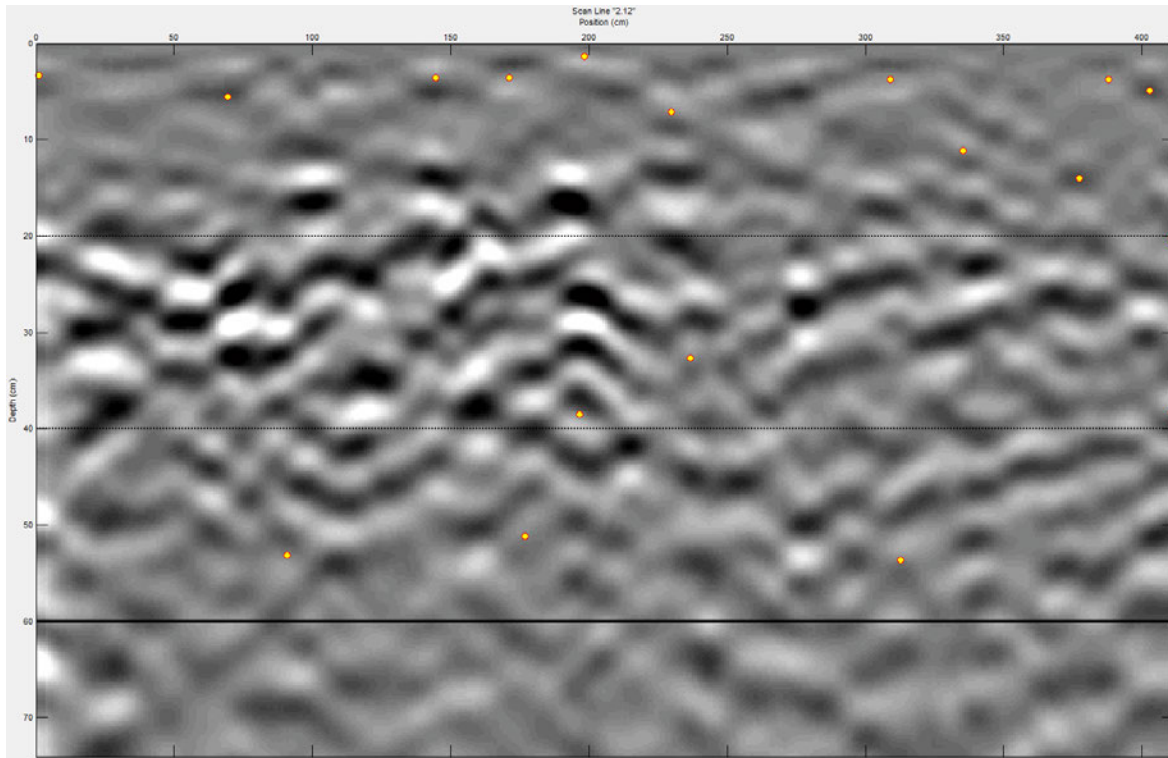
Measurement 2.9 – 6.0 m in length, 3.5 m from centre of tree OS5 at nearest point



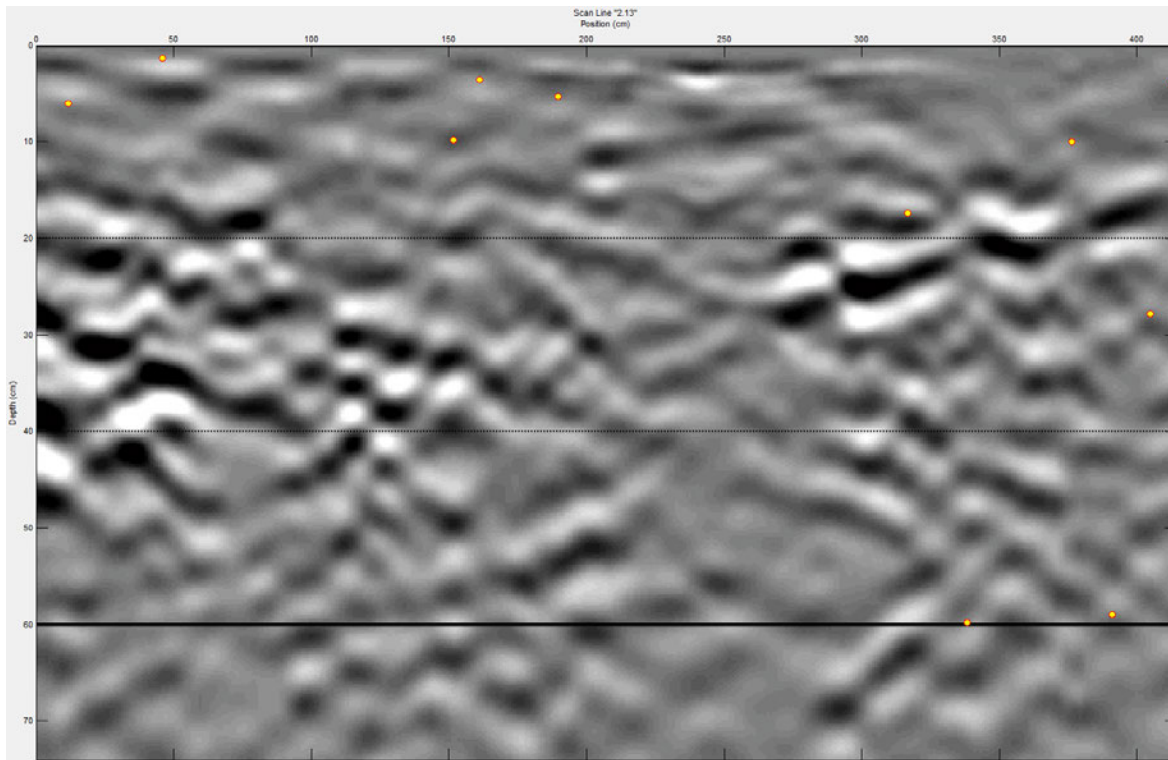
Measurement 2.10 - 4.2 m in length, 2.9 m from centre of tree OS5 at nearest point



Measurement 2.11 - 4.0 m in length, 2.3 m from centre of tree OS5 at nearest point

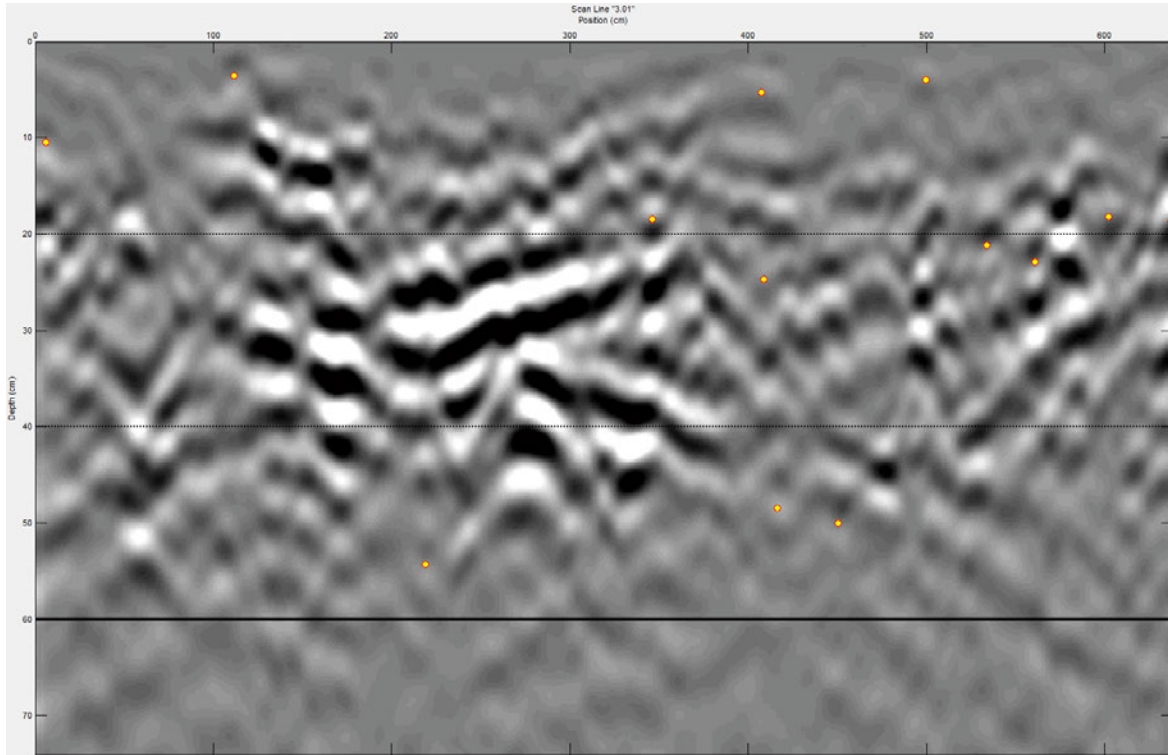


Measurement 2.12 - 4.1 m in length, 1.7 m from centre of tree OS5 at nearest point

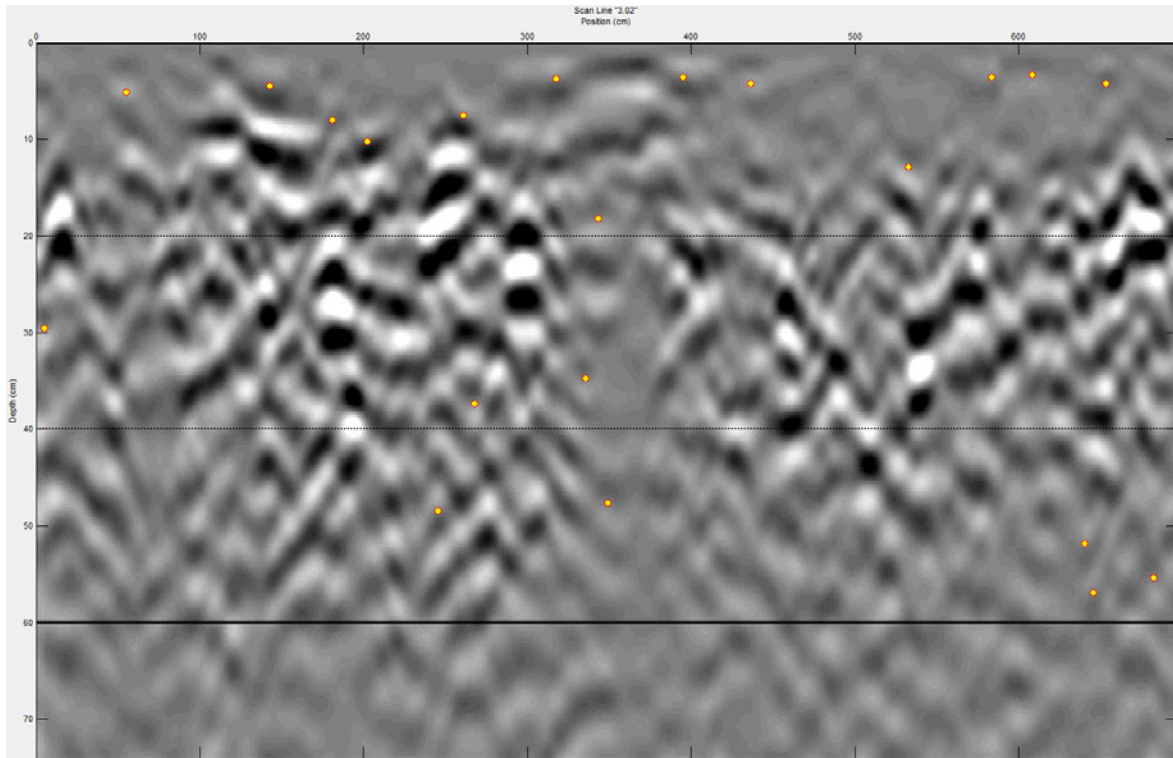


Measurement 2.13 - 4.1 m in length, 1.1 m from centre of tree OS5 at nearest point

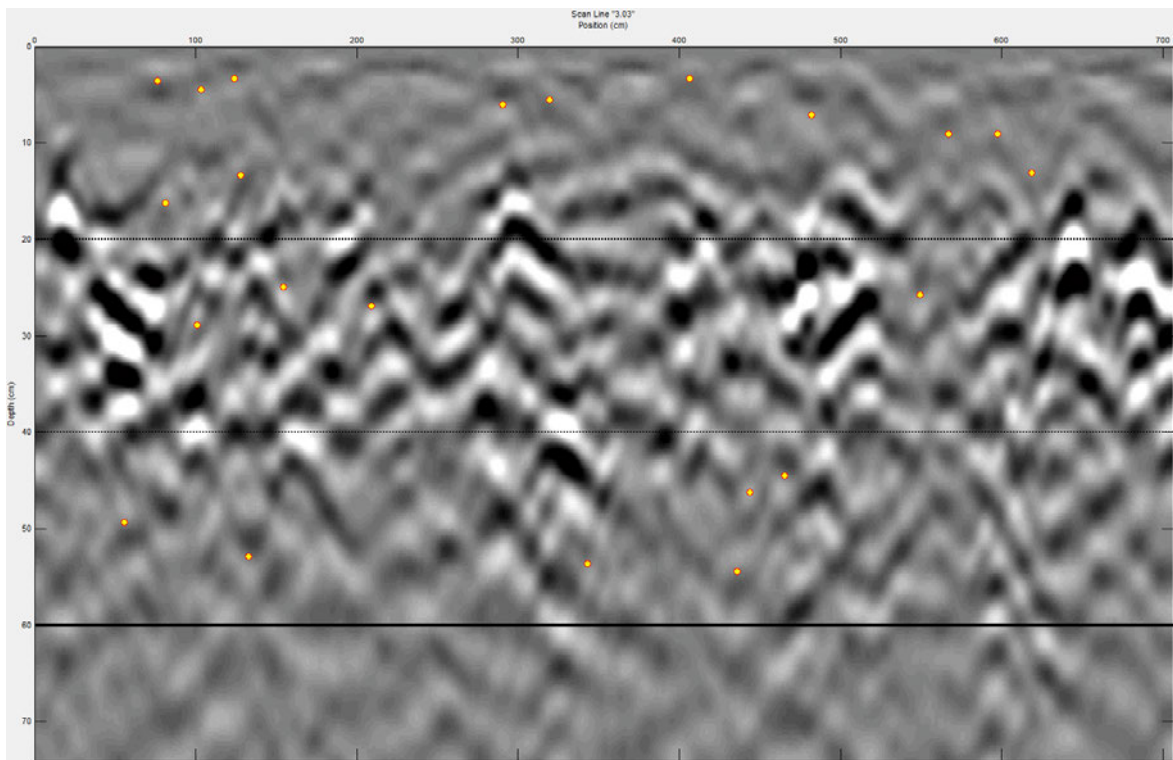
C. Soil Profile Cross Sectional Scans - Group 3



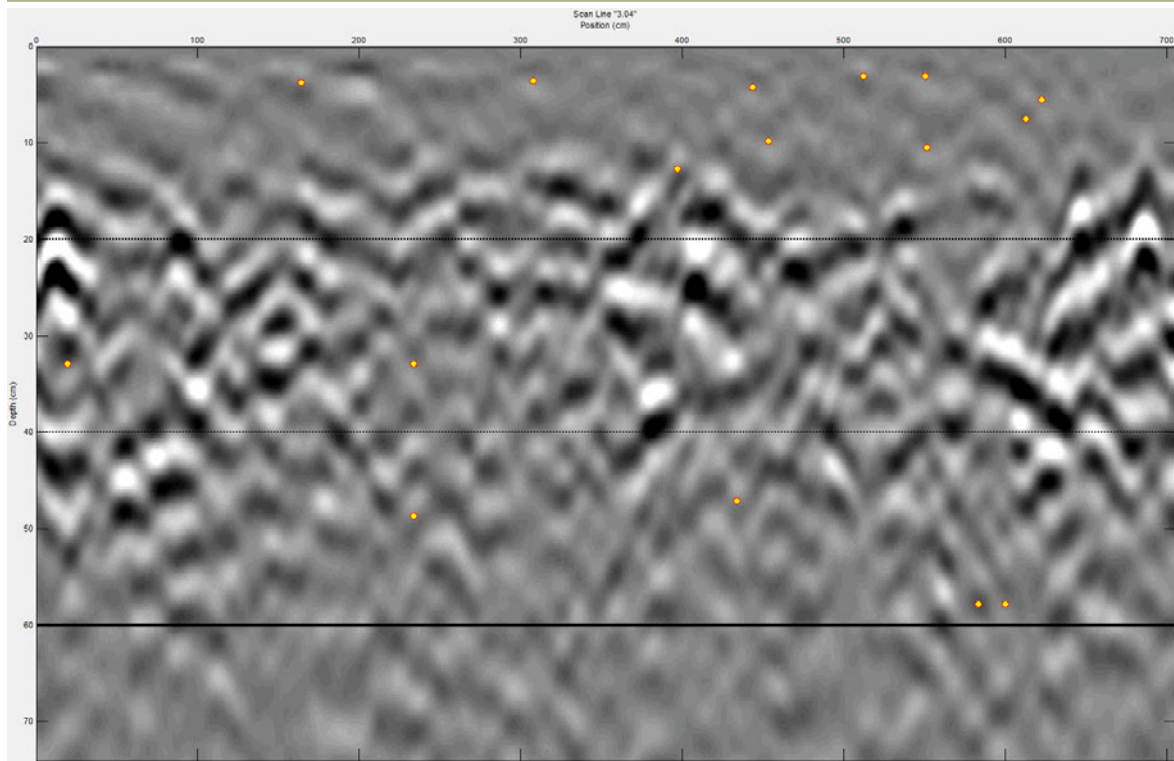
Measurement 3.1 – 9.5 m in length, 12.1 m from centre of tree OS6 at nearest point



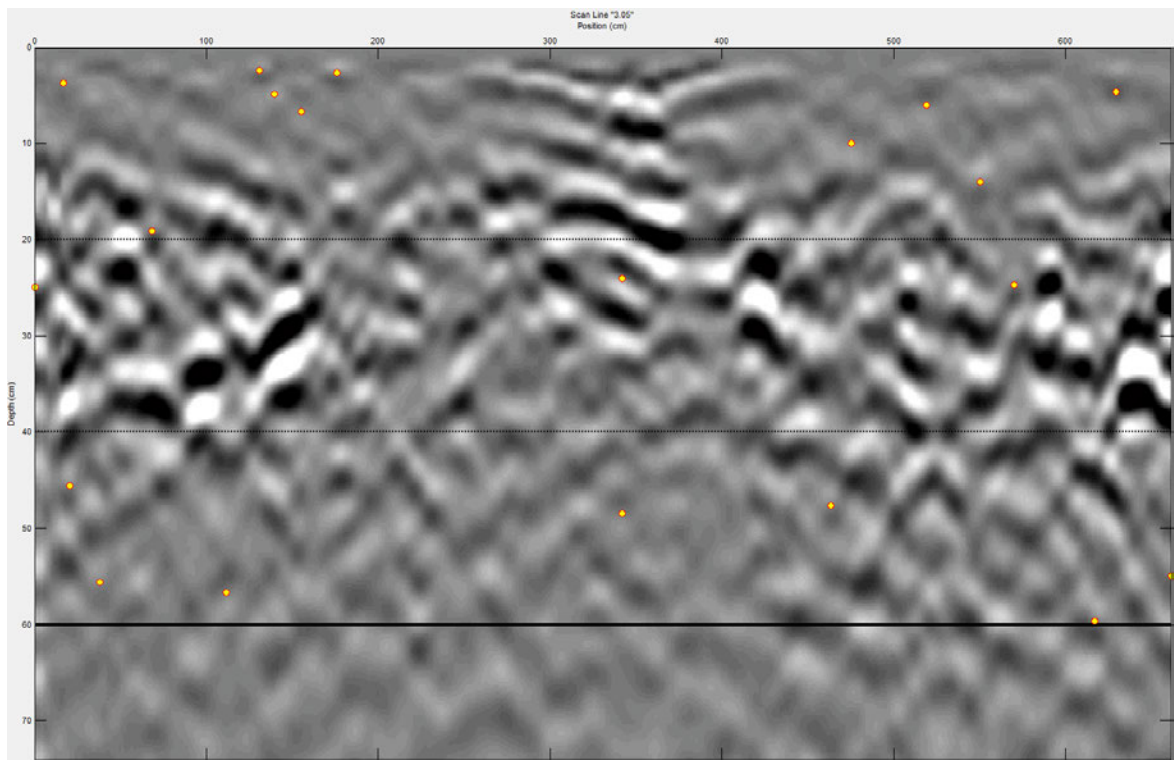
Measurement 3.2 – 9.5 m in length, 11.5 m from centre of tree OS6 at nearest point



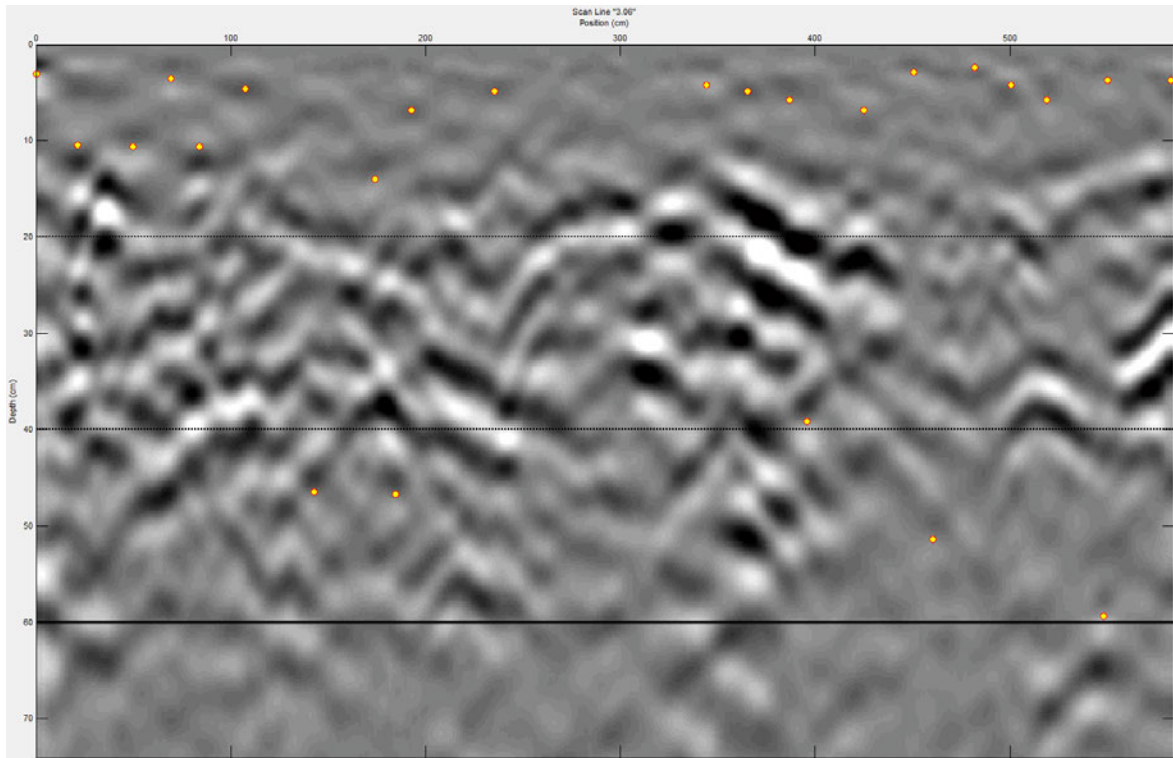
Measurement 3.3 – 9.5 m in length, 10.9 m from centre of tree OS6 at nearest point



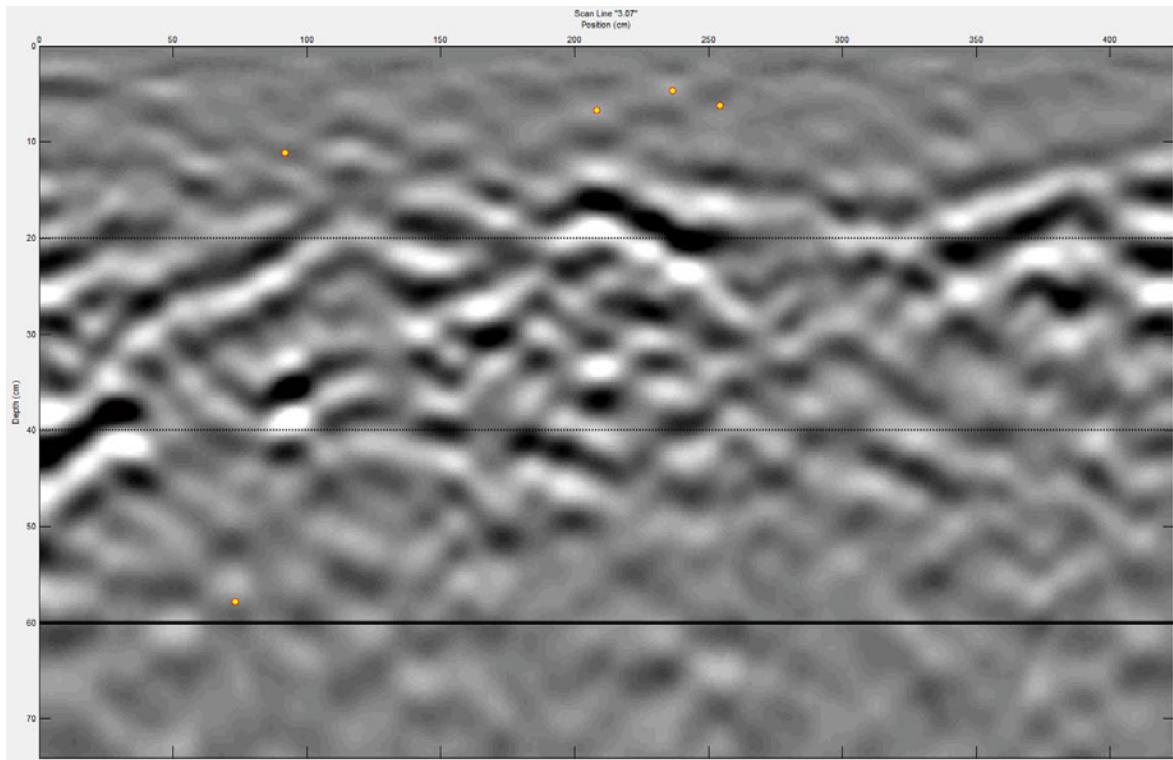
Measurement 3.4 - 9.5 m in length, 10.3 m from centre of tree OS6 at nearest point



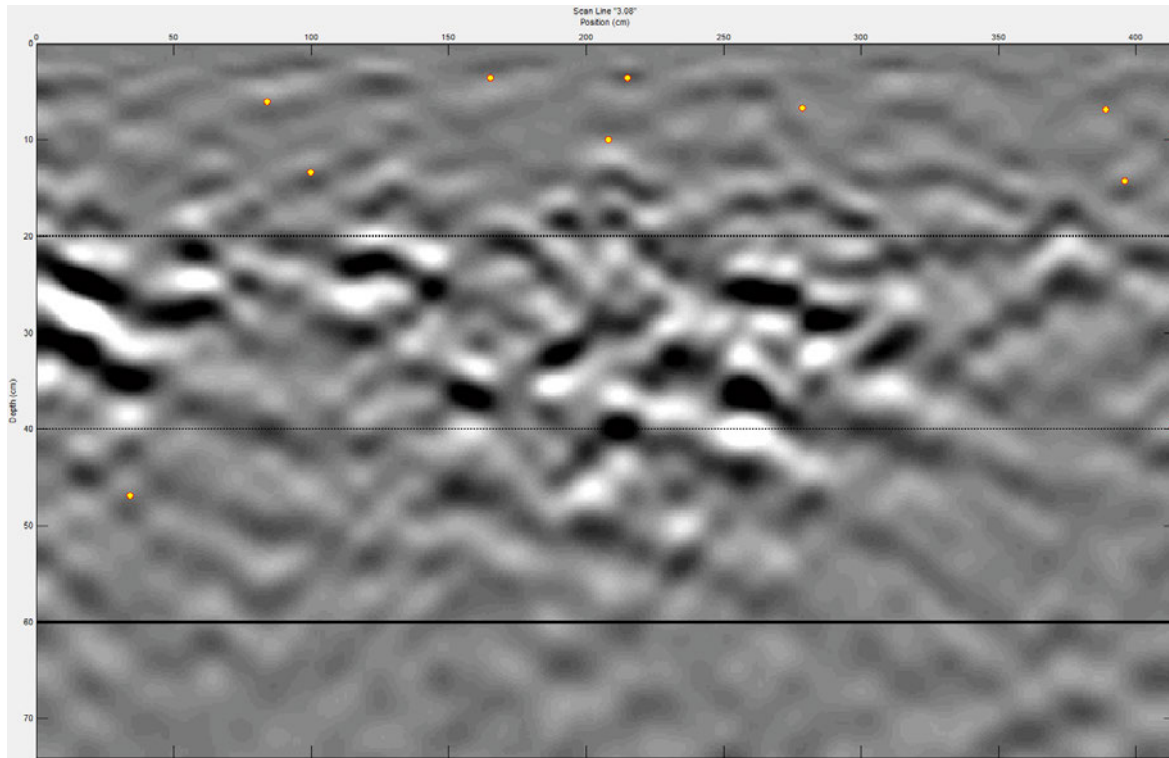
Measurement 3.5 - 9.5 m in length, 9.7 m from centre of tree OS6 at nearest point



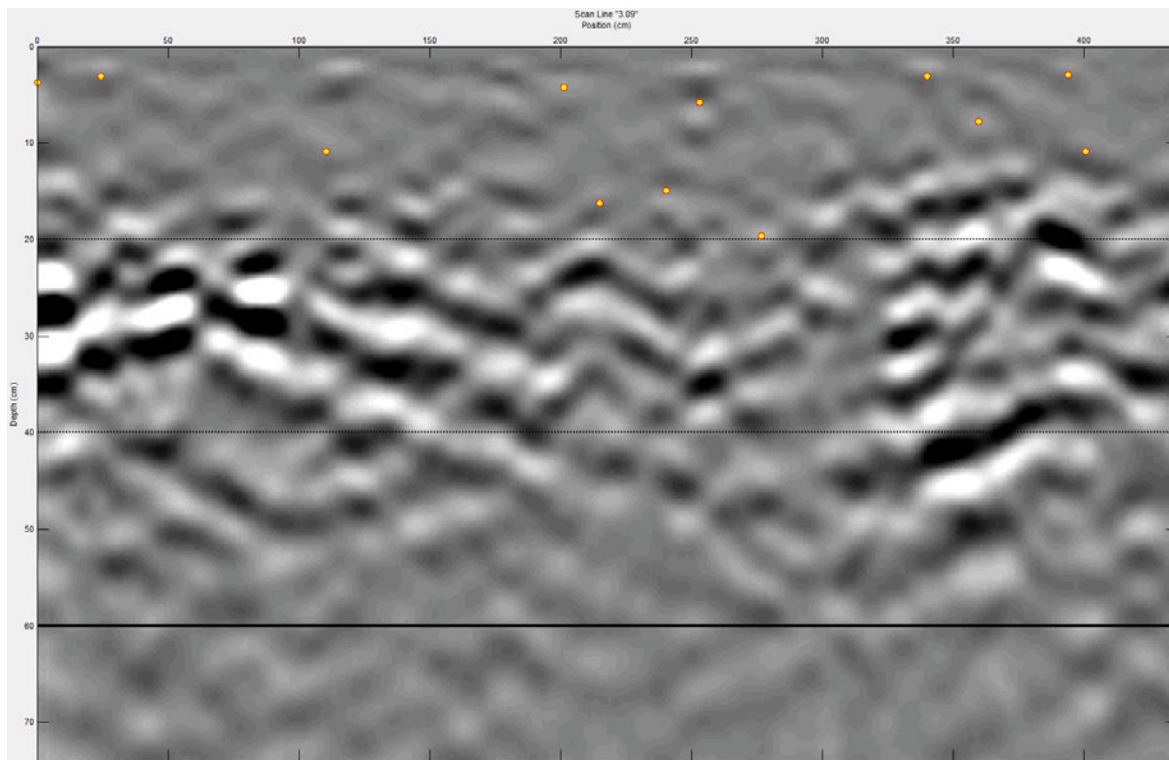
Measurement 3.6 – 9.5 m in length, 9.1 m from centre of tree OS6 at nearest point



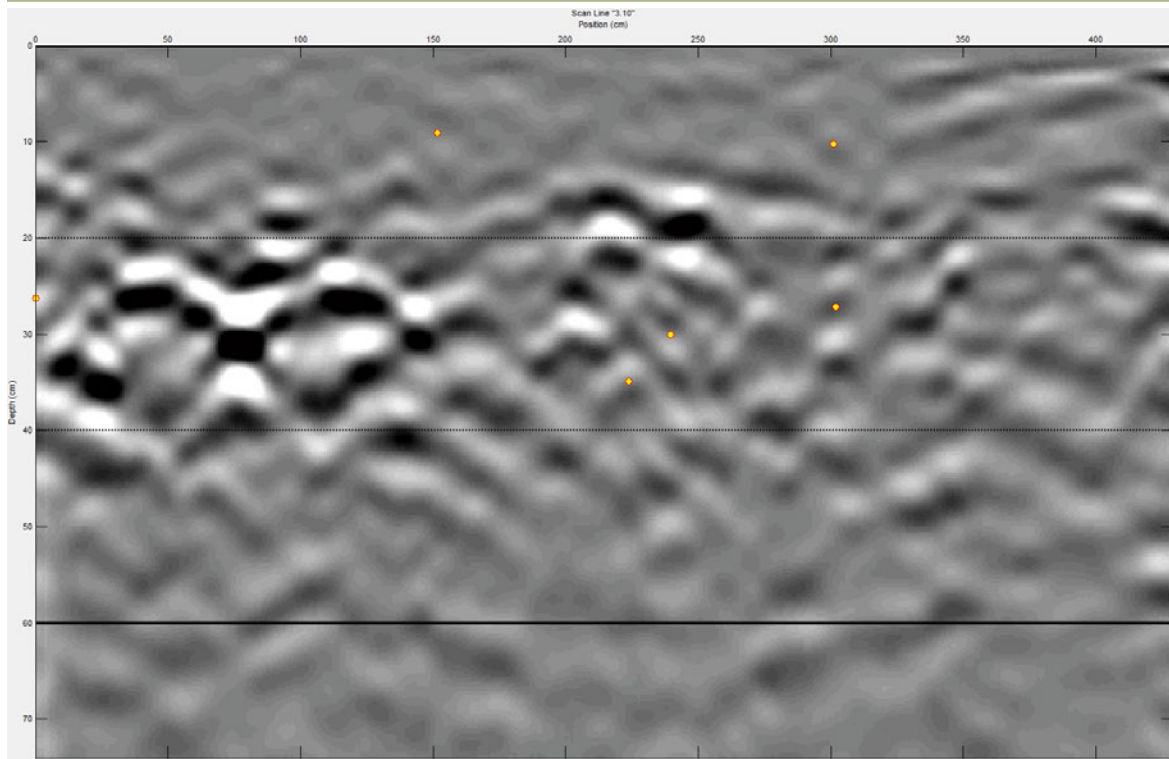
Measurement 3.7 – 9.5 m in length, 8.5 m from centre of tree OS6 at nearest point



Measurement 3.8 - 9.5 m in length, 7.9 m from centre of tree OS6 at nearest point

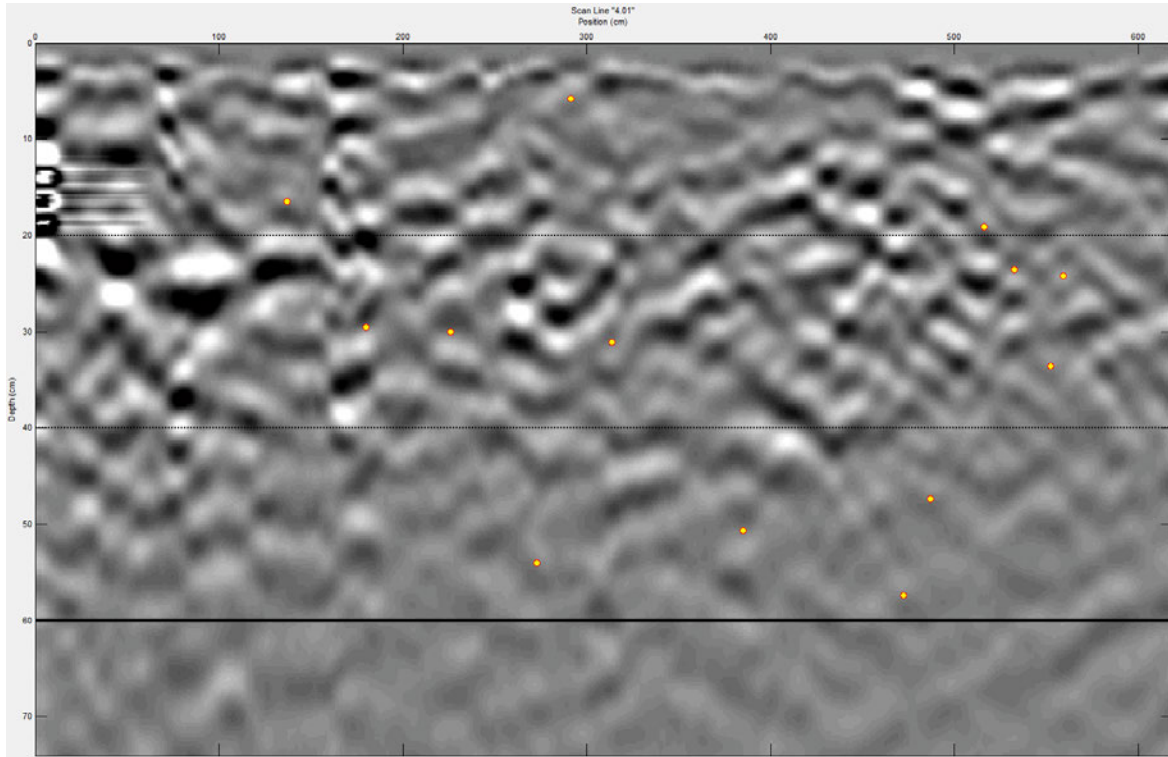


Measurement 3.9 - 9.5 m in length, 6.7 m from centre of tree OS6 at nearest point

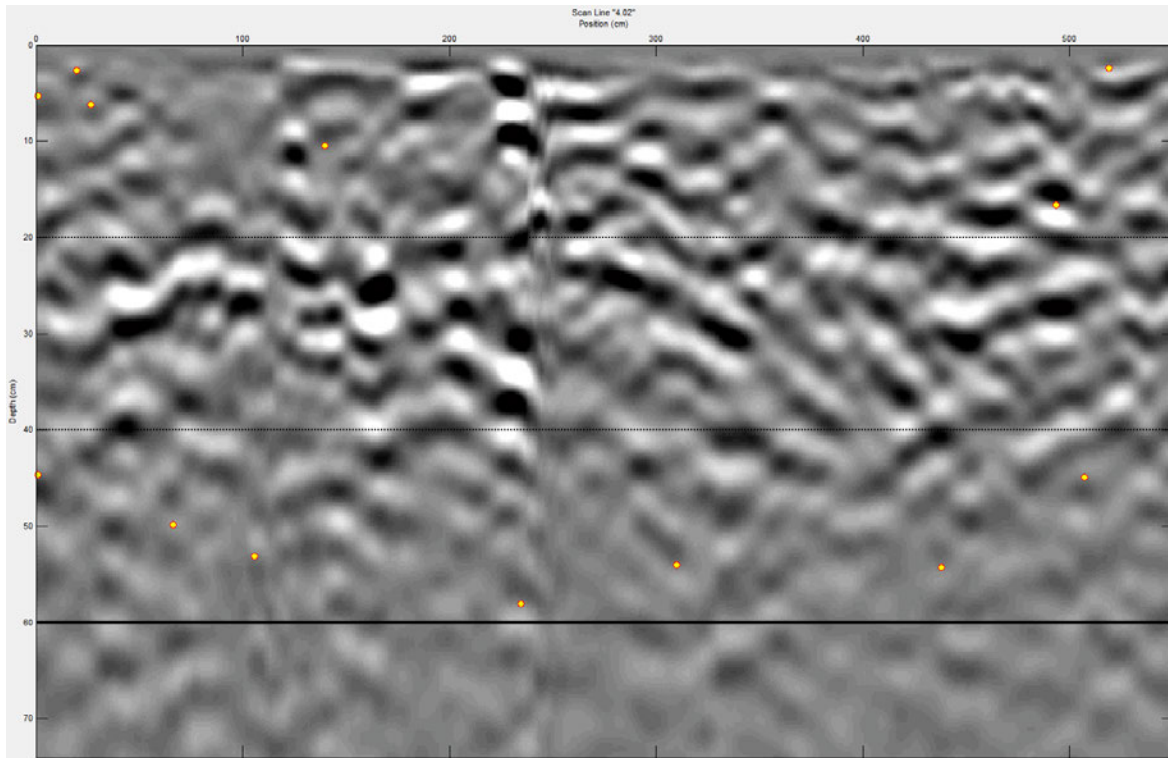


Measurement 3.10 - 9.5 m in length, 6.1 m from centre of tree OS6 at nearest point

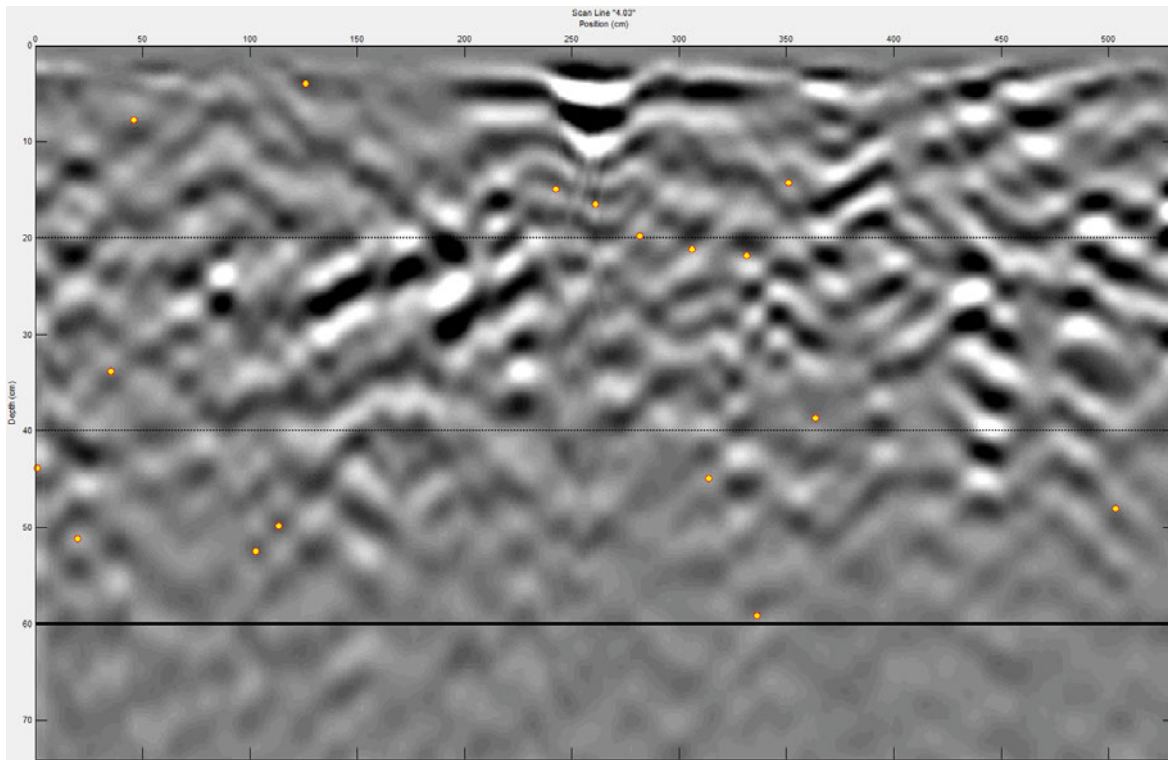
D. Soil Profile Cross Sectional Scans - Group 4



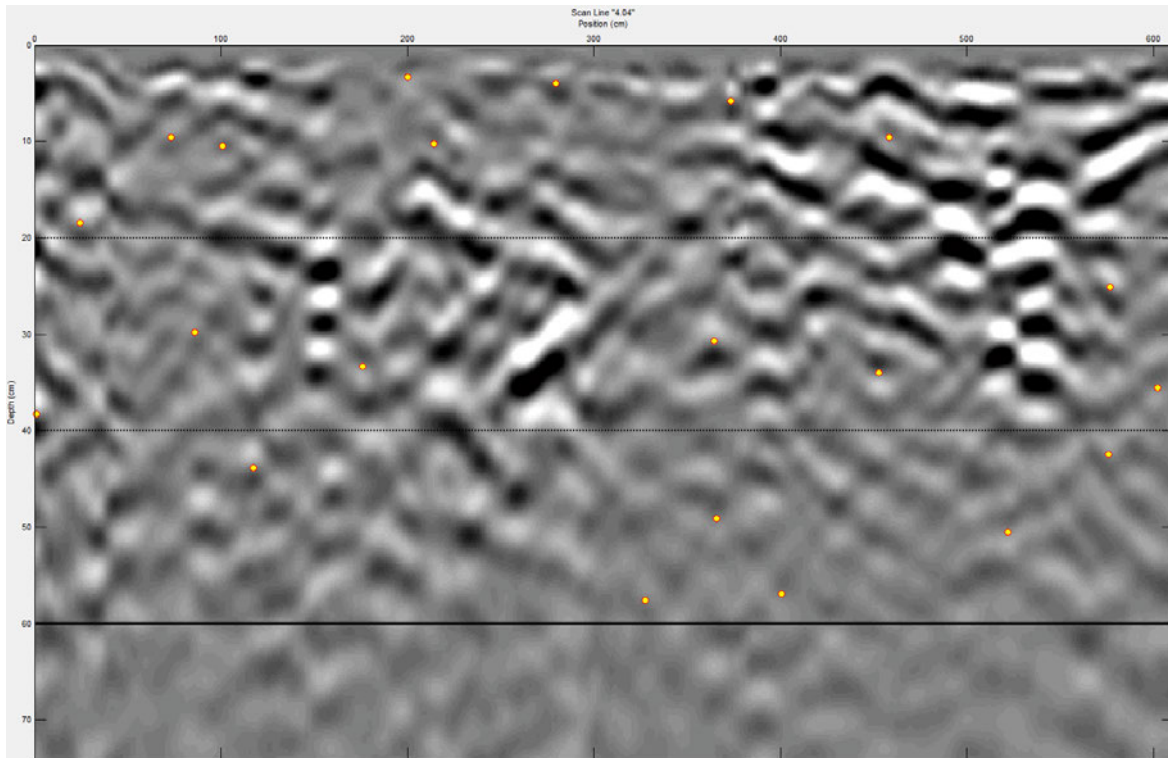
Measurement 4.1 – 6.2 m in length, 7.8 m from centre of tree #376 at nearest point



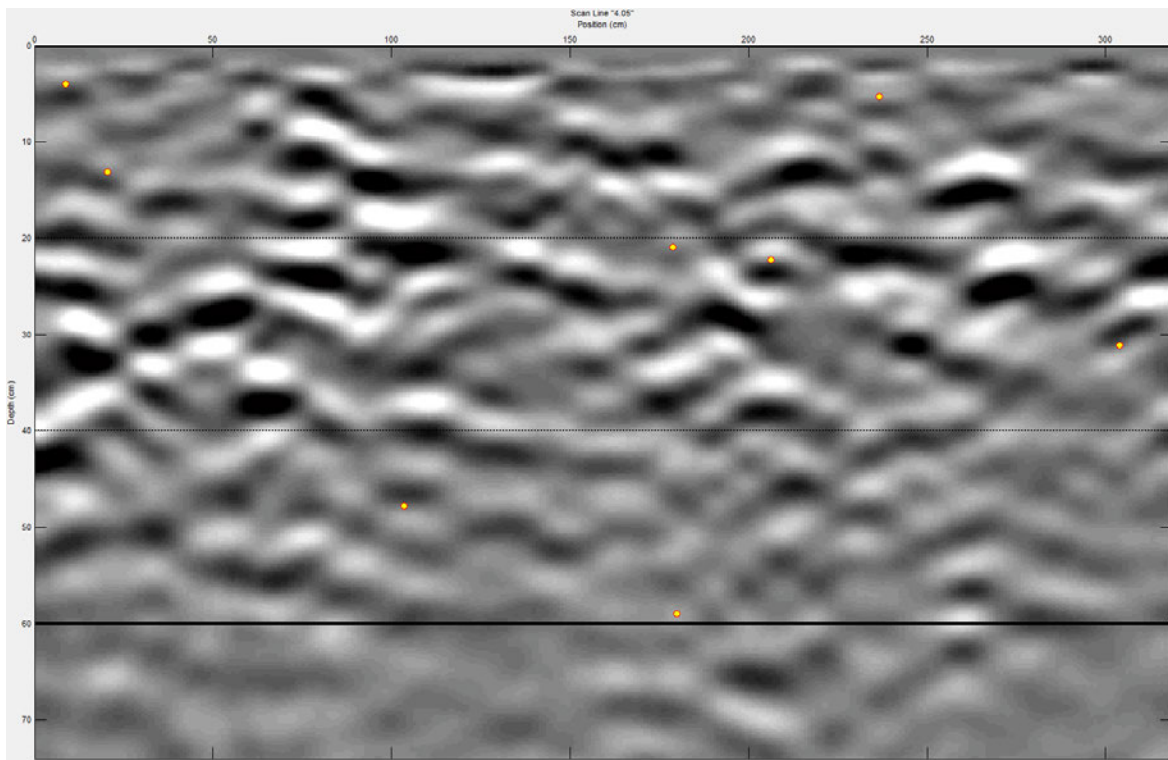
Measurement 4.2 - 5.5 m in length, 7.2 m from centre of tree #376 at nearest point



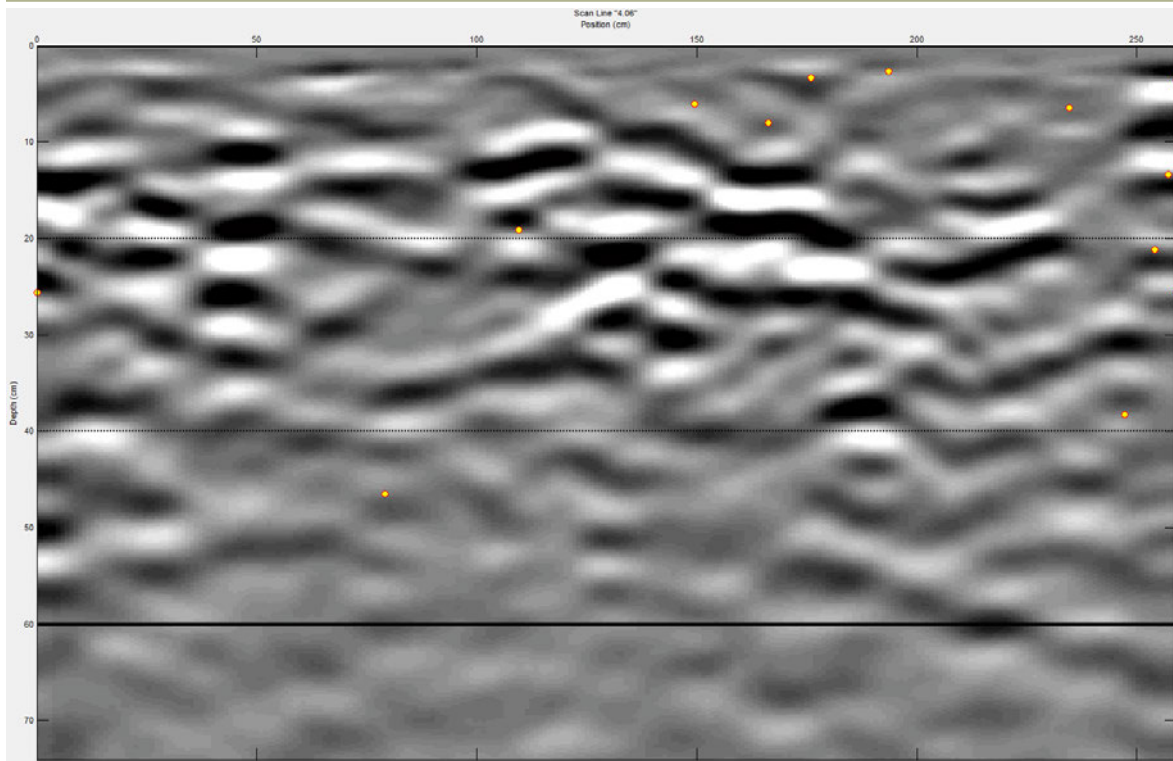
Measurement 4.3 - 5.3 m in length, 6.6 m from centre of tree #376 at nearest point



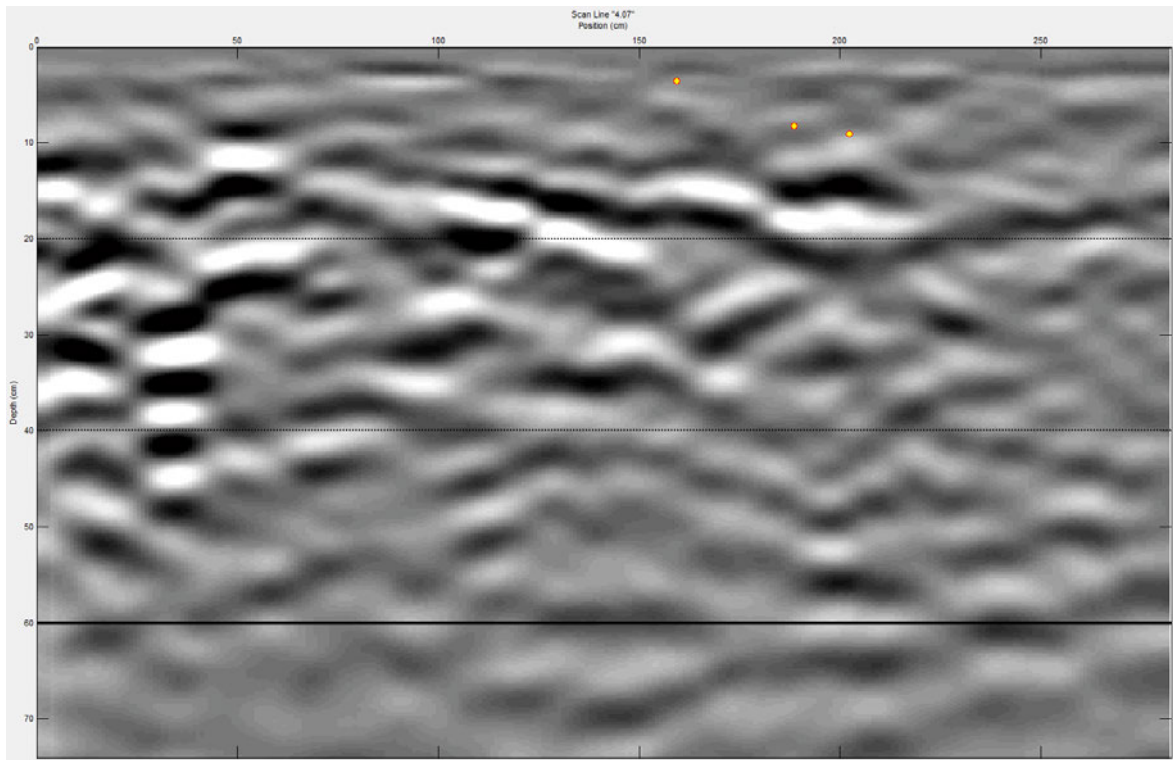
Measurement 4.4 - 6.1 m in length, 6.0 m from centre of tree #376 at nearest point



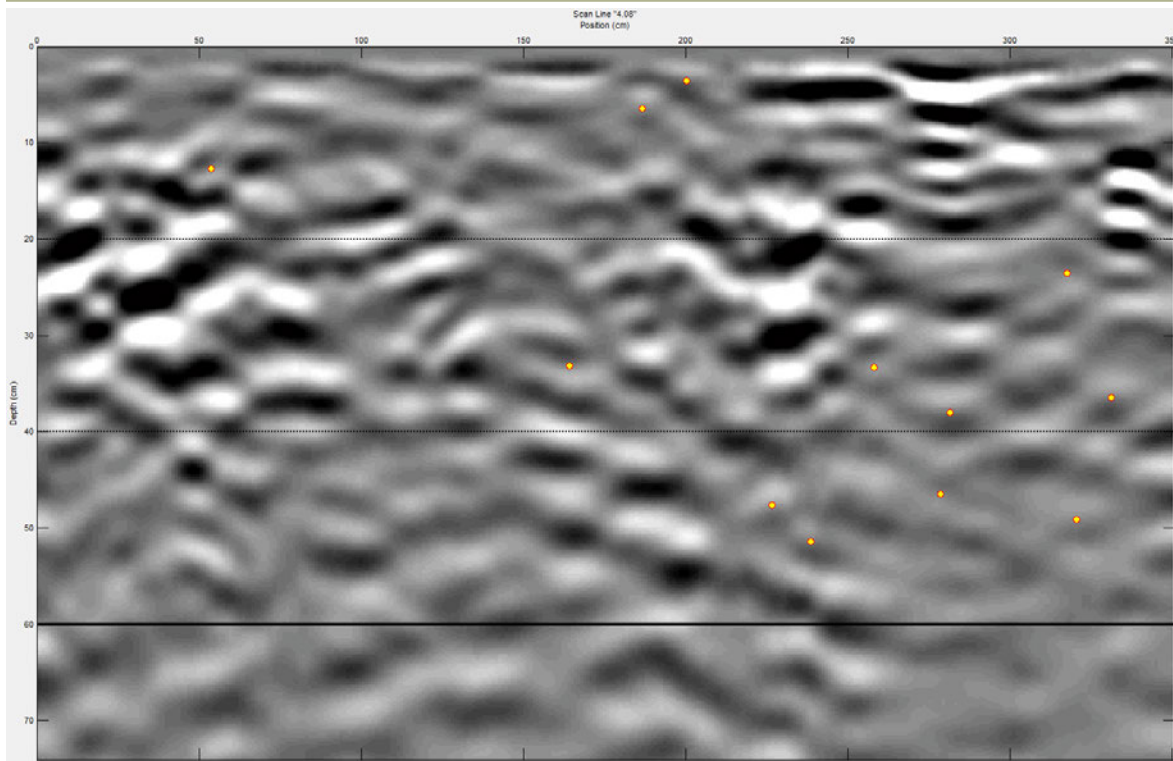
Measurement 4.5 - 3.2 m in length, 5.4 m from centre of tree #376 at nearest point



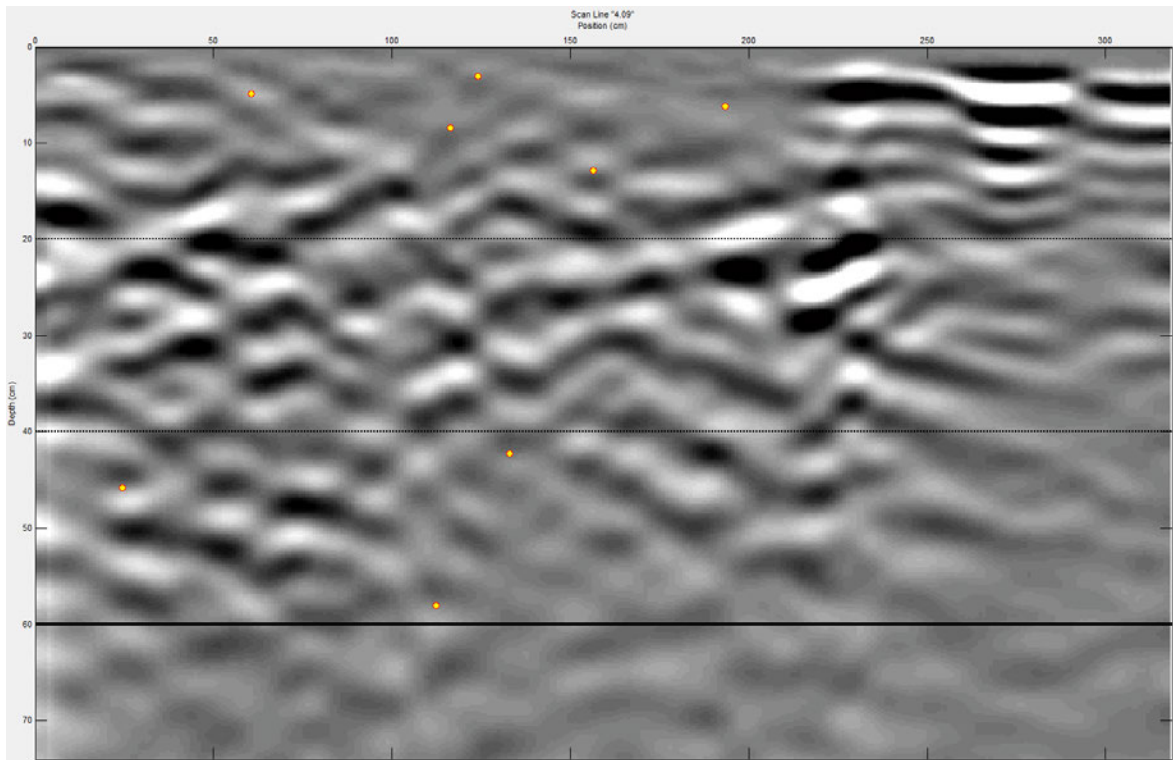
Measurement 4.6 - 2.6 m in length, 4.8 m from centre of tree #376 at nearest point



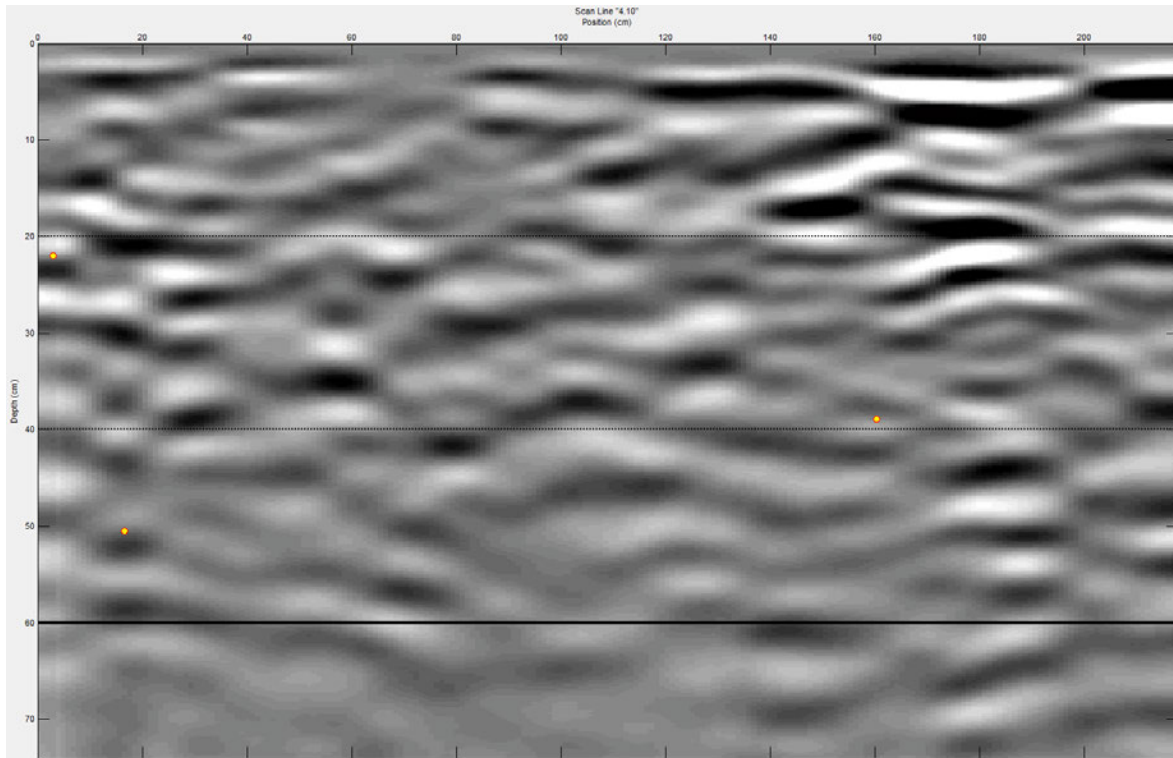
Measurement 4.7 - 2.8 m in length, 4.2 m from centre of tree #376 at nearest point



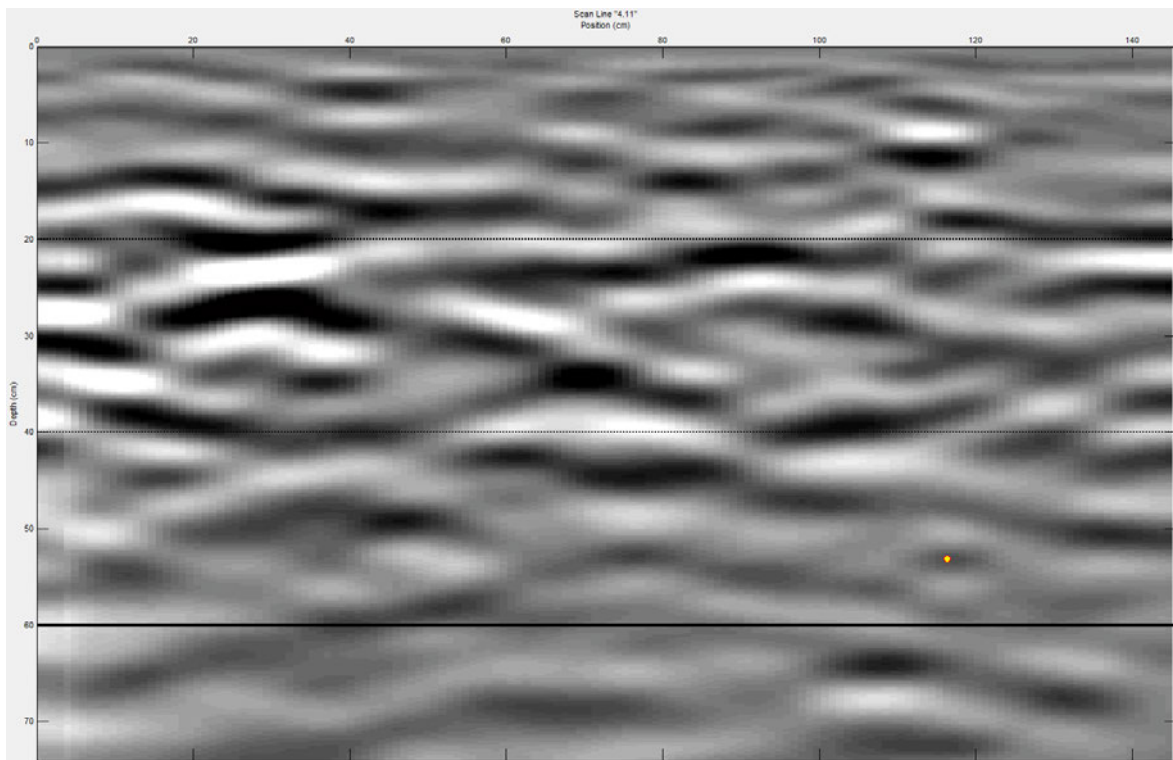
Measurement 4.8 - 3.5 m in length, 3.6 m from centre of tree #376 at nearest point



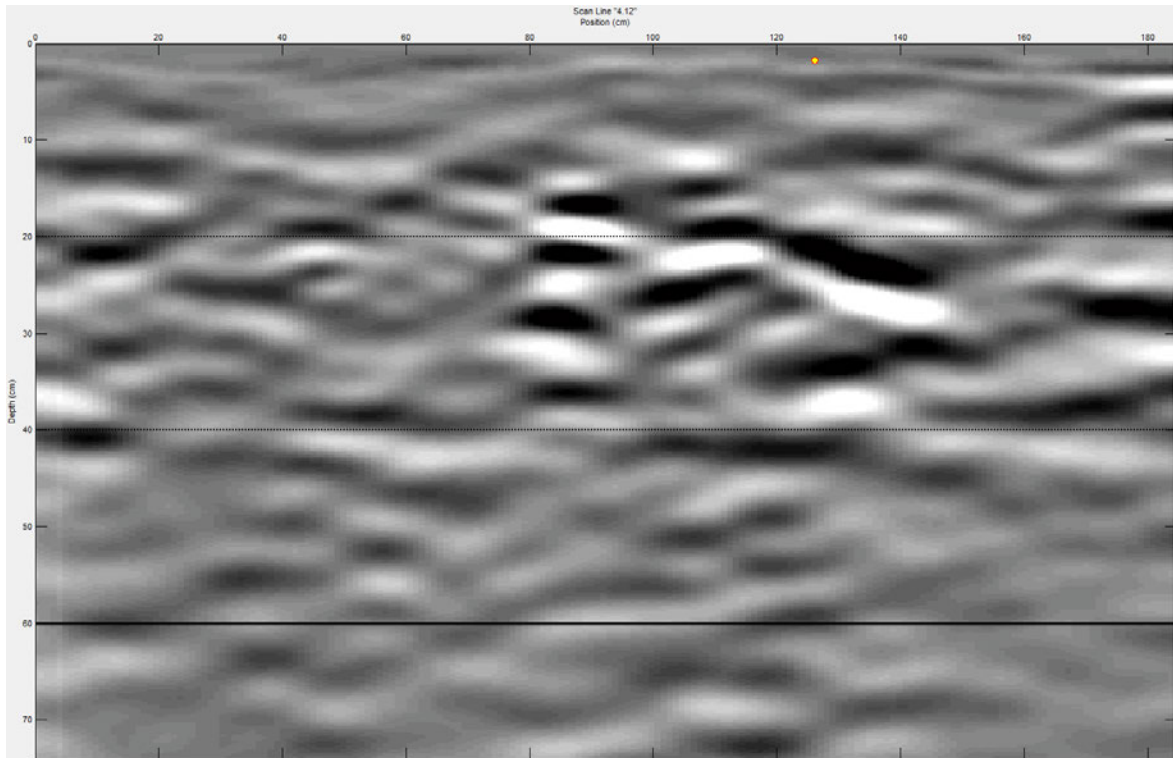
Measurement 4.9 - 3.2 m in length, 3.0 m from centre of tree #376 at nearest point



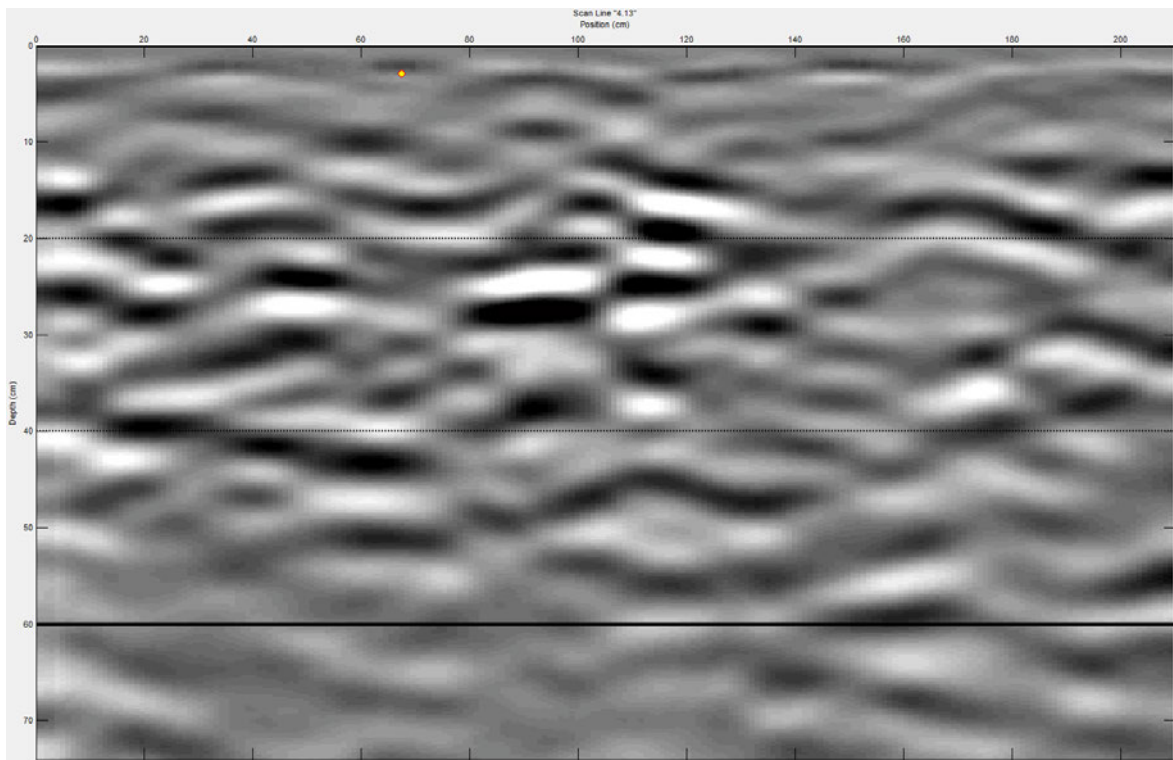
Measurement 4.10 - 2.2 m in length, 2.4 m from centre of tree #376 at nearest point



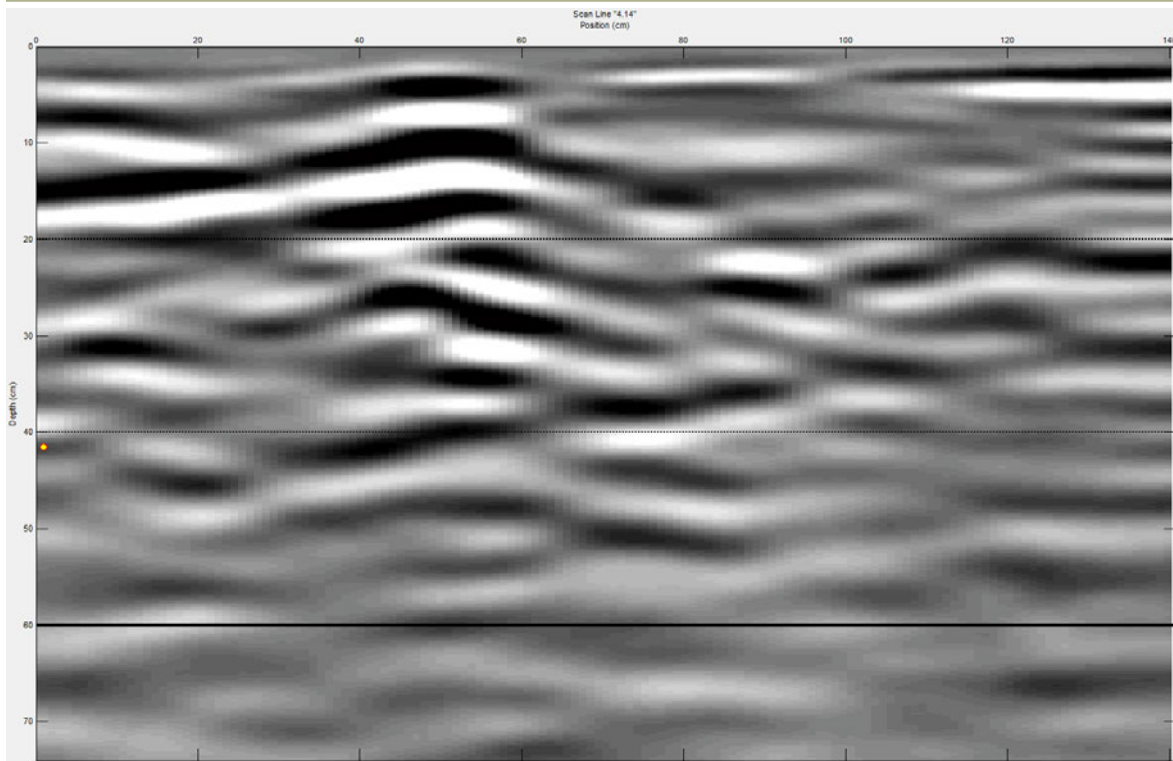
Measurement 4.11 - 1.5 m in length, 0.6 m from centre of tree #376 at nearest point



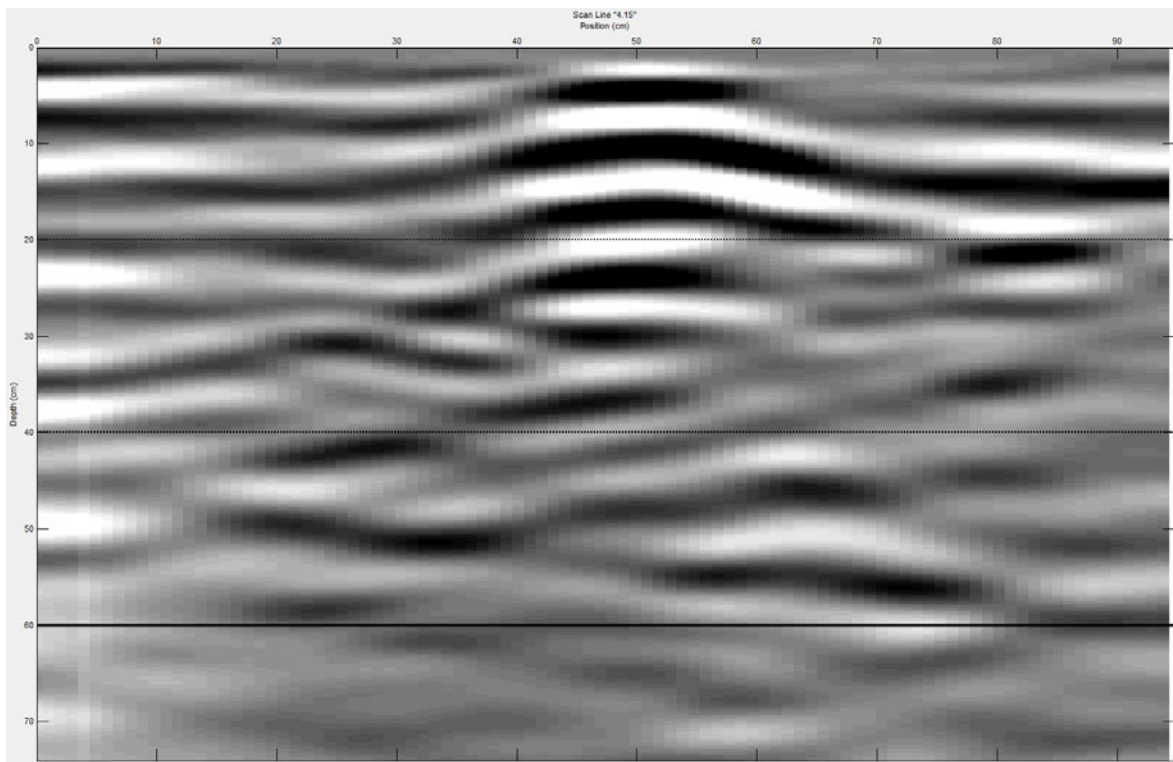
Measurement 4.12 - 1.8 m in length, 0.0 m from centre of tree #376 at nearest point



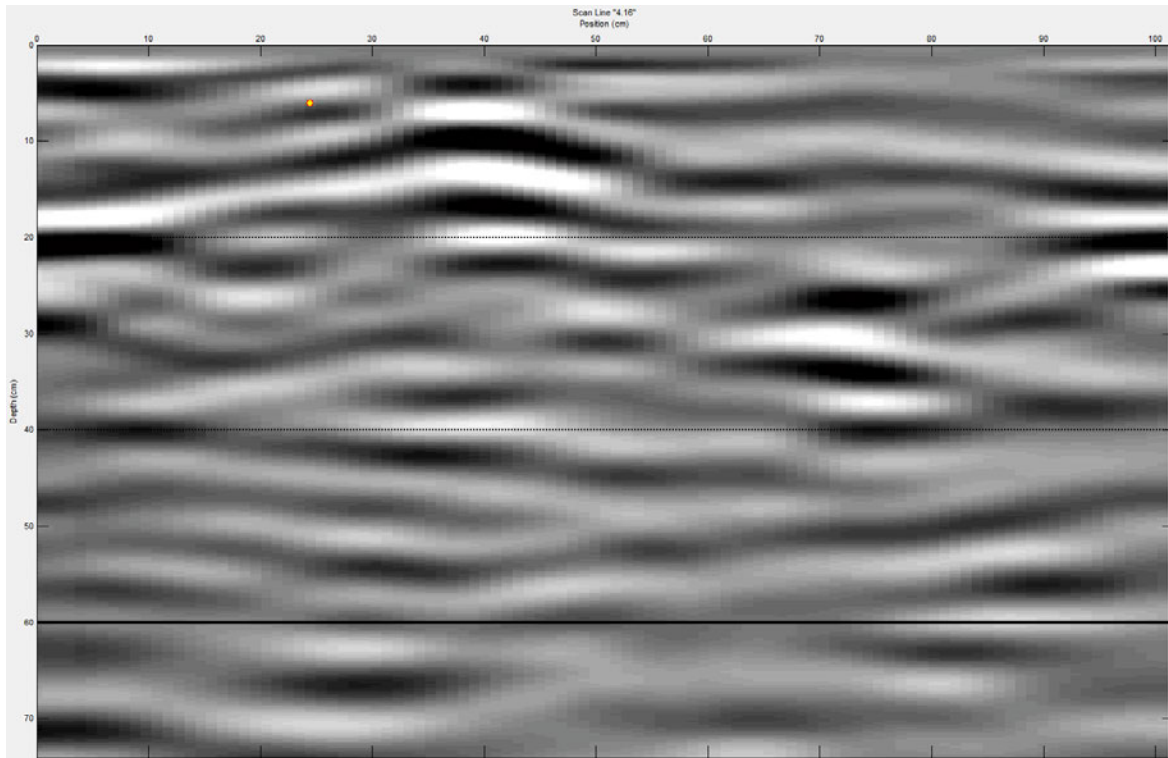
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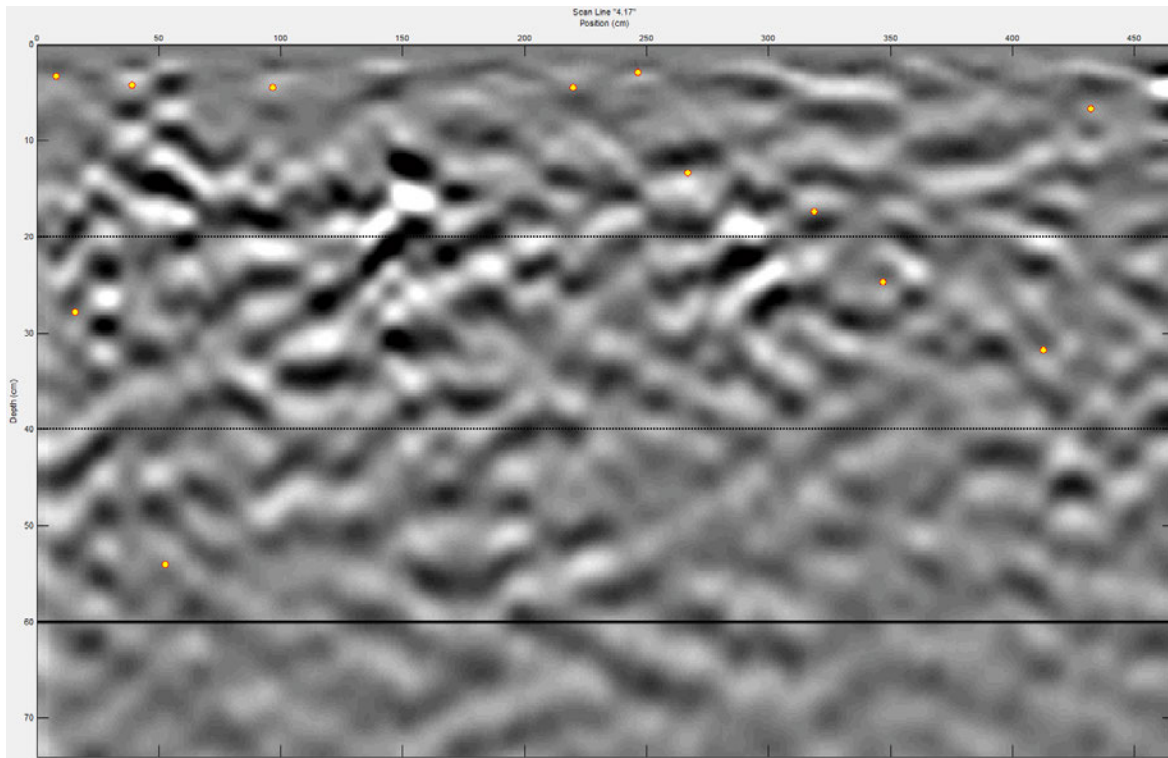
Measurement 4.14 - 1.4 m in length, 1.2 m from centre of tree #376 at nearest point



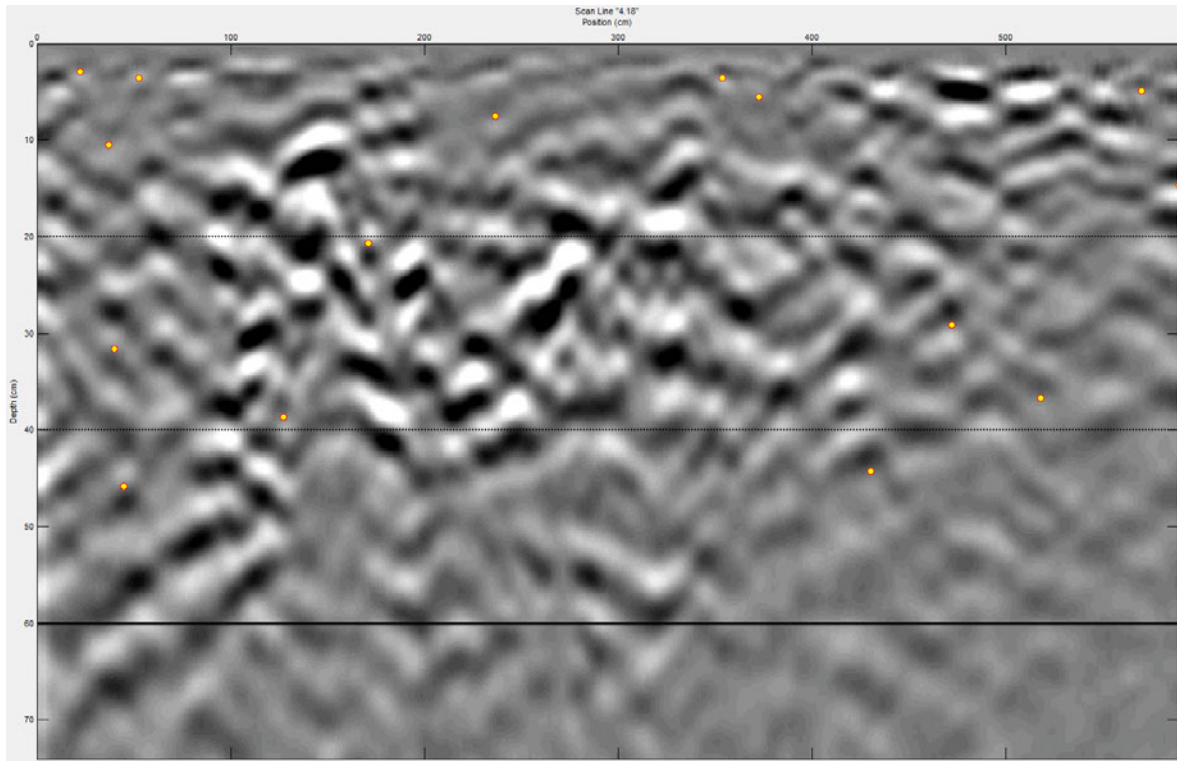
Measurement 4.15 - 0.9 m in length, 1.8 m from centre of tree #376 at nearest point



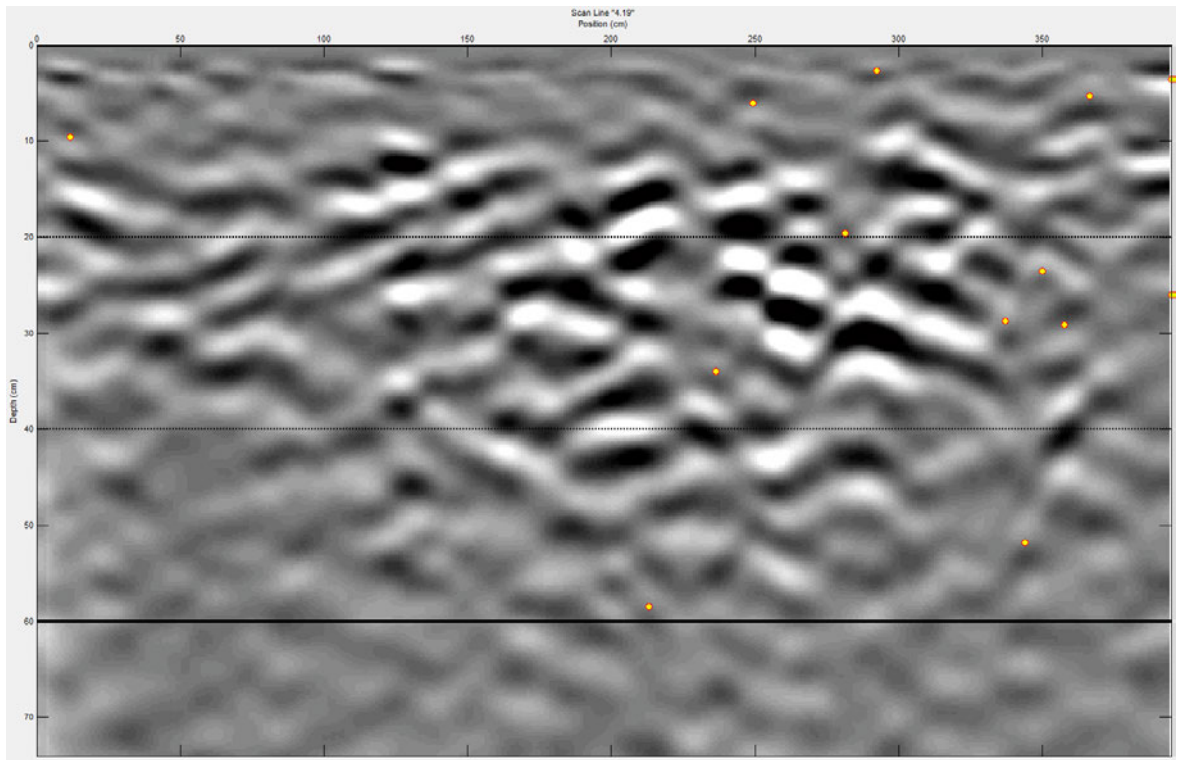
Measurement 4.16 - 1.0 m in length, 2.4 m from centre of tree #376 at nearest point



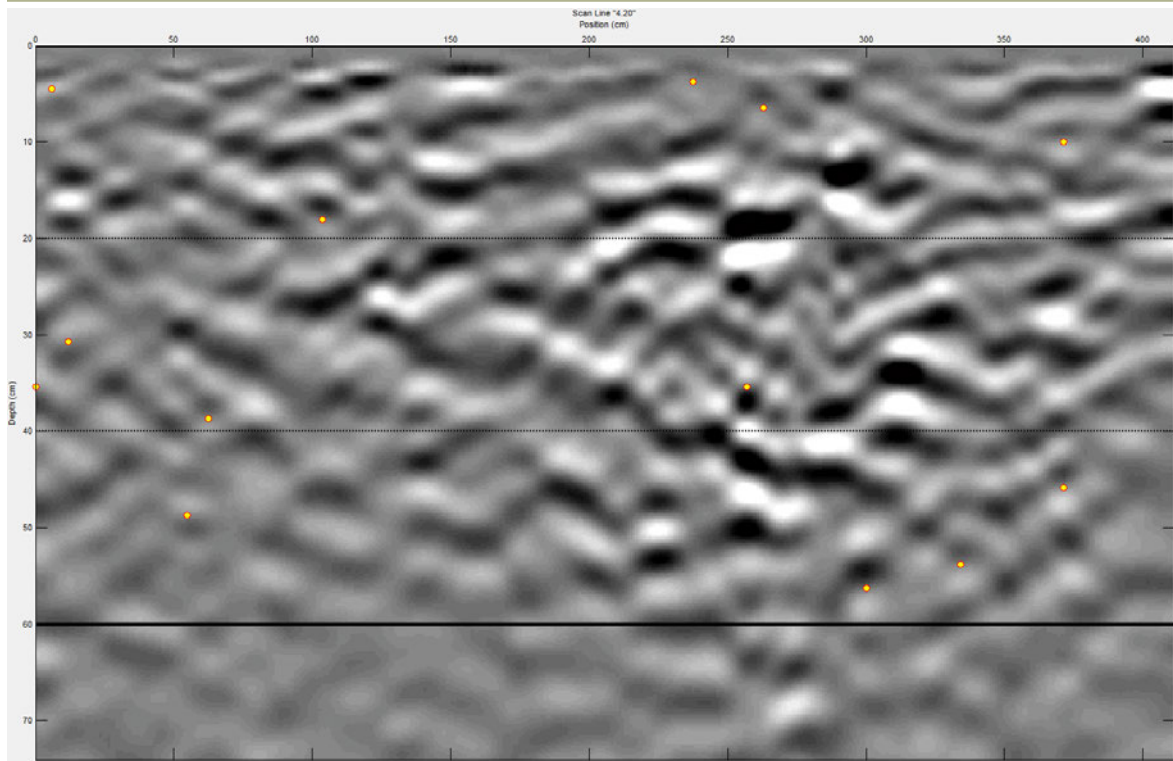
Measurement 4.17 - 4.7 m in length, 3.0 m from centre of tree #376 at nearest point



Measurement 4.18 - 5.9 m in length, 3.6 m from centre of tree #376 at nearest point



Measurement 4.19 - 3.9 m in length, 4.2 m from centre of tree #376 at nearest point



Measurement 4.20 - 4.1 m in length, 4.8 m from centre of tree #376 at nearest point

56

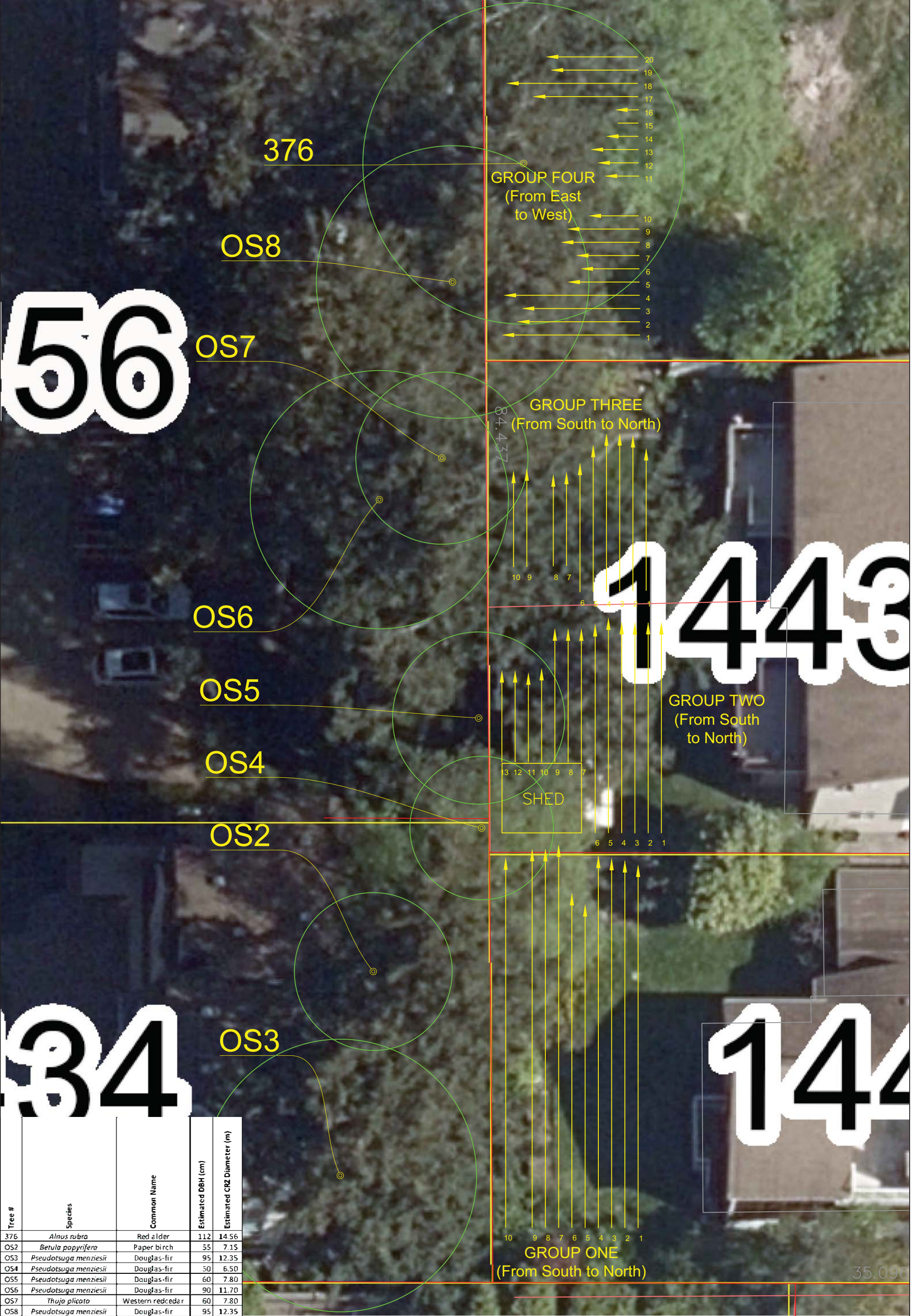
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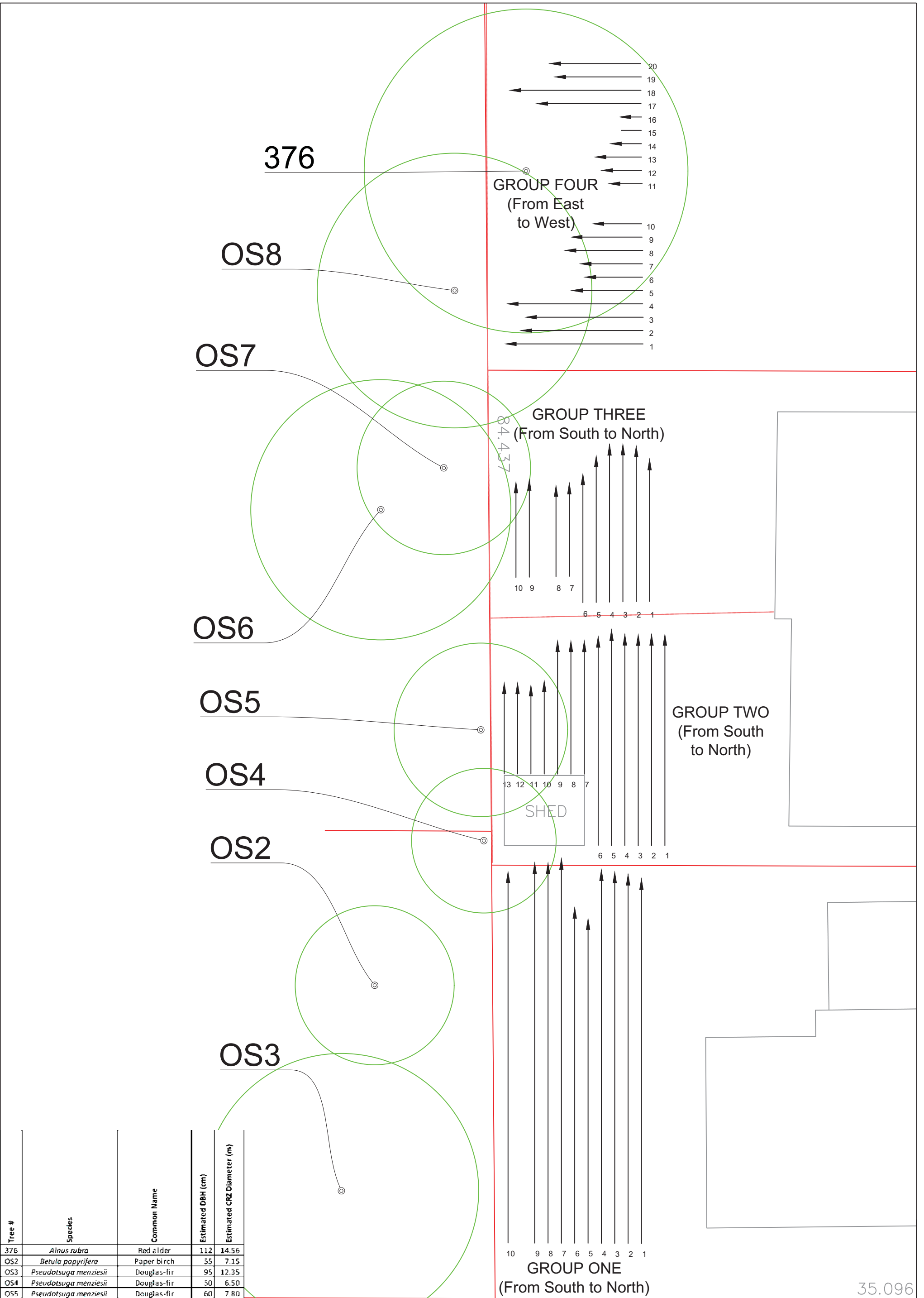
1443

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Tree #	Species	Common Name	Estimated DBH (cm)	Estimated CRZ Diameter (m)
376	<i>Alnus rubra</i>	Red alder	112	14.56
OS2	<i>Betula papyrifera</i>	Paper birch	55	7.15
OS3	<i>Pseudotsuga menziesii</i>	Douglas-fir	95	12.35
OS4	<i>Pseudotsuga menziesii</i>	Douglas-fir	50	6.50
OS5	<i>Pseudotsuga menziesii</i>	Douglas-fir	60	7.80
OS6	<i>Pseudotsuga menziesii</i>	Douglas-fir	90	11.70
OS7	<i>Thuja plicata</i>	Western redcedar	60	7.80
OS8	<i>Pseudotsuga menziesii</i>	Douglas-fir	95	12.35

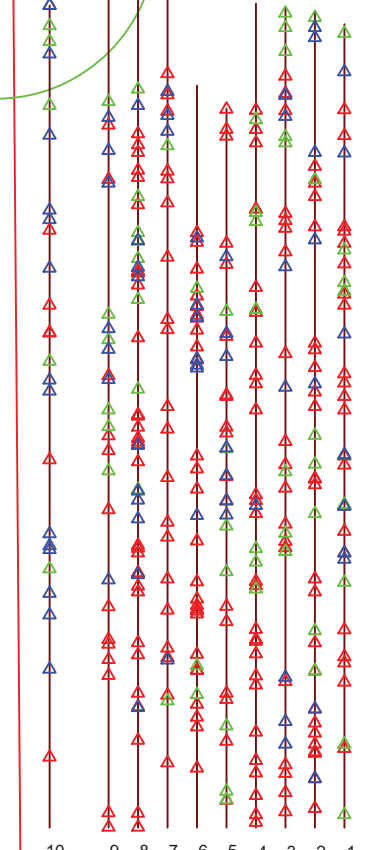
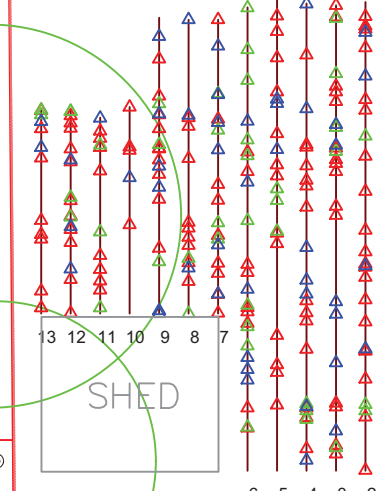
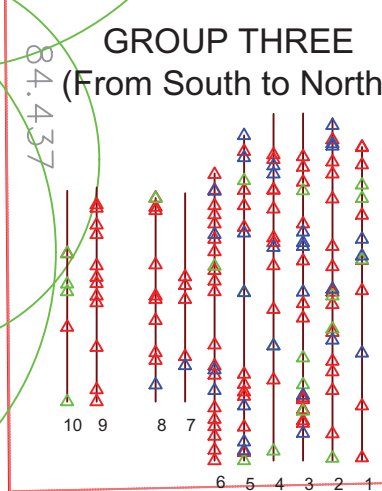
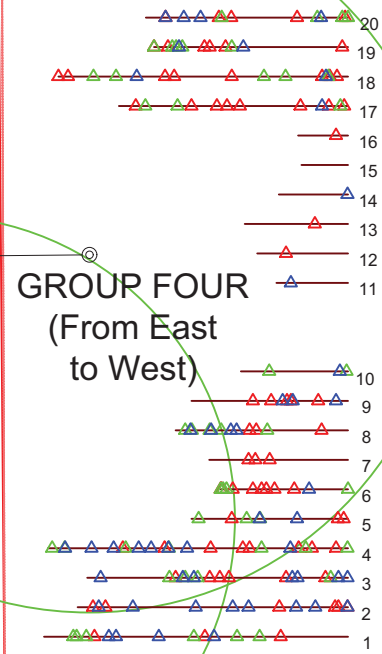
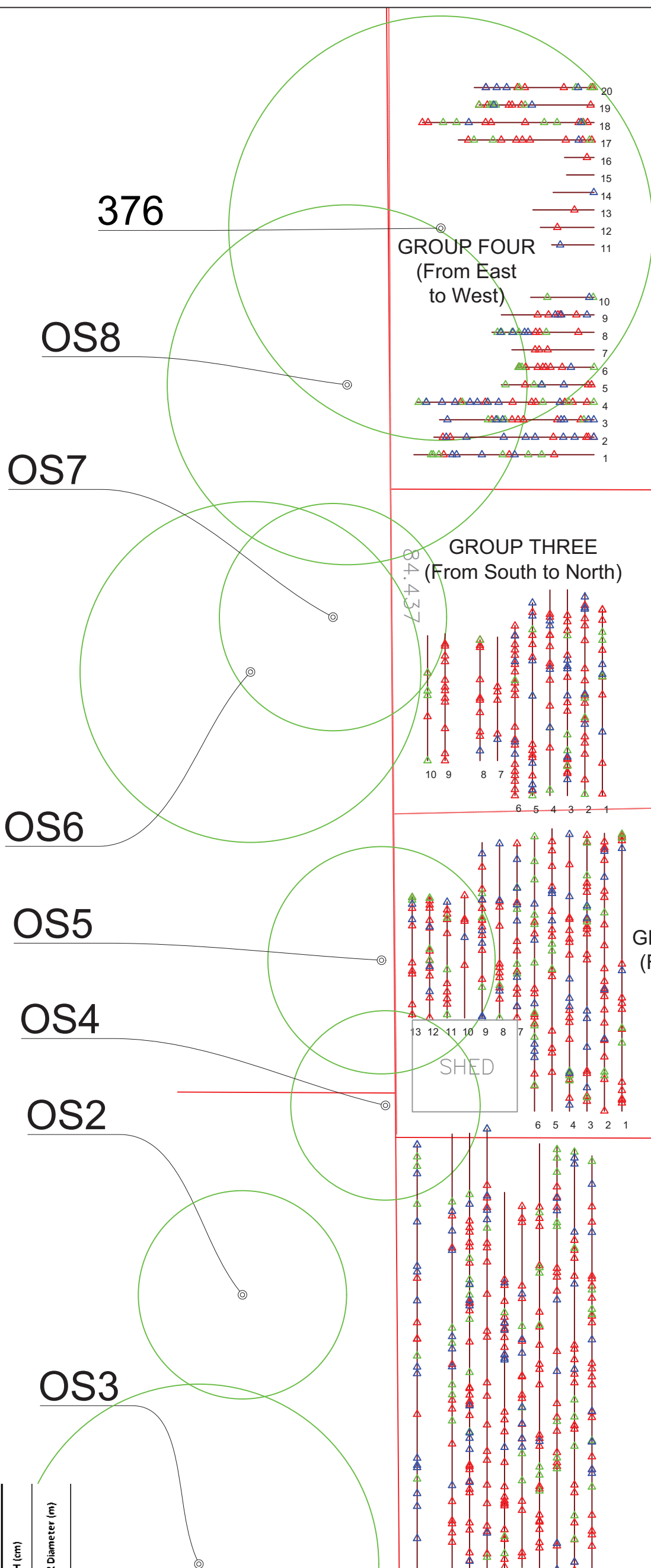
Drawing No.	Sheet Title	Project No.	Project Address	LEGEND
1 of 8	Aerial Site Map	van der Zalm Associates Inc. 20181211	1441, 1443-45, 1465 Vidal St, White Rock	Tree No.
	Revision No.	N/A	Arborist Report for a Tree Root Mapping	Client Name
	<p>All Units in Meters</p>		BC Plant Health Care Inc. 18465 53 rd Avenue, Surrey, BC. P: 604-575-8727 F: 604-576-2972 E: info@bcplanthealthcare.com 24 Hour Emergency Pager: 604-607-1616	Philip Kin Cho ISA Certified Arborist #HK-1086A ISA Tree Risk Assessment Qualification Forester in Training #5727 BSSc, MSc, MSFM
Page 57 of 65	Production Date: March 18 th , 2019			376 Tree No. Critical Root Zone Ground Penetrating Radar No.





Tree #	Species	Common Name	Estimated DBH (cm)	Estimated CRZ Diameter (m)
376	<i>Alnus rubra</i>	Red alder	112	14.56
OS2	<i>Betula papyrifera</i>	Paper birch	55	7.15
OS3	<i>Pseudotsuga menziesii</i>	Douglas-fir	95	12.35
OS4	<i>Pseudotsuga menziesii</i>	Douglas-fir	50	6.50
OS5	<i>Pseudotsuga menziesii</i>	Douglas-fir	60	7.80
OS6	<i>Pseudotsuga menziesii</i>	Douglas-fir	90	11.70
OS7	<i>Thuja plicata</i>	Western redcedar	60	7.80
OS8	<i>Pseudotsuga menziesii</i>	Douglas-fir	95	12.35

Drawing No. 2 of 8	Sheet Title Site Map		Project No. van der Zalm Associates Inc. 20181211	Project Address 1441, 1443-45, 1465 Vidal St, White Rock, BC V3Z 3T6	LEGEND Tree No. Critical Root Zone Ground Penetrating Radar No.	
	Revision No.	N/A	Project Title Arborist Report for a Tree Root Mapping	Client Name Austin Peterson		
	 All Units in Meters		BC Plant Health Care Inc. 18465 53 rd Avenue, Surrey, BC. P: 604-575-8727 F: 604-576-2972 E: info@bcplanthealthcare.com 24 Hour Emergency Pager: 604-607-1616	Philip Kin Cho ISA Certified Arborist #HK-1086A ISA Tree Risk Assessment Qualification Forester in Training #5727 BSSc, MSc, MSFM		
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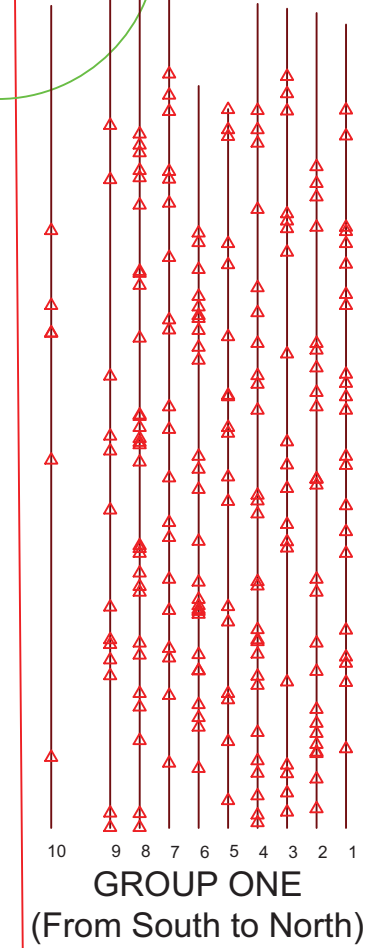
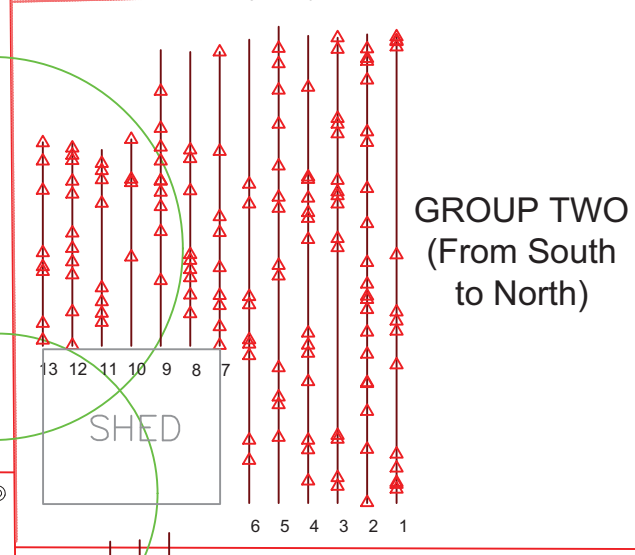
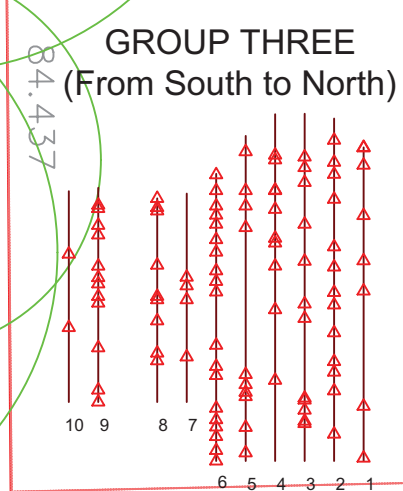
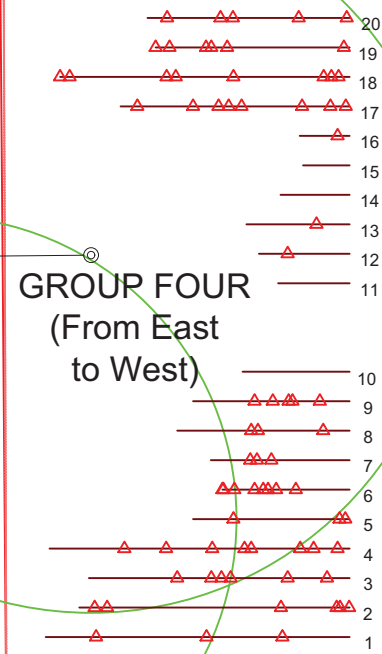
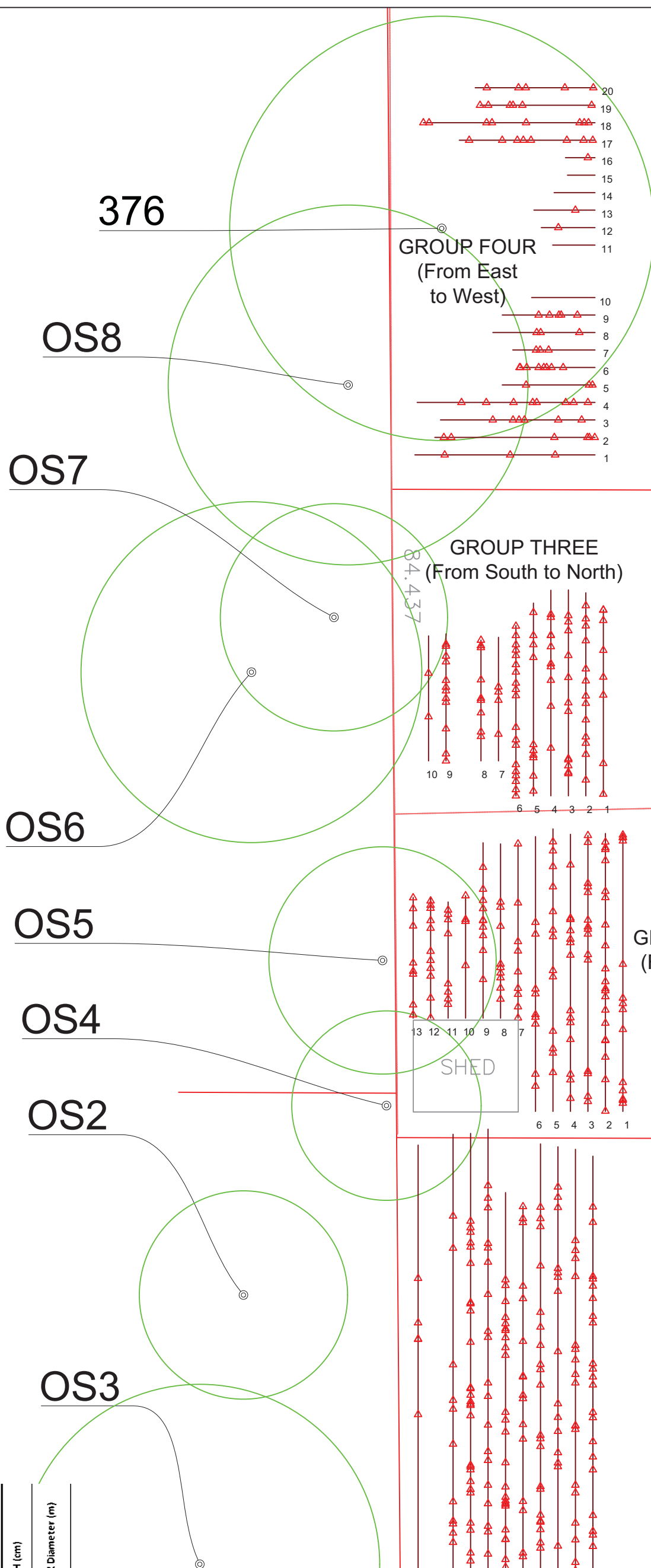
Tree #	Species	Common Name	Estimated DBH (cm)	Estimated CRZ Diameter (m)
376	<i>Alnus rubra</i>	Red alder	112	14.56
OS2	<i>Betula papyrifera</i>	Paper birch	55	7.15
OS3	<i>Pseudotsuga menziesii</i>	Douglas-fir	95	12.35
OS4	<i>Pseudotsuga menziesii</i>	Douglas-fir	50	6.50
OS5	<i>Pseudotsuga menziesii</i>	Douglas-fir	60	7.80
OS6	<i>Pseudotsuga menziesii</i>	Douglas-fir	90	11.70
OS7	<i>Thuja plicata</i>	Western redcedar	60	7.80
OS8	<i>Pseudotsuga menziesii</i>	Douglas-fir	95	12.35

3 of 8	Drawing No.		Sheet Title	
			Root Detection Map at 0-60 cm	
	Revision No.	N/A		

Project No.		Project Address	
van der Zalm Associates Inc. 20181211		1441, 1443-45, 1465 Vidal St, White Rock, BC	
Project Title		Client Name	
Arborist Report for a Tree Root Mapping		Austin Peterson	
BC Plant Health Care Inc. 18465 53 rd Avenue, Surrey, BC. P: 604-575-8727 F: 604-576-2972 E: info@bcplanthealthcare.com 24 Hour Emergency Pager: 604-607-1616		Philip Kin Cho ISA Certified Arborist #HK-1086A ISA Tree Risk Assessment Qualification Forester in Training #5727 BSSc, MSc, MSFM	

LEGEND	
	Tree No.
	Critical Root Zone
	Ground Penetrating Radar No.
	Root Detection at 0-20 cm
	Root Detection at 20-40 cm
	Root Detection at 40-60 cm

35.096

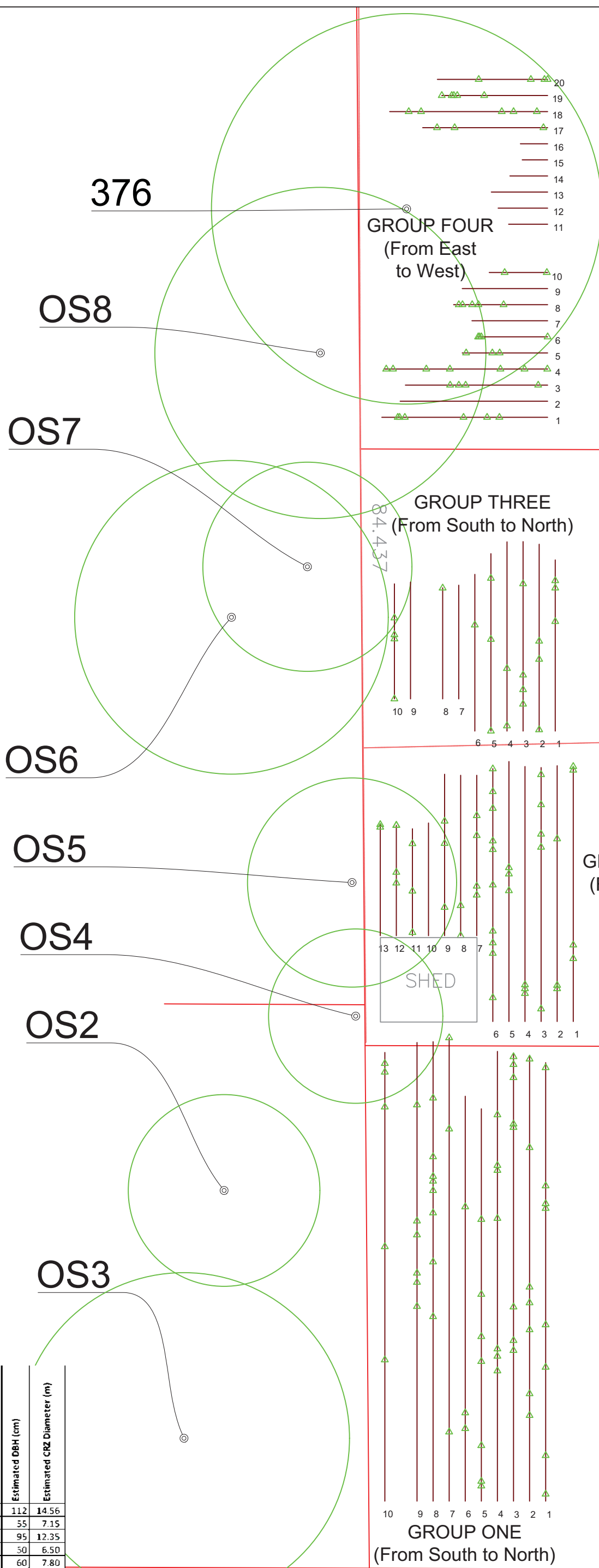


Tree #	Species	Common Name	Estimated DBH (cm)	Estimated CRZ Diameter (m)
376	<i>Alnus rubra</i>	Red alder	112	14.56
OS2	<i>Betula papyrifera</i>	Paper birch	55	7.15
OS3	<i>Pseudotsuga menziesii</i>	Douglas-fir	95	12.35
OS4	<i>Pseudotsuga menziesii</i>	Douglas-fir	50	6.50
OS5	<i>Pseudotsuga menziesii</i>	Douglas-fir	60	7.80
OS6	<i>Pseudotsuga menziesii</i>	Douglas-fir	90	11.70
OS7	<i>Thuja plicata</i>	Western redcedar	60	7.80
OS8	<i>Pseudotsuga menziesii</i>	Douglas-fir	95	12.35

Drawing No.	Sheet Title	Project No.	Project Address	LEGEND	
4 of 8	Root Detection Map at 0-20 cm	van der Zalm Associates Inc. 20181211	1441, 1443-45, 1465 Vidal St, White Rock	Tree No.	
	Revision No. N/A	Arborist Report for a Tree Root Mapping	Client Name Austin Peterson	Critical Root Zone	
	<p>All Units in Meters</p>		BC Plant Health Care Inc. 18465 53 rd Avenue, Surrey, BC. P: 604-575-8727 F: 604-576-2972 E: info@bcplanthealthcare.com 24 Hour Emergency Pager: 604-607-1616	Philip Kin Cho ISA Certified Arborist #HK-1086A ISA Tree Risk Assessment Qualification Forester in Training #5727 BSSc, MSc, MSFM	Ground Penetrating Radar No.
Page 60 of 65	Production Date: March 18 th , 2019				Root Detection at 0-20 cm

35.096





Tree #	Species	Common Name	Estimated DBH (cm)	Estimated CRZ Diameter (m)
376	<i>Alnus rubra</i>	Red alder	112	14.56
OS2	<i>Betula papyrifera</i>	Paper birch	55	7.15
OS3	<i>Pseudotsuga menziesii</i>	Douglas-fir	95	12.35
OS4	<i>Pseudotsuga menziesii</i>	Douglas-fir	50	6.50
OS5	<i>Pseudotsuga menziesii</i>	Douglas-fir	60	7.80
OS6	<i>Pseudotsuga menziesii</i>	Douglas-fir	90	11.70
OS7	<i>Thuja plicata</i>	Western redcedar	60	7.80
OS8	<i>Pseudotsuga menziesii</i>	Douglas-fir	95	12.35

Drawing No. 5 of 8	Sheet Title Root Detection Map at 20-40 cm		Project No. van der Zalm Associates Inc. 20181211	Project Address 1441, 1443-45, 1465 Vidal St, White Rock	LEGEND <ul style="list-style-type: none"> Tree No. Critical Root Zone Ground Penetrating Radar No. Root Detection at 20-40 cm 	
	Revision No.	N/A	Project Title Arborist Report for a Tree Root Mapping	Client Name Austin Peterson		
	<p>All Units in Meters</p>		BC Plant Health Care Inc. 18465 53 rd Avenue, Surrey, BC. P: 604-575-8727 F: 604-576-2972 E: info@bcplanthealthcare.com 24 Hour Emergency Pager: 604-607-1616	Philip Kin Cho ISA Certified Arborist #HK-1086A ISA Tree Risk Assessment Qualification Forester in Training #5727 BSSc, MSc, MSFM		
Page 61 of 65	Production Date:	March 18 th , 2019				

376

OS8

OS7

OS6

OS5

OS4

OS2

OS3

GROUP FOUR
(From East to West)

GROUP THREE
(From South to North)

GROUP TWO
(From South to North)

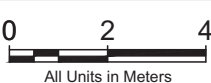

GROUP ONE
(From South to North)

SHED

84.437

35.096

Tree #	Species	Common Name	Estimated DBH (cm)	Estimated CRZ Diameter (m)
376	<i>Alnus rubra</i>	Red alder	112	14.56
OS2	<i>Betula papyrifera</i>	Paper birch	55	7.15
OS3	<i>Pseudotsuga menziesii</i>	Douglas-fir	95	12.35
OS4	<i>Pseudotsuga menziesii</i>	Douglas-fir	50	6.50
OS5	<i>Pseudotsuga menziesii</i>	Douglas-fir	60	7.80
OS6	<i>Pseudotsuga menziesii</i>	Douglas-fir	90	11.70
OS7	<i>Thuja plicata</i>	Western redcedar	60	7.80
OS8	<i>Pseudotsuga menziesii</i>	Douglas-fir	95	12.35

Drawing No.	Sheet Title	Project No.	Project Address	LEGEND
6 of 8	Root Detection Map at 40-60 cm	van der Zalm Associates Inc. 20181211	1441, 1443-45, 1465 Vidal St, White Rock, BC V3Z 3T6	Tree No.
	Revision No. N/A	Arborist Report for a Tree Root Mapping	Client Name Austin Peterson	Critical Root Zone
	 <p>All Units in Meters</p>		BC Plant Health Care Inc. 18465 53 rd Avenue, Surrey, BC. P: 604-575-8727 F: 604-576-2972 E: info@bcplanthealthcare.com 24 Hour Emergency Pager: 604-607-1616	Philip Kin Cho ISA Certified Arborist #HK-1086A ISA Tree Risk Assessment Qualification Forester in Training #5727 BSSc, MSc, MSFM
Page 62 of 65	Production Date: March 18 th , 2019			

376

OS8

OS7

OS6

OS5

OS4

OS2

OS3

GROUP FOUR
(From East to West)

GROUP THREE
(From South to North)

GROUP TWO
(From South to North)


GROUP ONE
(From South to North)

SHED

84.437

35.096

Tree #	Species	Common Name	Estimated DBH (cm)	Estimated CRZ Diameter (m)
376	<i>Alnus rubra</i>	Red alder	112	14.56
OS2	<i>Betula papyrifera</i>	Paper birch	55	7.15
OS3	<i>Pseudotsuga menziesii</i>	Douglas-fir	95	12.35
OS4	<i>Pseudotsuga menziesii</i>	Douglas-fir	50	6.50
OS5	<i>Pseudotsuga menziesii</i>	Douglas-fir	60	7.80
OS6	<i>Pseudotsuga menziesii</i>	Douglas-fir	90	11.70
OS7	<i>Thuja plicata</i>	Western redcedar	60	7.80
OS8	<i>Pseudotsuga menziesii</i>	Douglas-fir	95	12.35

7 of 8	Drawing No.		Sheet Title		Project No.	Project Address	LEGEND	
	Revision No.		N/A		van der Zalm Associates Inc. 20181211	1441, 1443-45, 1465 Vidal St, White Rock	Tree No.	
	0 2 4		All Units in Meters		Arborist Report for a Tree Root Mapping	Client Name	Critical Root Zone	
Production Date:		March 18 th , 2019		BC Plant Health Care Inc. 18465 53 rd Avenue, Surrey, BC. P: 604-575-8727 F: 604-576-2972 E: info@bcplanthealthcare.com 24 Hour Emergency Pager: 604-607-1616	Philip Kin Cho ISA Certified Arborist #HK-1086A ISA Tree Risk Assessment Qualification Forester in Training #5727 BSSc, MSc, MSFM	Ground Penetrating Radar No.		



Tree #	Species	Common Name	Estimated DBH (cm)	Estimated CRZ Diameter (m)
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OS7	<i>Thuja plicata</i>	Western redcedar	60	7.80
OS8	<i>Pseudotsuga menziesii</i>	Douglas-fir	95	12.35

8 of 8	Drawing No.	Sheet Title
	Revision No.	N/A
	<p>All Units in Meters</p>	

Project No.	Project Address
van der Zalm Associates Inc. 20181211	1441, 1443-45, 1465 Vidal St, White Rock, BC V3L 3Z6
Project Title	Client Name
Arborist Report for a Tree Root Mapping	Austin Peterson
BC Plant Health Care Inc. 18465 53 rd Avenue, Surrey, BC. P: 604-575-8727 F: 604-576-2972 E: info@bcplanthealthcare.com 24 Hour Emergency Pager: 604-607-1616	Philip Kin Cho ISA Certified Arborist #HK-1086A ISA Tree Risk Assessment Qualification Forester in Training #5727 BSSc, MSc, MSFM

LEGEND	
	Tree No.
	Critical Root Zone
	Ground Penetrating Radar No.
	Root Morphology
	Proposed Development

35.096

M. Limitations of this Assessment

It is BC Plant Health Care Inc.'s policy to attach the following clause regarding limitations. We do this to ensure that developers or owners are clearly aware of what is technically and professionally realistic in retaining trees.

The assessment of the trees presented in this report has been made using accepted arboricultural techniques. These include a visual examination of the above-ground parts of each tree for structural defects, scars, external indications of decay such as fungal fruiting bodies, evidence of insect attack, discolored foliage, the condition of any visible root structures, the degree and direction of lean (if any), the general condition of the tree(s) and the surrounding site, and the proximity of property and people. Except where specifically noted in the report, none of the trees examined were dissected, cored, probed, or climbed, and detailed root crown examinations involving excavation were not undertaken.

Notwithstanding the recommendations and conclusions made in this report, it must be raised that trees are living organisms, and their health and vigor constantly change over time. They are not immune to changes in site conditions, or seasonal variations in the weather conditions.

While reasonable efforts have been made to ensure that the trees recommended for retention are healthy, no guarantees are offered, or implied, that these trees, or any parts of them, will remain standing. It is both professionally and practically impossible to predict with absolute certainty the behavior of any single tree or group of trees or their component parts in all circumstances. Inevitably, a standing tree will always pose some risk. Most trees have the potential for failure in the event of adverse weather conditions, and this risk can only be eliminated if the tree is removed.

Although every effort has been made to ensure that this assessment is reasonably accurate, the trees should be re-assessed periodically. The assessment presented in this report is valid at the time of inspection.

ARBORIST REPORT

PROJECT:

VDZ-VIDAL ST.

SITE ADDRESS:

**14937 THRIFT AVE.
&
1441 / 1443-45 / 1465 VIDAL ST.
WHITE ROCK, B.C.**

CLIENT:

WEST STONE GROUP

PROJECT #

DP2018-59

PREPARED BY:

VDZ + A Consulting Inc.

**Suite 1, 20177 97 Avenue
Langley, BC V1M 4B9**

PROJECT ARBORIST

Austin Peterson

ISA Certified Arborist PN 1570A
ISA Tree Risk Assessment Qualified

November 5, 2018

1st Revision – May 8, 2019

2nd Revision – May 15th, 2019

3rd Revision – June 18, 2019

4th Revision – February 05, 2020

5th Revision – March 13, 2020



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Background

VDZ + A Consulting Inc. was contracted by West Stone Group to prepare an ISA Certified Arborist Tree Report for the properties at 14937 Thrift Avenue & 1441 / 1443-45 / 1465 Vidal Street, White Rock, B.C.

Assignment

VDZ + A Consulting Inc. have been retained by the client to prepare a report to assess the tree(s) located at Address Surrey, BC. The Project Arborist, Austin Peterson, performed a site review entailing identification and visual assessment of the tree(s) on site. A tree survey of all off-site trees was completed by the client or representative(s).

The Project Arborist will provide recommendations for the retention or removal of tree(s) on this site based on the existing site conditions and the proposed use of the site. Mitigation of development impact on the tree(s) has been considered as part of the tree assessment process.

Limits of the Assignment

Austin Peterson's observations were limited to site visit on October 16, 2018 and June 18, 2019. No tissue or soil samples were sent to a lab for identification or analysis. VDZ + A Consulting Inc. located the trees using existing landmarks and onsite navigation.

Testing and Analysis

Austin Peterson used visual tree assessment and mallet sounding to test the trees' health, condition and risk level.

Purpose and Use of Report

The purpose of this report is to assist the property owner in compliance with the City of White Rock Tree Management Bylaw, 2008, No. 1831.

Site Review

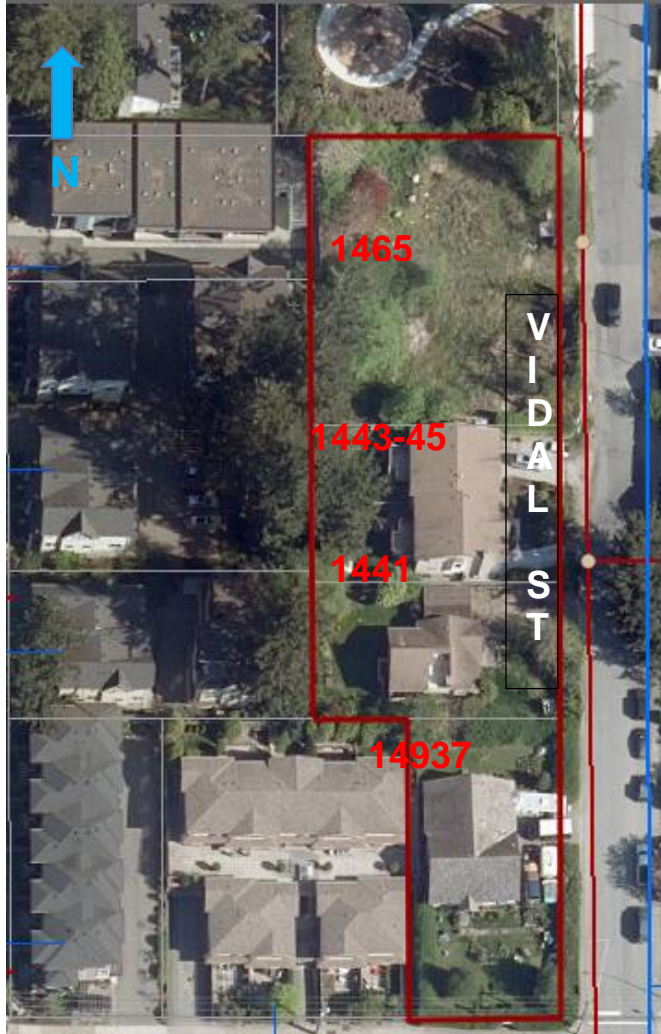


Fig. 1 – Aerial view of property (WROMS)

Proposed Site Development

The development of a new high-rise buildings.

Environmental Description

The site consists of four residential lots, three of which have existing houses. All four lots have established landscapes composed of mature trees and shrubs. The southernmost lot is a single family residential home that fronts onto Thrift Avenue. It is joined via the north property line to the first three lots proceeding up the west side of Vidal Street. From Thrift Avenue, Vidal Street inclines north. To the west lay an assortment of low-rise multifamily residences and to the north is a newer high-rise development.

There are no seasonal creeks that transect the property.



There is no evidence of raptors nests, osprey nests or heron colonies on the site. Removal of trees however between March 15 – August 15 (date subject to change depending on seasonal nesting behavior and therefore must be confirmed with City of Maple Ridge) will require a bird nesting survey. This is as prescribed by the federal Migratory Birds Convention Act (MBCA), 1994 and Section 34 of the BC Wildlife Act. It is the responsibility of the owner/developer to ensure they are in compliance with the city's regulations governing nesting birds on sites where development is occurring.

Off-site Trees – There are private off-site trees associated with this project.

Municipal Trees – There are City of White Rock trees associated with this project.

Trees Straddling the Property Line – There are trees straddling the property line associated with this project.

Tree Preservation Summary

All the trees identified on the Tree Retention/Removal Plan and within the Tree Assessment Data Table have been given their Retention/Removal recommendation on a preliminary basis. Final recommendations will be based upon design/construction and grading details.

Long-term tree preservation success is dependent on minimizing the impact caused during pre-construction clearing operations, construction and post construction activities. Best efforts must be made to ensure the Tree Protection Zone remains undisturbed.

Ongoing monitoring of retained trees through the development process and implementation of mitigating works (watering, mulching, etc.) is essential for success.



Table 1 - Tree Assessment Data:

Tree #	Tag #	Common Name <i>Botanical Name</i>	Located on the Survey	DBH (m.)	C-Rad (m.)	LCR (%)	Comments	Retain / Remove
01	370	English holly <i>Ilex aquifolium</i>	Yes	0.05-0.15	3.5	90	Poor form and structure. Multi – stem trunks. Past history of having been pruned/sheared. Not suitable for retention. Listed as an invasive species by City of White Rock. Located within proposed building footprint.	Remove
02	371	English holly <i>Ilex aquifolium</i>	Yes	0.05-0.15	3.5	90	Poor form and structure. Multi – stem trunks. Past history of having been pruned/sheared. Not suitable for retention. Listed as an invasive species by City of White Rock. Located within proposed building footprint.	Remove
03	373	Threadleaf false-cypress <i>Chamaecyparis pisifera f. filifera</i>	Yes	0.16 0.17 0.18	3.00	60	Poor form and structure. TRUNK–Growing against the foundation of the existing house. Not suitable for retention due to proximity to existing structure and location within proposed building footprint.	Remove
04	374	Crimson King Norway maple <i>Acer platanoides</i> 'Crimson King'	Yes	0.42	4.70	80	Poor form and structure. CROWN – Previously side pruned for utility line clearance. Suitable for retention. Located within proposed building footprint.	Remove
05	375	Common lilac <i>Syringa vulgaris</i>	No	0.10 0.10 0.11	3.00	30	HANDPLOTTED Poor form and structure. TRUNK – Multi-stem from base. Not suitable for retention due to form and structure. Located within proposed building footprint.	Remove



Tree #	Tag #	Common Name <i>Botanical Name</i>	Located on the Survey	DBH (m.)	C-Rad (m.)	LCR (%)	Comments	Retain / Remove
06	376	Red alder <i>Alnus rubra</i>	Yes	0.31 0.40 0.41	6.50	90	Poor form and structure. Mature tree in decline. TRUNK – (3) stems from base. Decay present in one stem (0.50 meters in length). Natural lean east. Not suitable for retention due to form and structure. Located within proposed building footprint. <i>BC Plant Health Care root radar results: Poor structure with multiple trunks and decay.</i>	Remove
07	377	Flowering plum <i>Prunus cerasifera</i>	No	0.13 0.18 0.27	5.50	80	HANDPLOTTED Fair form and structure, good vigor and vitality. Suitable for retention. Located within proposed building footprint.	Remove
08	378	Mountain ash <i>Sorbus aucuparia</i>	No	0.10 0.11 0.14	4.50	80	HANDPLOTTED Fair form and structure. Suitable for retention. Located within proposed building footprint.	Remove
09	379	Japanese maple <i>Acer palmatum</i>	No	0.09 0.11 0.11	4.00	75	HANDPLOTTED Good form and structure. Suitable for retention. Located within proposed building footprint.	Remove
10	380	Mountain ash <i>Sorbus aucuparia</i>	No	0.10 0.11 0.11	2.50	40	HANDPLOTTED Fair form and structure. CROWN – Shade suppressed on north and east sides. Suitable for retention. Located within proposed building footprint.	Remove
11	381	Vine maple <i>Acer circinatum</i>	No	0.14 0.15 0.18	4.00	80	HANDPLOTTED Fair form and structure. Suitable for retention. Located within proposed building footprint.	Remove



Tree #	Tag #	Common Name <i>Botanical Name</i>	Located on the Survey	DBH (m.)	C-Rad (m.)	LCR (%)	Comments	Retain / Remove
12	382	Bitter cherry <i>Prunus emarginata</i>	No	0.14 0.15 0.21	4.00	80	HANDPLOTTED Fair form and structure. Suitable for retention. Located within proposed building footprint.	Remove
The following trees are located offsite.								
OS 01	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	0.23	3.50	90	Good form and structure. TRUNK – Located within (0.25 meters) of retaining wall on two sides. Install tree barrier as detailed in Tree Protection and Removal Plan. Arborist to be present for all demolition and excavation works adjacent to tree protection barrier.	Retain
OS 02	No tag	Paper birch <i>Betula papyrifera</i>	Yes	0.63	7.9	70	Good form and structure. Install tree barrier as detailed in Tree Protection and Removal Plan. Install tree barrier as detailed in Tree Protection and Removal Plan. Arborist to be present for all demolition and excavation works adjacent to tree protection barrier.	Retain
OS 03	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	No	0.65	6.3	80	HANDPLOTTED Good form and structure. Install tree barrier as detailed in Tree Protection and Removal Plan. Arborist to be present for all demolition and excavation works adjacent to tree protection barrier.	Retain



Tree #	Tag #	Common Name <i>Botanical Name</i>	Located on the Survey	DBH (m.)	C-Rad (m.)	LCR (%)	Comments	Retain / Remove
OS 04	6598	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	0.67	7.2	90	HANDPLOTTED Good form and structure. Install tree barrier as detailed in Tree Protection and Removal Plan. Arborist to be present for all demolition and excavation works adjacent to tree protection barrier.	Retain
OS 05	1779	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	0.66	11.1	75	HANDPLOTTED Good form and structure. Install tree barrier as detailed in Tree Protection and Removal Plan. Arborist to be present for all demolition and excavation works adjacent to tree protection barrier.	Retain
OS 06	570	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	96	7.5	60	Good form and structure. Install tree barrier as detailed in Tree Protection and Removal Plan. Arborist to be present for all demolition and excavation works adjacent to tree protection barrier.	Retain
OS 07	No tag	Western redcedar <i>Thuja plicata</i>	Yes	66	5.2	80	Good form and structure. Install tree barrier as detailed in Tree Protection and Removal Plan. Arborist to be present for all demolition and excavation works adjacent to tree protection barrier.	Retain
OS 08	565	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	97	7.7	80	Good form and structure. Install tree barrier as detailed in Tree Protection and Removal Plan. Arborist to be present for all demolition and excavation works adjacent to tree protection barrier.	Retain



Tree #	Tag #	Common Name <i>Botanical Name</i>	Located on the Survey	DBH (m.)	C-Rad (m.)	LCR (%)	Comments	Retain / Remove
Trees OS 9 – OS 11 form the edge of a larger grouping of private off-site trees.								
OS 9	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	0.66	6.0	50	Good form and structure. Install tree barrier as detailed in Tree Protection and Removal Plan. Arborist to be present for all demolition and excavation works adjacent to tree protection barrier.	Retain
OS 10	No tag	Western redcedar <i>Thuja plicata</i>	Yes	0.36	4.0	80	Fair form and structure. TRUNK – Previously topped. Install tree barrier as detailed in Tree Protection and Removal Plan. Arborist to be present for all demolition and excavation works adjacent to tree protection barrier.	Retain
OS 11	No tag	Western redcedar <i>Thuja plicata</i>	Yes	0.36	4.0	80	Fair form and structure. TRUNK – Previously topped. Install tree barrier as detailed in Tree Protection and Removal Plan. Arborist to be present for all demolition and excavation works adjacent to tree protection barrier.	Retain
The following hedge rows are straddling the City of White Rock property.								
SH 01	No tag	Common privet hedge <i>Ligustrum vulgare</i>	Yes	0.03-0.06	1.30	100	Hedge row composed of multiple stems. Height = 2.2M Not suitable for retention with proposed building footprint and road works.	Remove
SH 02	No tag	Boxwood hedge <i>Buxus Sempervirens</i>	Yes	0.03-0.06	1.00	100	Hedge row composed of multiple stems. Height = 2.0M Not suitable for retention with proposed building footprint and road works.	Remove
SH 03	No tag	Common privet hedge <i>Ligustrum vulgare</i>	Yes	0.03-0.06	1.5	100	Hedge row composed of multiple stems. Height = 2.5M Not suitable for retention with proposed building footprint and road works.	Remove



Tree #	Tag #	Common Name <i>Botanical Name</i>	Located on the Survey	DBH (m.)	C-Rad (m.)	LCR (%)	Comments	Retain / Remove
SH 04	No tag	English laurel <i>Prunus laurocerasus</i>	Yes	0.05-0.15	2.2	100	Hedge row composed of multiple stems. Height = 5.0M Not suitable for retention with proposed building footprint and road works.	Remove
SH 05	No tag	English laurel <i>Prunus laurocerasus</i>	Yes	0.05-0.15	1.80	100	Hedge row composed of multiple stems. Height = 3.5M Not suitable for retention with proposed building footprint and road works.	Remove
SH 06	372	Cherry <i>Prunus spp.</i>	Yes	0.58	5.50	30	Growing within the SH 04 hedge. Not suitable for retention with proposed building footprint and road works.	Remove
The following hedge rows belong to the City of White Rock.								
C 1	No tag	Golden Chain hedge <i>Laburnum sp.</i>	No	0.05-0.15	2.50	100	HANDPLOTTED Height = 6.0M Not suitable for retention with proposed building footprint and road works.	Remove
C 2	No tag	Pyramidalis hedge <i>Thuja occidentalis</i> 'Pyramidalis'	Yes	0.05-0.10	1.0	100	HANDPLOTTED Height = 6.0M Not suitable for retention with proposed building footprint and road works.	Remove



APPENDIX A – GLOSSARY OF KEY TERMS

Abutment: A structure built to support the lateral pressure of an arch or span, e.g., at the ends of a bridge.

Adapted Trunk Diameter Method: This method uses the trees age and tolerance to construction damage to determine the factor that will be multiplied by the diameter to provide a sufficient tree protection zone given these factors.

Age: The relative age (young, intermediate, mature) within the particular stand of trees or forest.

Algae: Is a simple, nonflowering plant (includes seaweeds and many single-celled forms). They do contain chlorophyll (but lack true stems, roots, and vascular tissue)

ALR: The Agricultural Land Reserve in which agriculture is recognized as the priority.

Bole: The stem or trunk of a tree.

Chlorotic: Yellowing of plant tissues caused by nutrient deficiency &/or pathogen.

Co-dominant Leaders: Forked dominant stems nearly the same size in diameter, arising from a common junction.

Co-dominant Within Stand: Individual tree whose height is generally equal to trees (regardless of species) within the same stand.

Compaction: Compression of the soil that breaks down soil aggregates and reduces soil volume and total pore space, especially macropore space.

Conk: A fungal fruiting structure typically found on trunks and indicating internal decay.

Dead Standing: A tree that has died but is still standing erect.

DBH: The Diameter of the tree at 1.40 meters above the ground.

Dominant Within Stand: Individual tree whose height is significantly greater than adjacent trees (regardless of species) within the same stand.

C-rad: Crown radius, is the dripline measured from the edge of the trunk to the outermost branches of the crown.

CRT: Critical Root Zone

CRZ: Critical Root Zone - The area between the trunk and to the end of the Drip Line.

Fair: Healthy but has some defects such as co-dominant trunk, dead branches.

Feeder Roots: The smaller roots responsible for water and nutrient absorption and gas exchange. These roots can extend far beyond the Drip Line (or outer canopy) of the tree.

Fungus (singular) / Fungi (plural): Unicellular, multicellular or syncytial spore-producing organisms that feed on organic matter (including molds, yeast, mushrooms and toadstools)

Girdling Root: Root that encircles all or part of the trunk of a tree or other roots and constricts the vascular tissue and inhibits secondary growth and the movement of water.

Good: Good form and structure, healthy with no defects.

Hazardous: Significant hazard exists with a high risk of immediate failure; which could result in serious damage to property or person(s).

Height: Height of tree is approximate.

LCR: Live Crown Ratio – The ratio of crown length to total tree length.

Level 1 Limited Visual Assessment: Limited visual assessment looking for obvious defects such as, but not limited to dead trees, large cavity openings, large dead or broken branches, fungal fruiting structures, large cracks, and severe leans.

Level 2 Basic Visual Assessment: Detailed visual inspection (aboveground roots, trunk, canopy) of tree(s) may include the use of simple tools to perform assessment (i.e. sounding mallet, trowel, measuring tape, binoculars). The assessment does not include advanced



resistance drilling of trunk.

Level 3 Advanced Assessment: To provide detailed information about specific tree parts, defects, targets, or side conditions. May included aerial inspection, resistance drilling of tree parts, laboratory diagnosis of fungal or plant tissue.

Mildew: Is a minute powdery or web-like fungi (of different colours) that is found on diseased or decaying substances.

Moss: A small, green, seedless plant that grows on stones, trees or ground.

No Disturbance Zone: (Trunk Diameter x 6) + Trunk Radius + (60 cm excavation zone). For example, a 50-cm diameter tree would have a No Disturbance Zone = 3.85 meters measured from the edge of the trunk.

Poor: multiple defects, disease, poor structure and or form, root and or canopy damage.

Phloem: Plant vascular tissue that transports sugar and growth regulators. Situated on the inside of the bark, just outside the cambium. Is bidirectional (transports up and down). Contrast with xylem.

Phototropic: Growth toward light source or stimulant.

Retain & Monitor: Monitor health and condition of tree every 12 months for signs of deterioration.

Root Crown: Also, called the root collar, it includes the flare at the base of the trunk and the initial roots that develop below the trunk. These roots generally taper and subdivide rapidly to form the root system of the tree.

SPEA: Streamside Protection and Enhancement Area

Spiral Decline: The health and condition of the tree is deteriorating.

Sub-dominant Within Stand: Individual tree whose height is significantly less than adjacent trees (regardless of species) within the same stand.

Suppressed: Individual tree whose growth, health and condition is negatively impacted by adjacent tree(s).

TPZ: Tree Protection Zone - The area between the trunk and the Tree Protection Barrier.

Wildlife Tree: A tree or a group of trees that are identified to be retained to provide future wildlife habitat. Wildlife habitat can exist in tree risks (cavities, dead snags, broken tops). Often times the tree risk to potential targets (people & property) is reduced by removing that part of the tree posing the risk of failure, but the tree (or portion of) is retained to provide future habitat.

Witches Broom: A dense mass of shoots growing from a single point, with the resulting structure resembling a broom or a bird's nest.

Xylem: Thin overlapping cells that helps provide support and that conducts water and nutrients up

ward from the roots all the way to the leaves.

APPENDIX B – PHOTOS



Fig. 2 - View facing south along Vidal Street to Thrift Avenue.



Fig. 3 – Off-site Douglas-fir tree



Fig. 4 – Tree 03 growing within S4



Fig. 5 – View of Trees OS2 – OS8



Fig. 6 – Stand of off-site conifers located directly west of 1441/1443-45/1465 Vidal Street.



Fig. 7 – View facing north/northwest. OS 9 – OS 11 make up part of the edge of a larger grouping of conifers.



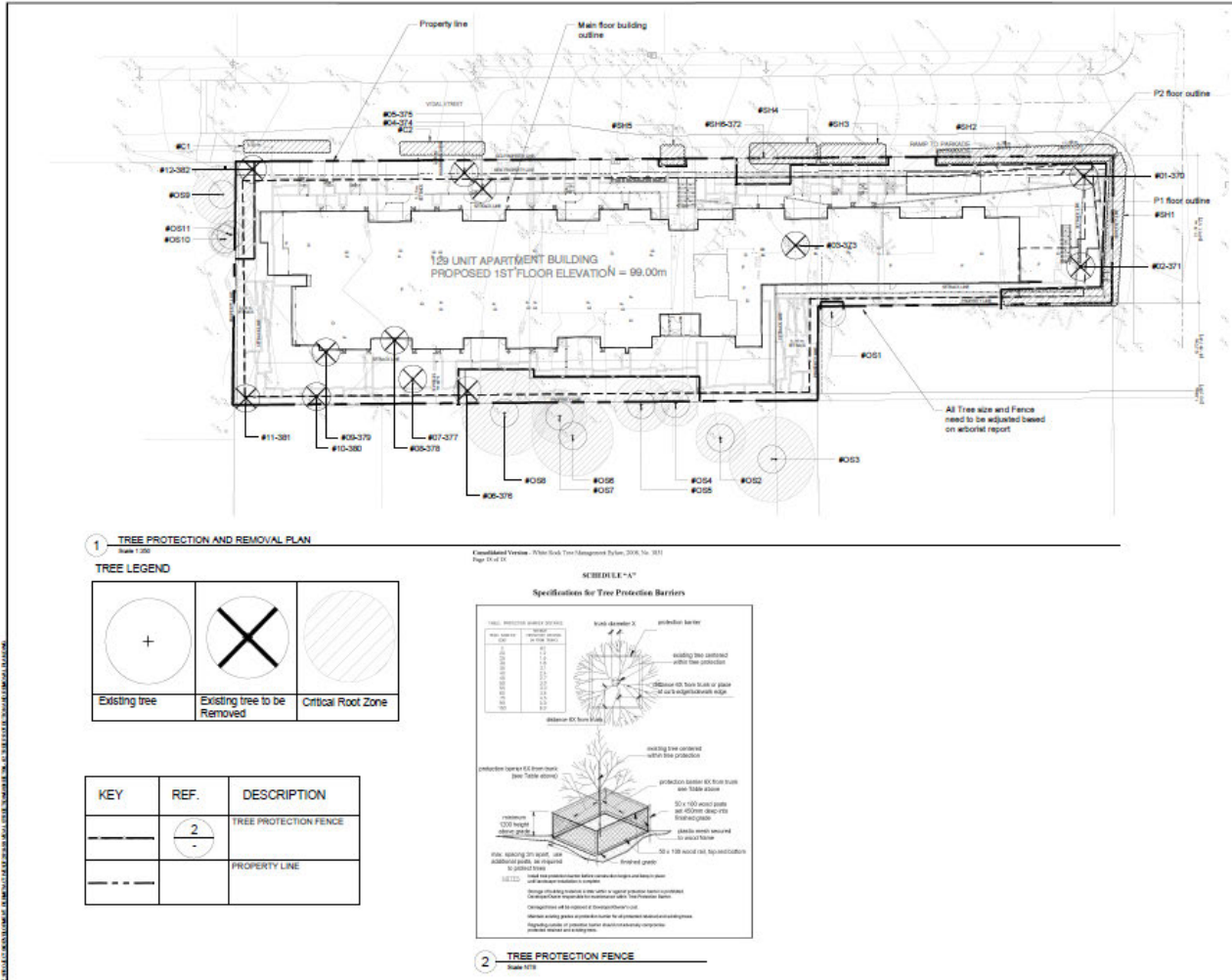
Fig. 8 – Alternate view of Trees OS 9 – OS 11



Fig. 9 – Red alder located on 1465 Vidal Street.



APPENDIX C – TREE RETENTION AND REMOVAL PLAN



1	DR	Issue for DP	March 4, 2019
2	DR	Issue for DP	May 24, 2019
3	DR	Issue for DP Review	June 18, 2019
4	DR	Issue for DP Review	June 18, 2019
5	DR	Issue for DP Review	June 18, 2019
6	DR	Issue for DP Review	June 18, 2019
7	DR	Issue for DP Review	June 18, 2019
8	DR	Issue for DP Review	June 18, 2019
9	DR	Issue for DP Review	June 18, 2019
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13	DR	Issue for DP Review	June 18, 2019
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42	DR	Issue for DP Review	June 18, 2019
43	DR	Issue for DP Review	June 18, 2019
44	DR	Issue for DP Review	June 18, 2019
45	DR	Issue for DP Review	June 18, 2019
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48	DR	Issue for DP Review	June 18, 2019
49	DR	Issue for DP Review	June 18, 2019
50	DR	Issue for DP Review	June 18, 2019

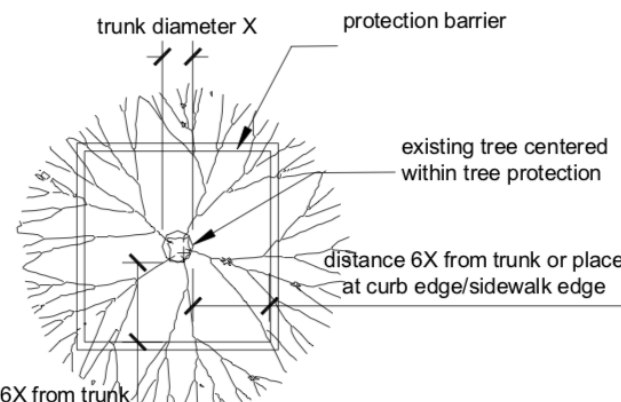
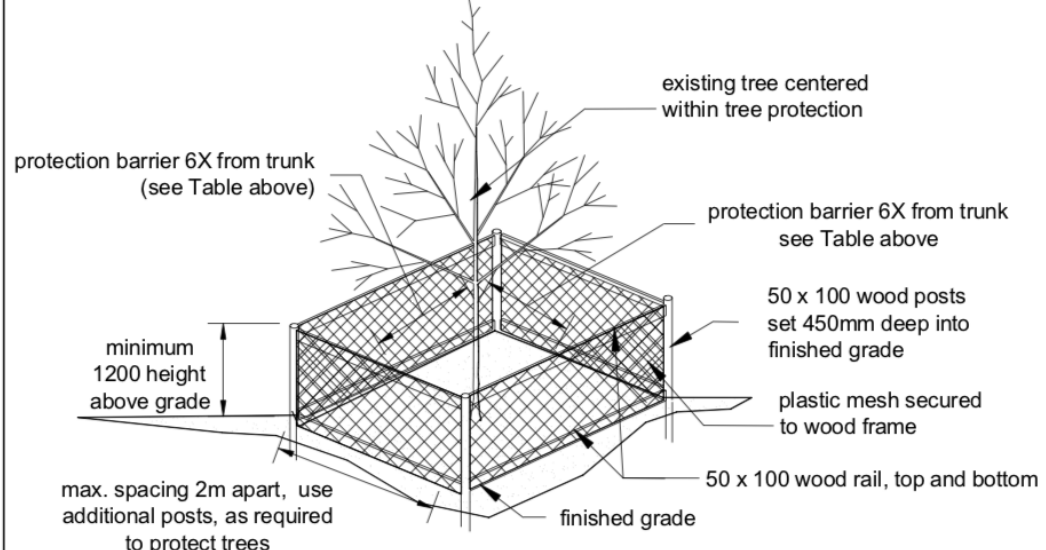
Drawing Title: TREE PROTECTION AND REMOVAL PLAN
 Project: Vidal Street Development
 Location: Vidal Street & Thrift Ave, White Rock, BC
 Drawing No: DP2018-59
 Scale: Original Sheet Size (A1)

APPENDIX D – CONSTRUCTION ACTIVITY AROUND TREE PROTECTION ZONE

Tree Protection Fencing

Specifications for Tree Protection Barriers

TRUNK DIAMETER (CM)	MINIMUM PROTECTION DISTANCE (M FROM TRUNK)
X	6X
20	1.2
25	1.5
30	1.8
35	2.1
40	2.4
45	2.7
50	3.0
55	3.3
60	3.6
75	4.5
90	5.0
100	6.0

NOTES

- Install tree protection barrier before construction begins and keep in place until landscape installation is complete.
- Storage of building materials & litter within or against protection barrier is prohibited. Developer/Owner responsible for maintenance within Tree Protection Barrier.
- Damaged trees will be replaced at Developer/Owner's cost.
- Maintain existing grades at protection barrier for all protected retained and existing trees.
- Regrading outside of protection barrier should not adversely compromise protected retained and existing trees.

max. spacing 2m apart, use additional posts, as required to protect trees



General Requirements and Limitations for Operations Within the Tree Protection Zone

- The Contractor shall not engage in any construction activity within the Tree Protection Zone (TPZ) without the approval of the Project Arborist including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree Protection Zone maybe indicated on the drawings along with any required remedial activity as listed below.
- In the event that construction activity is unavoidable within the Tree Protection Zone, notify the Project Arborist and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree Protection Zone from the activity. Remedial actions shall include but shall not be limited to the following:
- In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and/or Air Spade. If any excavation work is required within the Tree Protection Zone (TPZ), the Project Arborist must be present during excavation, and a trench should be 'hand dug' to a depth of 60 cm outside the Drip Line, to uncover any potential roots. The Project Arborist should cleanly prune roots and recommend the appropriate treatment for any structural roots encountered.
- Knife excavation where indicated or with other low impact equipment that will not cause damage to the tree, roots soil.
- When encountered, exposed roots, 1 inches and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the Project Arborist. Excavation shall be tunnelled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.
- Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be RETAINED when specifically indicated by the Project Arborist. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboriculture practices (ANSI A300, part 8) and be performed under supervision of the Project Arborist.
- Do not permit foot traffic, scaffolding or the storage of materials within the Tree Protection Zone.
- Protect the Tree Protection Zone at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves and roots of all plants; and contamination of the soil, bark or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the Project Arborist of any spills, compaction or damage and take corrective action immediately using methods approved by the Project Arborist.



APPENDIX E – LIMITATIONS

This report is valid for the day the trees were reviewed. This report is not to be re-printed, copied, published or distributed without prior approval by VDZ + A Consulting Inc.

Sketches, diagrams and photographs contained in this report being intended as visual aids, should not be construed as engineering reports or legal surveys.

Only the subject tree(s) was inspected and no others. This report does not imply or in any other way infer that other trees on this site or near this site are sound and healthy.

The tendency of trees or parts of trees to fall due to environmental conditions and internal problems are unpredictable. Defects are often hidden within the tree or underground. The project arborist has endeavored to use his skill, education and judgment to assess the potential for failure, with reasonable methods and detail. It is the owner's responsibility to maintain the trees and inspect the trees to reasonable standards and to carry out recommendations for mitigation suggested in this report.

APPENDIX F - REFERENCES

Bond, Jerry & Buchanan, Beth (2006) *Best Management Practices: Tree Inventories*, International Society of Arboriculture, Champaign, IL.

Dunster, Dr. Julian (2003) *Preliminary Species Profiles for Tree Failure Assessment*. ISA Pacific Northwest Chapter, Silverton, OR, USA

Dunster, Dr. Julian & Edmonds, Dr. R. (2014) *Common Fungi Affecting Pacific Northwest Trees*, ISA Pacific Northwest Chapter, Silverton, OR, USA

Fite, Kelby & Smiley, E. Thomas (2016) *Best Management Practices: Managing Trees During Construction*, International Society of Arboriculture, Champaign, IL.

Sibley, David Allen (2009) *The Sibley Guide to Trees*. Alfred A. Knopf, New York, NY

Smiley, E.T., Matheny, N., Lilly, S. (2011) *Best Management Practises: Tree Risk Assessment*. International Society of Arboriculture, Champaign, IL.

PROJECT: VIDAL STREET DEVELOPMENT

SITE ADDRESS: 14937 Thrift Ave & 1441/1443-45/1465 Vidal Street, White Rock, BC

CLIENT: **WESTSTONE GROUP**
10090 152ND St.
Surrey, BC, V3R 8X8

VDZ PROJECT # DP2018-59

SITE REVIEW DATE(s): October 16, 2018
September 15, 2020
July 8, 2022

PREPARED BY: **VDZ+A Consulting Ltd.**
102 – 355 Kingsway
Vancouver, BC
V5T 3J7

PROJECT ARBORIST: **D. Glyn Romaine**
ISA Certified Arborist PN 7929A
TRAQ

FORMER PROJECT ARBORIST: **KELLY KOOME**
ISA Certified Arborist PN 5962A
ISA Tree Risk Assessment Qualified Certified
Wildlife Danger Tree Assessor #P2546

Original Report November 5, 2018
Revision 1 May 8, 2019
Revision 2 September 23, 2020 – A.L.
Revision 3 July 11, 2022 – D.G.R. - Updated Survey.



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INTRODUCTION

ASSIGNMENT

VDZ + A Consulting Inc. (VDZ) have been retained by the client to prepare an arborist report to assess the tree(s) located at 14937 Thrift Avenue & 1441 / 1443-45 / 1465 Vidal Street, White Rock, BC. VDZ arborists performed site reviews entailing identification and visual assessment of the tree(s) on-site. A tree survey of all off-site trees was completed by the client or representative(s).

The Project Arborist will provide recommendations for the retention of tree(s) based on the existing site conditions and the proposed use of the site. Mitigation of development impact on the tree(s) has been considered as part of the tree assessment process.

LIMITS OF THE ASSIGNMENT

VDZ's observations were limited to site visits on October 16, 2018, September 15, 2020, and July 8, 2022. No tissue or soil samples were sent to a lab for identification or analysis. VDZ + A Consulting Inc. located the trees using existing landmarks and onsite navigation.

TESTING AND ANALYSIS

VDZ arborists used visual tree assessment and mallet sounding to test the trees' health, condition, and risk level.

PURPOSE AND USE OF REPORT

The purpose of this report is to assist the property owner in compliance with the White Rock Tree Protection Bylaw, 2021 No. 2407.



SITE DESCRIPTION

SITE REVIEW

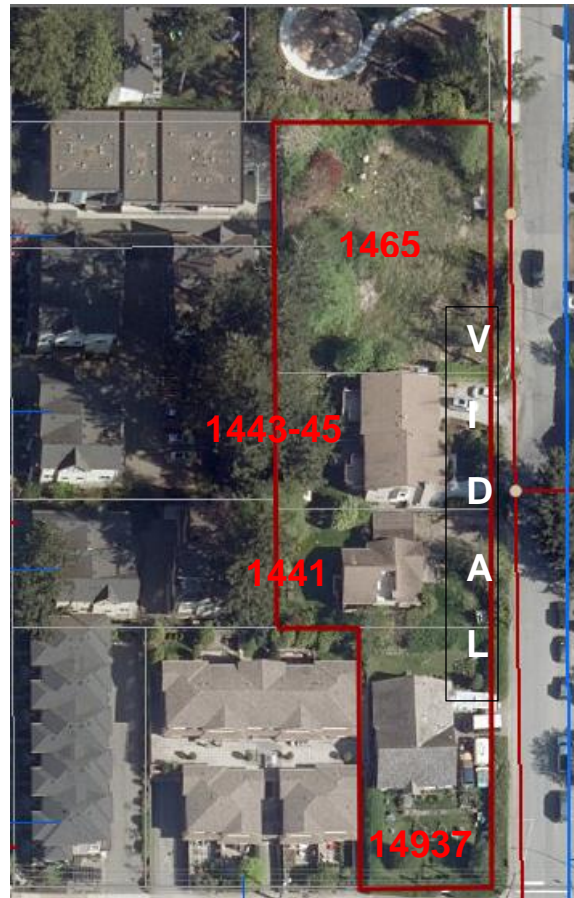


Fig. 1 – Aerial view of property (WROMS)

PROPOSED SITE DEVELOPMENT

The demolition of existing structure and the development of midrise multi-family residential building.

ENVIRONMENTAL DESCRIPTION

ISA Certified Arborist Austin Peterson of VDZ + A Consulting Inc. conducted a site review and evaluation of the trees located at the above referenced property on October 16, 2018. A site review was also conducted September 15th, 2020 by Kelly Koome and on July 8, 2022 by Glyn Romaine

The site consists of four residential lots, three of which have existing houses. All four lots have established landscapes composed of mature trees and shrubs. The southernmost lot is a single-



family residential home that fronts onto Thrift Avenue. It is joined via the north property line to the first three lots proceeding up the west side of Vidal Street. From Thrift Avenue, Vidal Street inclines north. To the west lay an assortment of low-rise multifamily residences and to the north is a newer high-rise development.

There are no seasonal creeks that transect the property.

There is no evidence of raptors nests, osprey nests or heron colonies on the site. Removal of trees however between March 15 – August 15 (date subject to change depending on seasonal nesting behavior and therefore must be confirmed with City of Maple Ridge) will require a bird nesting survey. This is as prescribed by the federal Migratory Birds Convention Act (MBCA), 1994 and Section 34 of the BC Wildlife Act. It is the responsibility of the owner/developer to ensure they are in compliance with the city's regulations governing nesting birds on sites where development is occurring.

Off-site Trees – There are private off-site trees associated with this project.

Municipal Trees – There are City of White Rock trees associated with this project.

Trees Straddling the Property Line – There are trees straddling the property line associated with this project

TREE PRESERVATION SUMMARY

All the Trees identified on the Tree Retention/Removal Plan and within the Tree Assessment Data Table have been given their Retention/Removal recommendation on a preliminary basis. Final recommendations will be based upon design/construction and grading details.

Long-term tree preservation success is dependent on minimizing the impact caused during pre-construction clearing operations, construction, and post construction activities. Best efforts must be made to ensure the Tree Protection Zone remains undisturbed.

Ongoing monitoring of retained trees through the development process and implementation of mitigating works (watering, mulching, etc.) is essential for success. Once excavation starts, the consulting arborist needs to be contacted to monitor the work that is done near the trees.

TREE HEALTH CARE PLAN DURING CONSTRUCTION

To ensure continued health of the protected trees during construction, the following is recommended:

1. Remove dead, dying, and diseased branches prior to the start of construction.
2. Install tree protection barriers per bylaw specifications.



3. Regular weekly watering of trees between June 1 – October 1.
4. Application of wood chips within the tree protection zone (1-3 inches).
5. Monthly monitoring of protected trees by assigned Arborist.

Retained protected trees will require supplemental watering on a weekly basis (weather dependent), as well as the application of wood chips or mulch to the tree protection zone within the tree protection barriers. Wood chips are preferred to ensure porous movement through soil and protection from compaction during construction. The mulch or wood chip height should not exceed the root collar (not to exceed 10cm) to avoid moisture retention concentrated on the stem. In addition to the City's requirements, recommendations include the pruning of dead or dying limbs, if applicable, prior to construction for worker safety, as well as monthly monitoring of the trees by an Arborist to ensure the health and well-being of the protected trees.

As there are off-site trees with driplines that extend into the subject property, there may be interconnected root systems within the grouping (OS9-OS11) which likely extend onto the property. BC Plant Health Care Root Radar results determined the roots of tree 06 has poor structure and multiple trunks with decay. In addition, OS2-OS6 have feeder or structural roots which grow towards the property. Any work done within the critical root zone will need to be monitored by the arborist. Any retention wall should be maintained to avoid root disruption and destabilization.

SUMMARY OF FINDINGS

- Tree 03, grows adjacent to foundation of the existing house
- Tree 04, noticeable pruning completed prior to visit. Potentially for utility clearance.
- Tree 06 noticeable decay on single stem of the multi-stemmed tree.
- OS 02-OS 08, dripline extends to/over subject property line. Root radar used to assess root systems. Will need an arborist present to monitor excavation on the property line, and during installation of the proposed retaining wall / landscape features.
- Tree 05 suffered a failed limb prior to September 15th, 2020 visit.
- Tree protection fencing requires repairs and placing for all protected trees prior to any land clearing activities.
- Knotweed was observed at 1441 Vidal. This should be managed, and all plant parts must be disposed of separately.
- Significant amount of Scots broom onsite – to be kept separate from other vegetation debris upon removal.
- Hypodermic needles were observed at 1445 Vidal.



TABLE 1

TREE #	TAG #	COMMON NAME <i>BOTANICAL NAME</i>	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
Comments written for 376 and OS2-OS8, in italics, have been transferred from the BC Plant Health Care Inc. Arborist Report for Tree Root Mapping, dated March 18, 2019.								
The following trees are located on 14937 Thrift Avenue.								
01	370	English holly <i>Ilex aquifolium</i>	Yes	-	-	-	Listed as an invasive species by City of White Rock. Dash ("-") indicates the arborist was not required to measure this species. WITHIN BUILDING FOOTPRINT	Remove
02	371	English holly <i>Ilex aquifolium</i>	Yes	-	-	-	Listed as an invasive species by City of White Rock. Dash ("-") indicates the arborist was not required to measure this species. WITHIN BUILDING FOOTPRINT	Remove
The following trees are located on 1441 Vidal Street.								
03	373	Threadleaf false-cypress <i>Chamaecyparis pisifera</i> 'Filifera'	Yes	54 (17,18,19)	3.0	60	Fair form and structure. TRUNK – Growing directly adjacent to the foundation of the existing house. WITHIN BUILDING FOOTPRINT	Remove
The following trees are located on 1465 Vidal Street.								
04	374	Crimson King Norway maple <i>Acer platanoides</i> 'Crimson King'	Yes	44	5.1	80	DBH measured at 1 m. Fair form and structure. CROWN – Previously side pruned for utility line clearance. Previously topped. WITHIN PARKADE FOOTPRINT	Remove

TREE ASSESSMENT



TREE #	TAG #	COMMON NAME <i>BOTANICAL NAME</i>	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
05	375	Common lilac <i>Syringa vulgaris</i>	No	31 (10,10,11)	3.0	30	HANDPLOTTED Poor form and structure. TRUNK – Multi-stem from base. Single limb failure since original visit. WITHIN PARKADE FOOTPRINT	Remove
06	376	Red alder <i>Alnus rubra</i>	Yes	114 (42,41,31)	9.4	80	Fair form and structure. TRUNK – 3stems from base. Decay present in one stem (0.5 meters in length). Rope girdling eastern trunk, previous tear-out on western trunk. Natural lean east. <i>BC Plant Health Care root radar results: Poor structure with multiple trunks and decay. Conflict with proposed development.</i> WITHIN PARKADE FOOTPRINT	Remove
07	377	Flowering plum <i>Prunus cerasifera</i>	No	62 (15,18,29)	5.8	80	HANDPLOTTED Fair form and structure. CROWN: Heavy ivy up trunk into crown. Some dieback at branch ends. WITHIN PARKADE FOOTPRINT	Remove
08	378	Mountain ash <i>Sorbus aucuparia</i>	No	38 (11,12,15)	4.5	80	HANDPLOTTED Fair form and structure. CROWN: Heavy ivy up trunk into crown. Some dieback at branch ends. WITHIN BUILDING FOOTPRINT	Remove

TREE ASSESSMENT



TREE #	TAG #	COMMON NAME <i>BOTANICAL NAME</i>	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
09	379	Japanese maple <i>Acer palmatum</i>	No	36 (10, 13, 13)	5.6	75	HANDPLOTTED Fair form and structure. TRUNK: Ivy up trunk. WITHIN LIKELY EXCAVATION ZONE	Remove
10	380	Mountain ash <i>Sorbus aucuparia</i>	No	37 (11, 13, 13)	4.5	40	HANDPLOTTED Fair form and structure. CROWN – Shade suppressed on north and east sides. TRUNK: Ivy up trunk. WITHIN PARKADE FOOTPRINT	Remove
11	381	Vine maple <i>Acer circinatum</i>	No	51 (15, 16, 20)	4.0	80	HANDPLOTTED Fair form and structure. TRUNK: Multi-stemmed. Ivy up trunk. WITHIN LIKELY EXCAVATION ZONE	Remove
12	382	Bitter cherry <i>Prunus emarginata</i>	No	54 (16, 16, 22)	4.5	80	HANDPLOTTED Fair form and structure. Multi-stemmed. CROWN: Dieback on one stem. WITHIN LIKELY EXCAVATION ZONE	Remove
13	435	Fruiting cherry. <i>Prunus sp.</i>	No	31	4.3	50	Good form and structure TRUNK: Ivy up trunk. WITHIN LIKELY EXCAVATION ZONE	Remove



TREE #	TAG #	COMMON NAME <i>BOTANICAL NAME</i>	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
14	300	Crimson King Norway maple <i>Acer platanoides</i> 'Crimson King'	No	23	5.5	60	Good form and structure TRUNK: Ivy up trunk. WITHIN LIKELY EXCAVATION ZONE	Remove
The following trees are located offsite.								
Trees OS 1 – OS 8 were inspected visually from a distance. DBH figures have been estimated by the Project Arborist.								
OS 01	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	25	3.5	90	Good form and structure. TRUNK – Located within (0.25 meters) of retaining wall on two sides. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS 02	No tag	Paper birch <i>Betula papyrifera</i>	Yes	55	8.0	50	Good form and structure. CROWN – Dripline extends 3.0 meters onto subject property. <i>BC Plant Health Care root radar results: Feeder roots detected in the 0-20 cm depth range. The tree is about 6 meters from the proposed development. Critical Root Zone does not enter the subject lot. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i> Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain

TREE ASSESSMENT



TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
OS 03	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	95	6.0	75	<p>Good form and structure.</p> <p>OS 03 – OS 05 are part of a larger grouping of trees with approximately 6.0 meter dripline(s) that extend to subject property line.</p> <p>ROOTS – Interconnected within grouping and likely extending onto subject property.</p> <p><i>BC Plant Health Care root radar results:</i> <i>Feeder roots detected in the 0 – 20 cm depth range. The tree is about 8 meters from the proposed development. Critical Root Zone does not enter the subject lot. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i></p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain
OS 04	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	50	5.8	75	<p>Good form and structure.</p> <p>OS 03 – OS 05 are part of a larger grouping of trees with approximately 6.0 meter dripline(s) that extend to subject property line.</p> <p>ROOTS – Interconnected within grouping and likely extending onto subject property.</p> <p><i>BC Plant Health Care root radar results:</i> <i>Assessment blocked by a shed. Roots may grow towards the shed. About 24% of Critical Root Zone will be impacted. Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i></p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain



TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
OS 05	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	60	8.0	60	<p>Good form and structure. OS 03 – OS 05 are part of a larger grouping of trees with approximately 6.0 meters dripline(s) that extend to subject property line. ROOTS – Interconnected within grouping and likely extending onto subject property.</p> <p><i>BC Plant Health Care root radar results:</i> May have structural, lateral, and feeder roots growing towards the east in the 0 – 20 cm depth range. About 27% of Critical Root Zone will be impacted. Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain
OS 06	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	90	8.8	75	<p>Good form and structure. CROWN – Dripline extends 3.5 meters onto subject property.</p> <p><i>BC Plant Health Care root radar results:</i> The tree is about 6 meters from the proposed development. Critical Root Zone does not enter the subject lot. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain



TREE #	TAG #	COMMON NAME <i>BOTANICAL NAME</i>	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
OS 07	No tag	Western redcedar <i>Thuja plicata</i>	Yes	60	6.2	60	<p>Good form and structure. CROWN – Dripline extends 3.8 meters onto subject property.</p> <p><i>BC Plant Health Care root radar results:</i> <i>May have structural, lateral, and feeder roots growing towards its southeast in the 0 – 20 cm depth range. About 6% of Critical Root Zone may be impacted. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i></p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain
OS 08	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	95	9.1	50	<p>Good form and structure. CROWN – Dripline extends 7.0 meters onto subject property.</p> <p><i>BC Plant Health Care root radar results:</i> <i>Assessment blocked by Tree 376 and shrubs. About 25% of Critical Root Zone will be impacted. Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i></p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain
Trees OS 9 – OS 13 form the edge of a larger grouping of private off-site trees.								
OS 9	6346	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	67	6.0	50	<p>Good form and structure. TRUNK: Crook at 16 m.</p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain

TREE ASSESSMENT



TREE #	TAG #	COMMON NAME <i>BOTANICAL NAME</i>	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
OS 10	6411	Western redcedar <i>Thuja plicata</i>	Yes	38	4.7	80	Fair form and structure. CROWN: Sheared on south side. TRUNK – Previously topped. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS 11	6336	Western redcedar <i>Thuja plicata</i>	Yes	38	4.7	80	Fair form and structure. CROWN: Sheared on south side. TRUNK – Previously topped. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS12	6332	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	41	6.9	80	Good form and structure. Crown: Previous shearing or clearance pruning on south side. Minor flagging. ROOTS: Large exposed roots. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS13	6334	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	71	7.1	80	Good form and structure. Trunk: Resinosis. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain



TREE #	TAG #	COMMON NAME <i>BOTANICAL NAME</i>	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
The following trees are straddling the City of White Rock property.								
SH 01	No tag	Common privet hedge <i>Ligustrum vulgare</i>	Yes	-	1.3	100	Height = 2.2M Shared with 14937 Thrift Ave. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
SH 02	No tag	Boxwood hedge <i>Buxus Sempervirens</i>	Yes	-	1.0	100	Height = 2.0M Shared with 14937 Thrift Ave. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
SH 03	No tag	Common privet hedge <i>Ligustrum vulgare</i>	Yes	-	1.5	100	Height = 2.5M Shared with 14937 Thrift Ave. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
SH 04	No tag	English laurel <i>Prunus laurocerasus</i>	Yes	-	2.2	100	Height = 5.0M Shared with 1441 Vidal St. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove



TREE #	TAG #	COMMON NAME <i>BOTANICAL NAME</i>	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
SH 05	No tag	English laurel <i>Prunus laurocerasus</i>	Yes	-	1.8	100	Height = 3.5M Shared with 1443-45 Vidal St. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
SH 06	372	Cherry <i>Prunus spp.</i>	Yes	59	5.5	30	Growing within the SH 04 hedge. Fair condition. CROWN: Some dieback. Shared with 1441 Vidal St. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
The following trees belong to the City of White Rock.								
C 1	No tag	Pyramidalis hedge <i>Thuja occidentalis</i> 'Pyramidalis'	Yes	-	1.0	100	HANDPLOTTED Height = 6.0M Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
C 2	No tag	Mixed hedge	No	-	2.5	100	HANDPLOTTED Height = 6.0M Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove



TREE REPLACEMENT SUMMARY

Onsite & Straddling:

Size	To be Removed	Replacement Trees Required
Undersized (<20cm dbh), (hedges, invasive holly)	5	0
≤ 50cm dbh	7	14
51-65cm dbh	5	15
66-75cm dbh	0	0
76-85cm dbh	0	0
>85cm dbh	1	6
Total	20	35

Offsite City:

Size	To be Removed	Replacement Trees
(<30cm dbh) (hedges)	2	0
≤ 50cm dbh	0	0
51-65cm dbh	0	0
66-75cm dbh	0	0
76-85cm dbh	0	0
>85cm dbh	0	0
Total	2	0

TREE PROTECTION AND REPLACEMENT SECURITIES

Tree Protection securities:

Size of Tree Retained	Securities
Dbh ≤ 50cm	\$3,000.00 per retained tree
Dbh of 51-65cm	\$4,500.00 per retained tree
Dbh > 65cm	\$10,000 per retained tree

Tree Replacement securities:

Size Tree Removed*	Replacement Ratio	Securities / Cash-in-lieu (\$1,500 per replacement tree)
≤ 50cm dbh	2:1	\$3,000
51-65cm dbh	3:1	\$4,500
66-75cm dbh	4:1	\$6,000
76-85cm dbh	5:1	\$7,500
>85cm dbh	6:1	\$9,000

PHOTOS



Fig. 2 - View facing south along Vidal Street to Thrift Avenue.



Fig. 3 – Off-site Douglas-fir tree



Fig. 4 – Tree 03 growing within S4



Fig. 5 – View of Trees OS2 – OS8



Fig. 6 – Stand of off-site conifers located directly west of 1441/1443-45/1465 Vidal Street.



Fig. 7 – View facing north/northwest. OS 9 – OS 11 make up part of the edge of a larger grouping of conifers.



Fig. 8 – Alternate view of Trees OS 9 – OS 11



Fig. 9 – Red alder (376) located on 1465 Vidal Street.



PHOTOS – September 15, 2020



Fig. 9 – View facing east on 1465 Vidal st, tree protection fencing damaged. Needs repair.

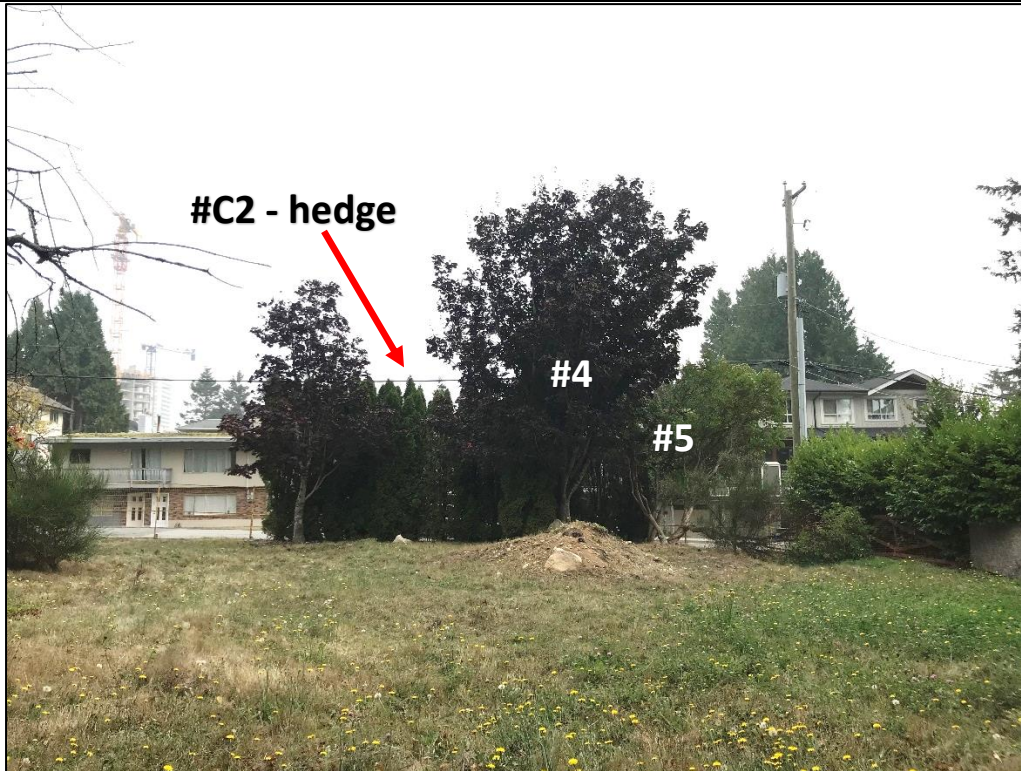




Fig. 10 – View facing east. Southeast corner of 1445 Vidal st. C2 hedge, #4 norway maple, and #5 lilac.



Fig. 11 – Northwest corner of 1465 Vidal.



Fig. 12 – Looking south from 1443-45 Vidal St.



Fig. 13 – Tree #5, failed limb.



Fig. 14 – Pruning of tree branches along east property line, 1465, 1443-45.



Fig. 15 – North property line of 1441 Vidal St, east corner.



Fig. 16 – North property line of 1441 Vidal St, west corner.



CONSTRUCTION ACTIVITY AROUND TREE PROTECTION ZONE

TREE PROTECTION FENCING

Specifications for Tree Protection Barriers

TRUNK DIAMETER (CM)	MINIMUM PROTECTION DISTANCE (M FROM TRUNK)
X	6X
20	1.2
25	1.5
30	1.8
35	2.1
40	2.4
45	2.7
50	3.0
55	3.3
60	3.6
75	4.5
90	5.0
100	6.0

trunk diameter X

protection barrier

existing tree centered within tree protection

distance 6X from trunk or place at curb edge/sidewalk edge

distance 6X from trunk

existing tree centered within tree protection

protection barrier 6X from trunk (see Table above)

protection barrier 6X from trunk see Table above

50 x 100 wood posts set 450mm deep into finished grade

plastic mesh secured to wood frame

50 x 100 wood rail, top and bottom

finished grade

minimum 1200 height above grade

max. spacing 2m apart, use additional posts, as required to protect trees

NOTES

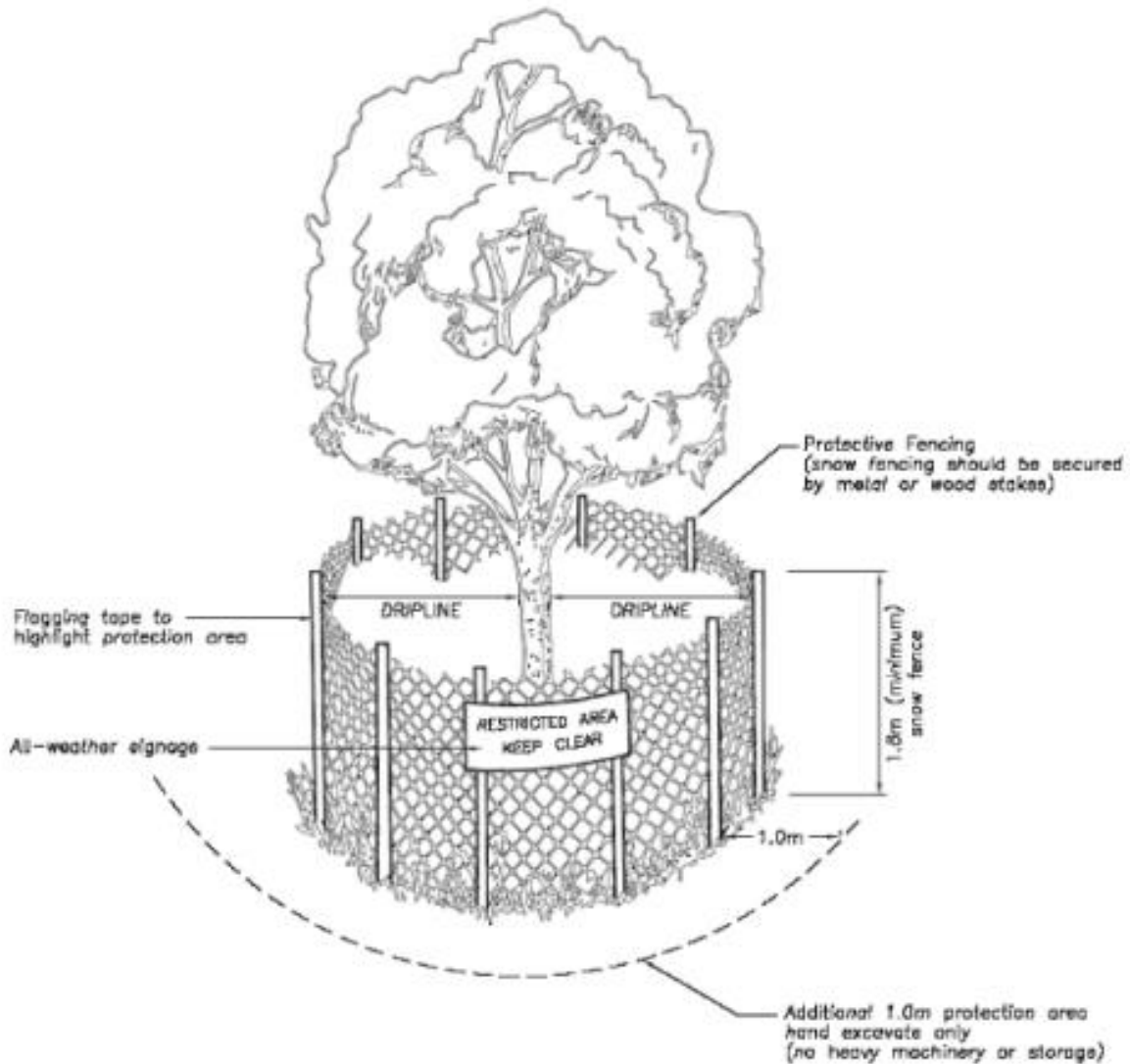
- Install tree protection barrier before construction begins and keep in place until landscape installation is complete.
- Storage of building materials & litter within or against protection barrier is prohibited. Developer/Owner responsible for maintenance within Tree Protection Barrier.
- Damaged trees will be replaced at Developer/Owner's cost.
- Maintain existing grades at protection barrier for all protected retained and existing trees.
- Regrading outside of protection barrier should not adversely compromise protected retained and existing trees.



TREE PROTECTION

How do I safely retain trees on, or adjacent to, the property?

Prior to construction activity you should erect temporary fencing at the dripline of the tree to protect the roots and canopy.





GENERAL REQUIREMENTS AND LIMITATIONS FOR OPERATIONS WITHIN THE TREE PROTECTION ZONE

- The Contractor shall not engage in any construction activity within the Tree Protection Zone (TPZ) without the approval of the Project Arborist including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree Protection Zone maybe indicated on the drawings along with any required remedial activity as listed below.
- If construction activity is unavoidable within the Tree Protection Zone, notify the Project Arborist and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree Protection Zone from the activity. Remedial actions shall include but shall not be limited to the following:
 - In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either using hand tools, directional boring and/or Air Spade. If any excavation work is required within the Tree Protection Zone (TPZ), the Project Arborist must be present during excavation, and a trench should be 'hand dug' to a depth of 60 cm outside the Drip Line, to uncover any potential roots. The Project Arborist should cleanly prune roots and recommend the appropriate treatment for any structural roots encountered.
 - Knife excavation where indicated or with other low impact equipment that will not cause damage to the tree, roots soil.
 - When encountered, exposed roots, 1 inches and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the Project Arborist. Excavation shall be tunnelled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.
 - Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be RETAINED when specifically indicated by the Project Arborist. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboriculture practices (ANSI A300, part 8) and be performed under supervision of the Project Arborist.
 - Do not permit foot traffic, scaffolding or the storage of materials within the Tree Protection Zone.
 - Protect the Tree Protection Zone at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves and roots of all plants; and contamination of the soil, bark or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the Project Arborist of any spills, compaction or damage and take corrective action immediately using methods approved by the Project Arborist



GLOSSARY OF KEY TERMS

Abutment: A structure built to support the lateral pressure of an arch or span, e.g., at the ends of a bridge.

Adapted Trunk Diameter Method: This method uses the trees age and tolerance to construction damage to determine the factor that will be multiplied by the diameter to provide a sufficient tree protection zone given these factors.

Age: The relative age (young, intermediate, mature) within the particular stand of trees or forest.

Algae: Is a simple, nonflowering plant (includes seaweeds and many single-celled forms). They do contain chlorophyll (but lack true stems, roots, and vascular tissue)

ALR: The Agricultural Land Reserve in which agriculture is recognized as the priority.

Bole: The stem or trunk of a tree.

Chlorotic: Yellowing of plant tissues caused by nutrient deficiency &/or pathogen.

Co-dominant Leaders: Forked dominant stems nearly the same size in diameter, arising from a common junction.

Co-dominant Within Stand: Individual tree whose height is generally equal to trees (regardless of species) within the same stand.

Compaction: Compression of the soil that breaks down soil aggregates and reduces soil volume and total pore space, especially macropore space.

Conk: A fungal fruiting structure typically found on trunks and indicating internal decay.

Dead Standing: A tree that has died but is still standing erect.

DBH: The Diameter of the tree at 1.40 meters above the ground.

Dominant Within Stand: Individual tree whose height is significantly greater than adjacent trees (regardless of species) within the same stand.

C-rad: Crown radius, is the dripline measured from the edge of the trunk to the outermost branches of the crown.

CRZ: Critical Root Zone - means the area of land surrounding the trunk of a tree contained within a radius equal to the DBH of the tree multiplied by six (6), or one (1) metre beyond the drip line of the tree, whichever is greater.

Fair: Healthy but has some defects such as co-dominant trunk, dead branches.



Feeder Roots: The smaller roots responsible for water and nutrient absorption and gas exchange. These roots can extend far beyond the Drip Line (or outer canopy) of the tree.

Fungus (singular) / Fungi (plural): Unicellular, multicellular or syncytial spore-producing organisms that feed on organic matter (including molds, yeast, mushrooms and toadstools)

Girdling Root: Root that encircles all or part of the trunk of a tree or other roots and constricts the vascular tissue and inhibits secondary growth and the movement of water.

Good: Good form and structure, healthy with no defects.

Hazardous: Significant hazard exists with a high risk of immediate failure; which could result in serious damage to property or person(s).

Height: Height of tree is approximate.

LCR: Live Crown Ratio – The ratio of crown length to total tree length.

Level 1 Limited Visual Assessment: Limited visual assessment looking for obvious defects such as, but not limited to dead trees, large cavity openings, large dead or broken branches, fungal fruiting structures, large cracks, and severe leans.

Level 2 Basic Visual Assessment: Detailed visual inspection (aboveground roots, trunk, canopy) of tree(s) may include the use of simple tools to perform assessment (i.e. sounding mallet, trowel, measuring tape, binoculars). The assessment does not include advanced resistance drilling of trunk.

Level 3 Advanced Assessment: To provide detailed information about specific tree parts, defects, targets, or side conditions. May included aerial inspection, resistance drilling of tree parts, laboratory diagnosis of fungal or plant tissue.

Mildew: Is a minute powdery or web-like fungi (of different colours) that is found on diseased or decaying substances.

Moss: A small, green, seedless plant that grows on stones, trees or ground.

No Disturbance Zone: $(\text{Trunk Diameter} \times 6) + \text{Trunk Radius} + (60 \text{ cm excavation zone})$. For example, a 50-cm diameter tree would have a No Disturbance Zone = 3.85 meters measured from the edge of the trunk.

Poor: multiple defects, disease, poor structure and or form, root and or canopy damage.

Phloem: Plant vascular tissue that transports sugar and growth regulators. Situated on the inside of the bark, just outside the cambium. Is bidirectional (transports up and down). Contrast with xylem.

Phototropic: Growth toward light source or stimulant.



Retain & Monitor: Monitor health and condition of tree every 12 months for signs of deterioration.

Root Crown: Also, called the root collar, it includes the flare at the base of the trunk and the initial roots that develop below the trunk. These roots generally taper and subdivide rapidly to form the root system of the tree.

SPEA: Streamside Protection and Enhancement Area

Spiral Decline: The health and condition of the tree is deteriorating.

Sub-dominant Within Stand: Individual tree whose height is significantly less than adjacent trees (regardless of species) within the same stand.

Suppressed: Individual tree whose growth, health and condition are negatively impacted by adjacent tree(s).

TPZ: Tree Protection Zone - The area between the trunk and the Tree Protection Barrier.

Wildlife Tree: A tree or a group of trees that are identified to be retained to provide future wildlife habitat. Wildlife habitat can exist in tree risks (cavities, dead snags, broken tops). Often times the tree risk to potential targets (people & property) is reduced by removing that part of the tree posing the risk of failure, but the tree (or portion of) is retained to provide future habitat.

Witches Broom: A dense mass of shoots growing from a single point, with the resulting structure resembling a broom or a bird's nest.

Xylem: Thin overlapping cells that helps provide support and that conducts water and nutrients upward from the roots all the way to the leaves.



LIMITATIONS

This report is valid for the day the trees were reviewed. This report is not to be re-printed, copied, published, or distributed without prior approval by VDZ + A Consulting Inc.

Sketches, diagrams, and photographs contained in this report being intended as visual aids, should not be construed as engineering reports or legal surveys.

Only the subject tree(s) was inspected and no others. This report does not imply or in any other way infer that other trees on this site or near this site are sound and healthy.

The tendency of trees or parts of trees to fall due to environmental conditions and internal problems are unpredictable. Defects are often hidden within the tree or underground. The project arborist has endeavored to use his skill, education, and judgment to assess the potential for failure, with reasonable methods and detail. It is the owner's responsibility to maintain the trees and inspect the trees to reasonable standards and to carry out recommendations for mitigation suggested in this report.

REFERENCES

Bond, Jerry & Buchanan, Beth (2006) *Best Management Practices: Tree Inventories*, International Society of Arboriculture, Champaign, IL.

Dunster, Dr. Julian (2003) *Preliminary Species Profiles for Tree Failure Assessment*. ISA Pacific Northwest Chapter, Silverton, OR, USA

Dunster, Dr. Julian & Edmonds, Dr. R. (2014) *Common Fungi Affecting Pacific Northwest Trees*, ISA Pacific Northwest Chapter, Silverton, OR, USA

Fite, Kelby & Smiley, E. Thomas (2016) *Best Management Practices: Managing Trees During Construction*, International Society of Arboriculture, Champaign, IL.

Sibley, David Allen (2009) *The Sibley Guide to Trees*. Alfred A. Knopf, New York, NY

Smiley, E.T., Matheny, N., Lilly, S. (2011) *Best Management Practices: Tree Risk Assessment*. International Society of Arboriculture, Champaign, IL.

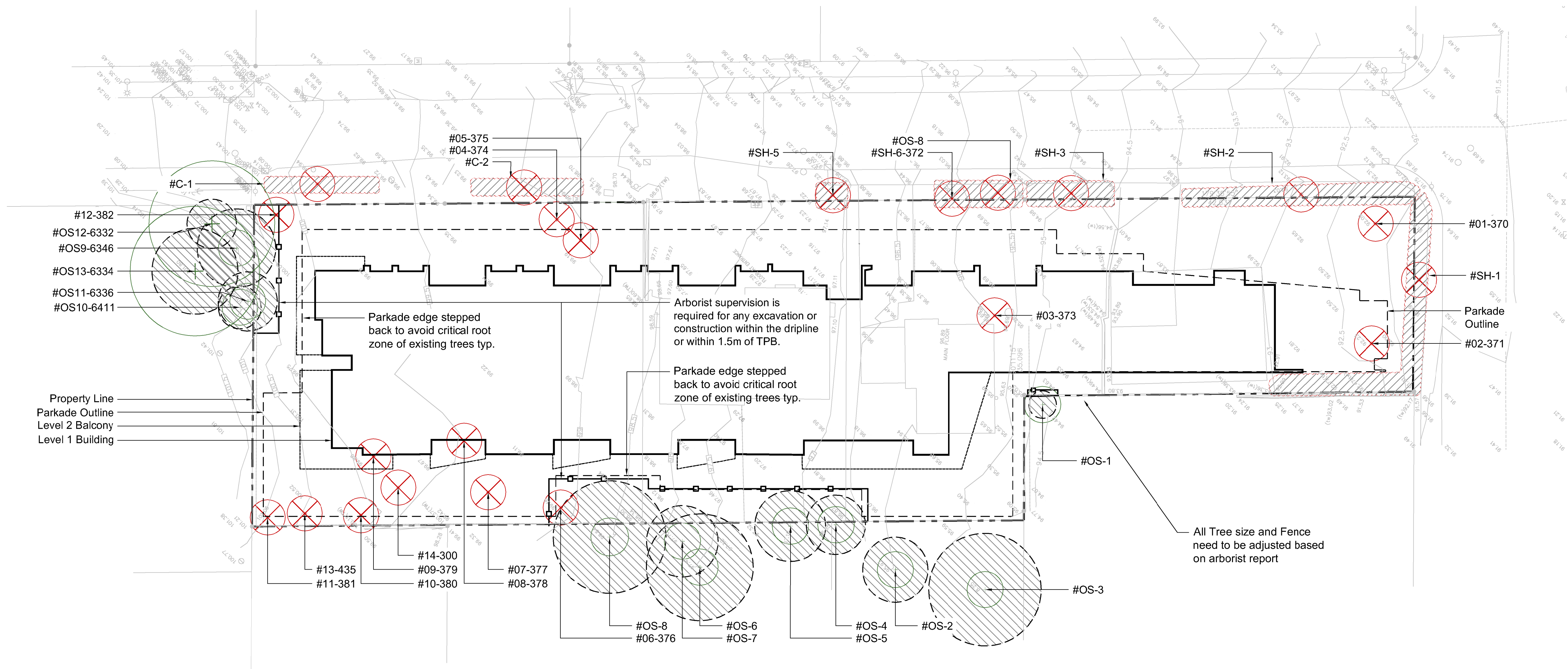
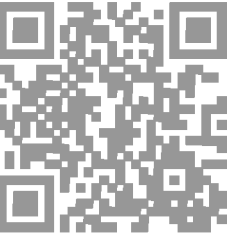


TREE MANAGEMENT PLAN

See attached Tree Mangement Plan

Original size: 24x36

Print as 11x17 for foldout



1 TREE PROTECTION AND REMOVAL PLAN
 Scale 1:250

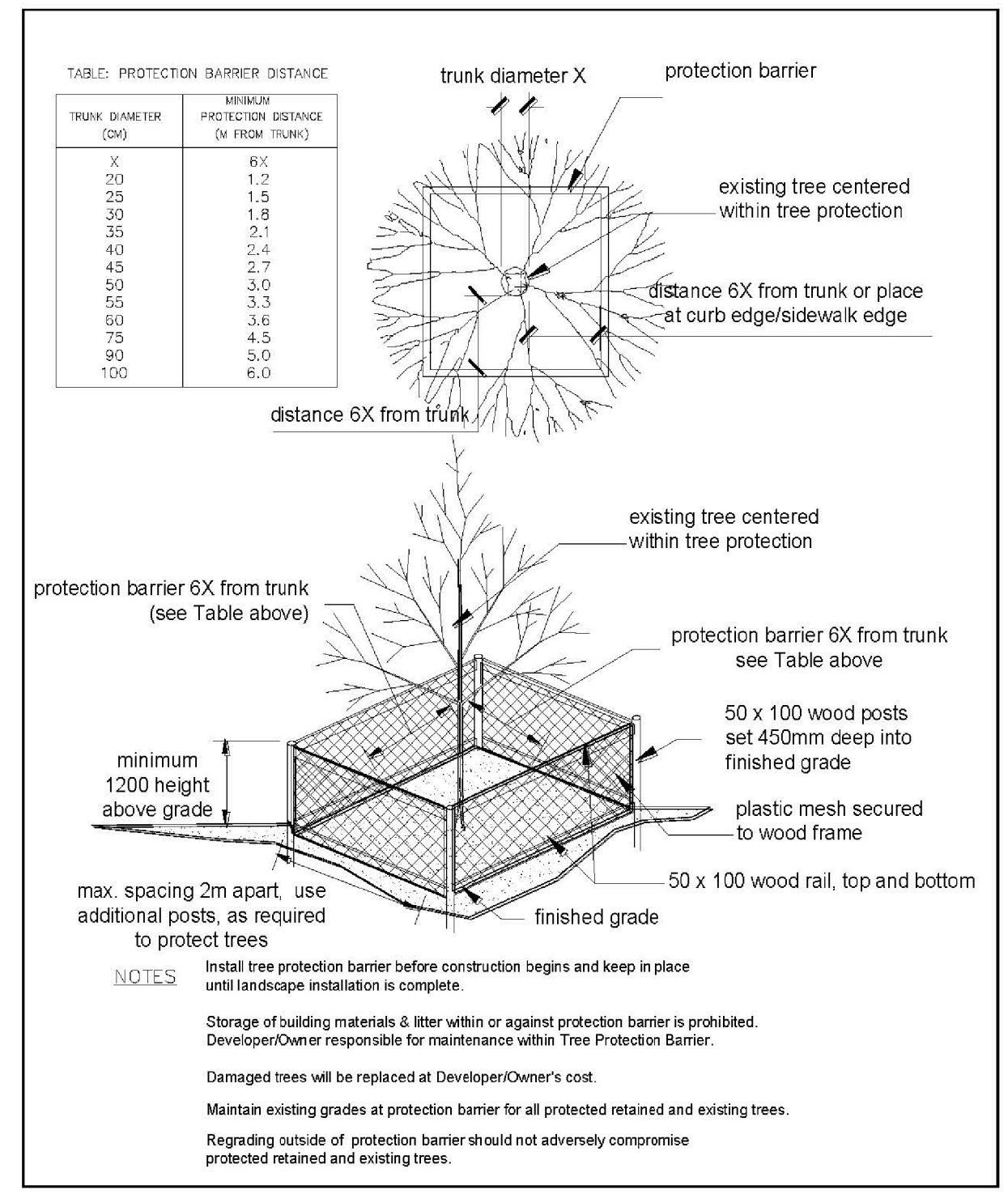
Consolidated Version - White Rock Tree Management Bylaw, 2008, No. 1831
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LEGEND

Existing Tree to be Retained CRZ: Critical Root Zone CR: Crown Radius	Existing Tree to be Removed	Tree Protection Fencing

Tree Tag Legend
 XX - Tag number
 C-XX - Muncipale tree
 OS-XX - Off-site tree
 SH-XX - Straddling tree. Written permission required from owner to remove trees.

SCHEDULE "A"
Specifications for Tree Protection Barriers



- Note:**
- Contact Arborist (Glyn Romaine, 604 841 9977, glyn@vdz.ca) for inspection 72 hrs prior to any grading or excavation within the tree protection zone. (typ) If during excavation it is found that it cannot be completed without severing roots that are critical to the trees health or stability it may be necessary to remove additional trees.
 - Read this plan together with the arborist report prepared by VDZ+A.
 - An additional 1m setback is shown for all hand-plotted trees to be retained
 - If Stump Grinding is to occur in close proximity to trees which are to be retained then it is requested stumps to be removed under Arborist supervision.
 - It is the responsibility of the client or his/her representative to contact the project arborist for the purpose of:
 - *Locating TPZ Fencing
 - *Locating Work Zone and Machine access corridors where required
 - *Reviewing the Report with the project foreman or site supervisor.

2 TREE PROTECTION FENCE
 Scale NTS

No.	By:	Description	Date
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2	SH	Issued for DP	May 24, 2019
1	JW	Issued for DP Review	Nov 16, 2018

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No.	By:	Description	Date
4	KM	Arborist Report Revision	Sept 23rd, 2020
3	SH	Arborist Report Revision	Feb 4, 2020
2	SH	Arborist Report Revision	June 18, 2019
1	SH	Arborist Report Revision	May 15, 2019

REVISIONS TABLE FOR SHEET

Project:	Vidal Street Development
Location:	Vidal Street & Thrift Ave, White Rock, BC

Drawn:	FW	Stamp:	
Checked:	JW	Approved:	MVDZ
Scale:	1:250	Original Sheet Size:	24"x36"

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Z:\PROJECTS\DEVELOPMENT PERMITS\DP2018-59 VIDAL STREET\DRAWINGS\SHEETS\L-02 TREE PROTECTION AND REMOVAL PLAN.DWG

Date:	July 21, 2022
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VDZ Project File No.:	DP 2018-59
Project Name:	Vidal Street Development
Site Address:	14937 Thrift Ave & 1441/1443-45/1465 Vidal
Consulting Arborist:	D. Glyn Romaine - VDZ + A Consulting Inc.

Attention:	Stephen Heller	VDZ + Associates
	Krista Baronian	WestStone Group
	Lukas Wypkis	Keystone Architecture

Number of Pages:	4
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Subject:	<u>Arborist Report Concerns received via email from Alex Wallace – June 24th, 2022</u>
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This memo provides a response to the following comments from the City of White Rock:

Arborist Report Concerns received via email from Alex Wallace – June 24th, 2022

- The revised arborist report still says the offsite large trees have been handplotted as the property legal survey from 2018 has not included all of OS3-OS8 Douglas fir trees. It is required and prudent to demonstrate the exact percentage of roots protected or potentially calculated for loss when revising the plans.

VDZ+A Project Arborist Response:

The legal survey was updated by Adam Fulkerson of Target Land Surveying Inc. on July 4, 2022 and shows the correct locations of offsite trees OS1-OS13 (Fig 1). VDZ+A project arborist, Glyn Romaine visited the site on July 8, 2022, to confirm the off-site tree locations matched those on the survey. The report and Tree Protection Plan were updated on July 11, 2022 using the latest survey. Douglas-fir trees OS3-OS8 are shown in their correct locations with root protection zones in the updated Tree Protection Plan (Fig 2).

Any hand-plotted trees referenced in the July 11, 2022 arborist report and tree protection plan are on-site and within the excavation footprint. These trees are recommended for removal.

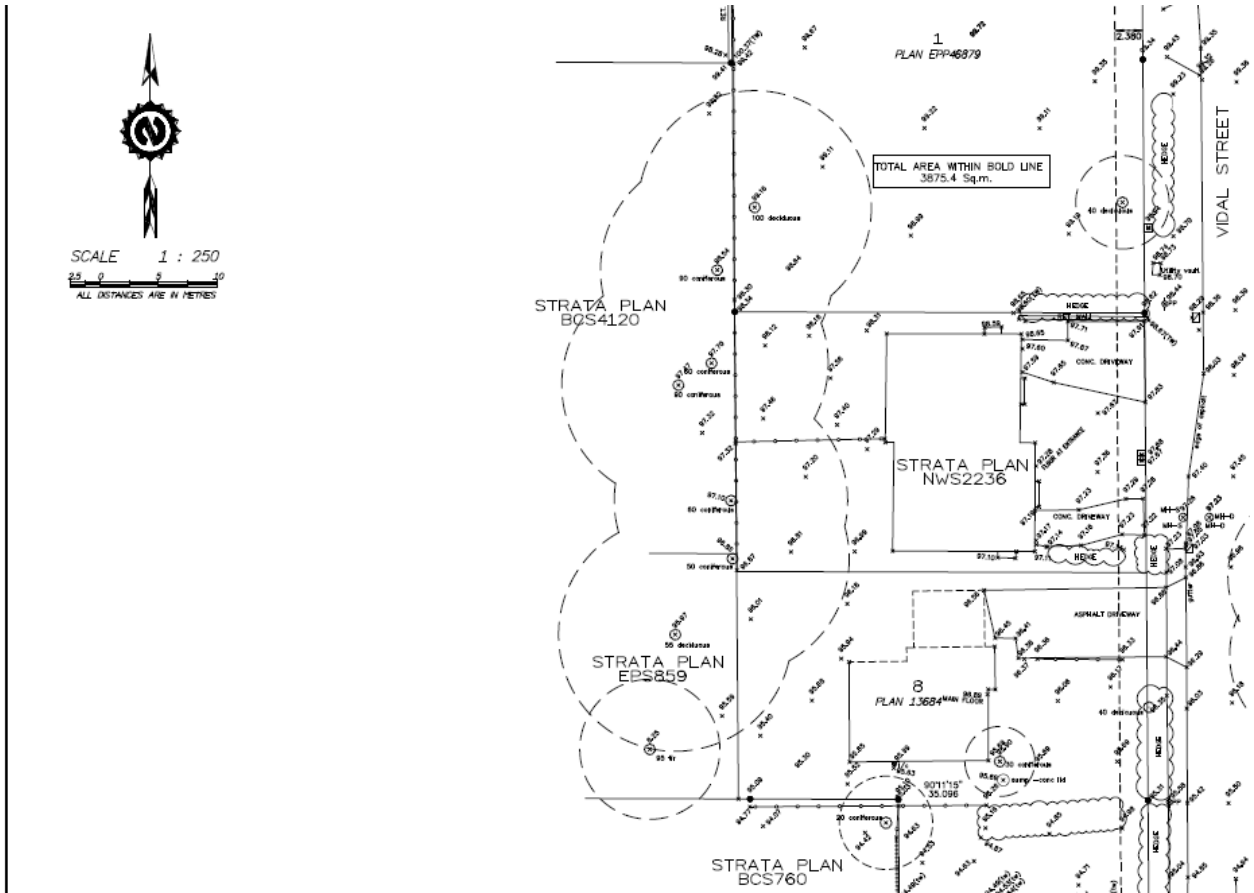


Figure 1 - Screenshot of survey showing locations of off-site Douglas-fir trees OS3-OS8.

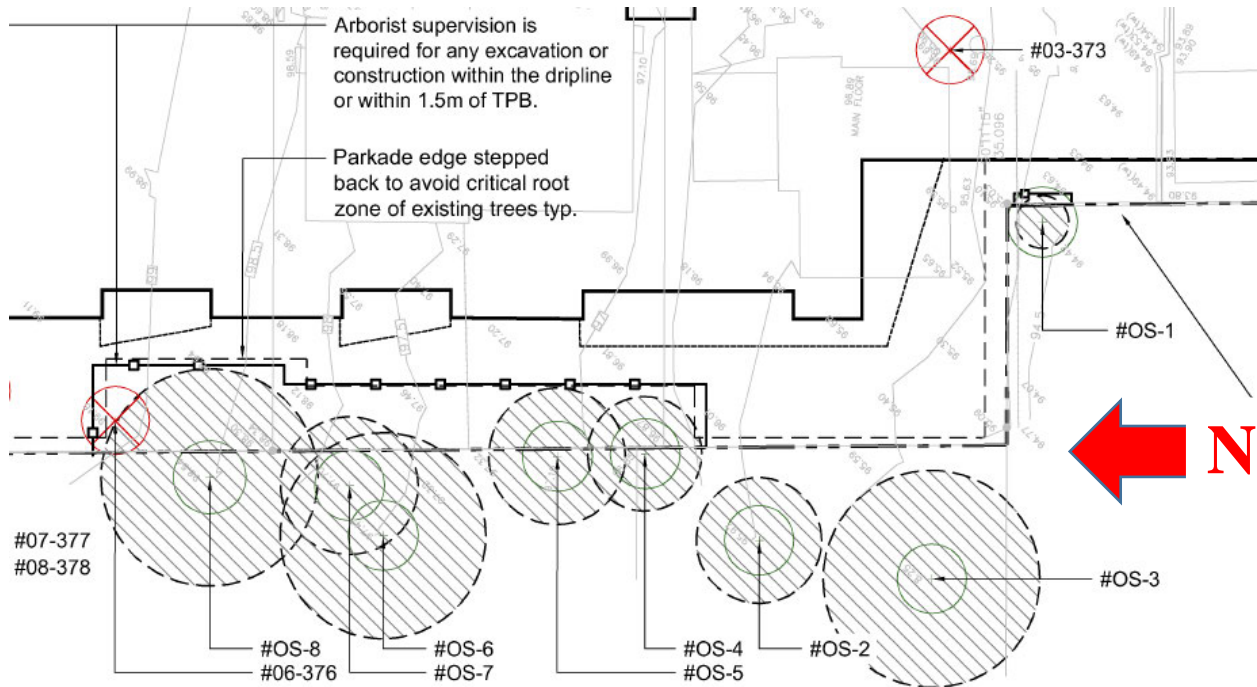


Figure 2 - Screen shot of Tree Protection Plan with off-site Douglas fir trees OS3-OS8 in their correct locations based on the July 4, 2022 Survey.

LIMITATIONS:

This report is valid for the day the trees were reviewed. This report is not to be re-printed, copied, published, or distributed without prior approval by VDZ + A Consulting Inc.

Sketches, diagrams, and photographs contained in this report being intended as visual aids, should not be construed as engineering reports or legal surveys.

Only the subject tree(s) was inspected and no others. This report does not imply or in any other way infer that other trees on this site or near this site are sound and healthy.

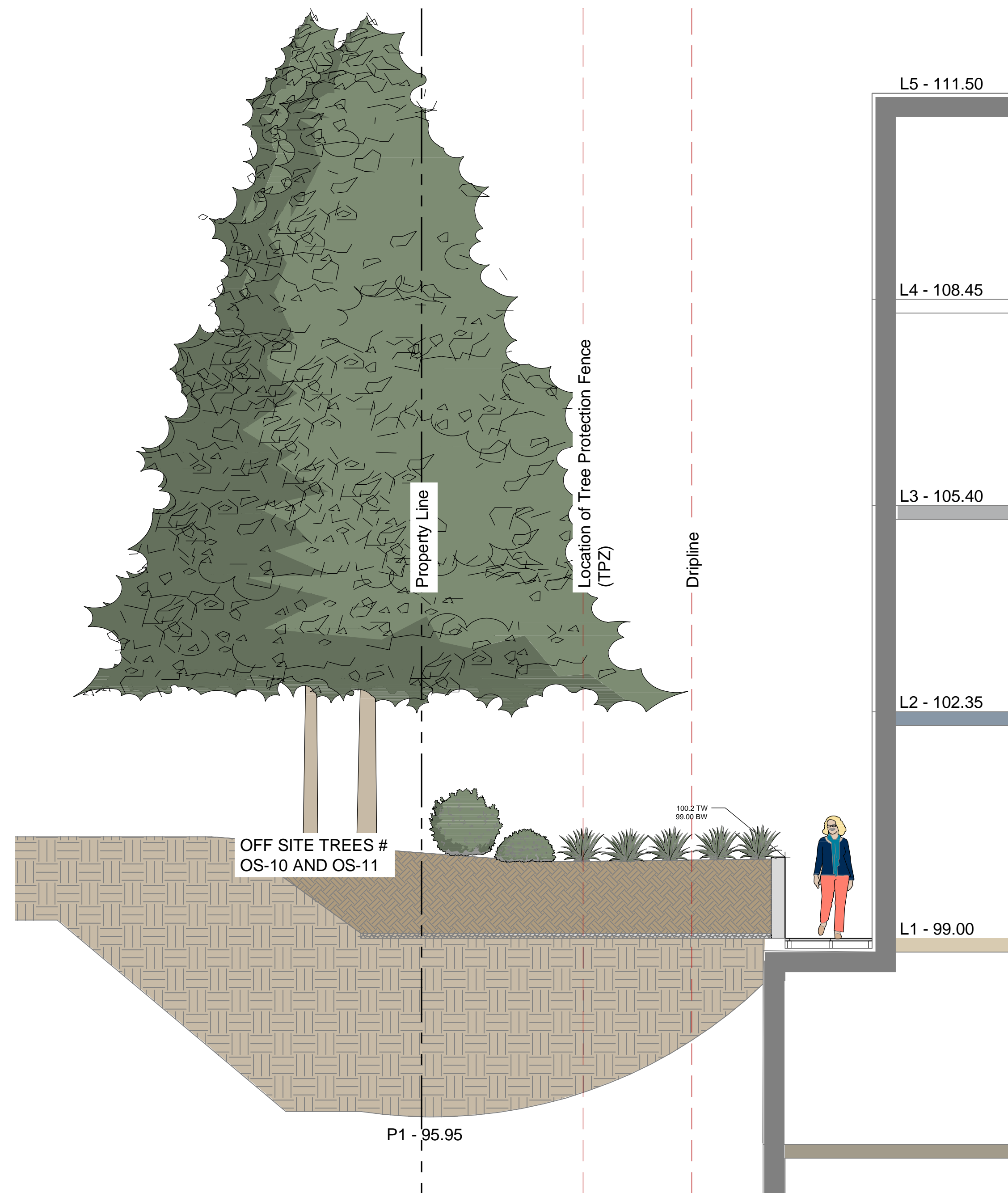
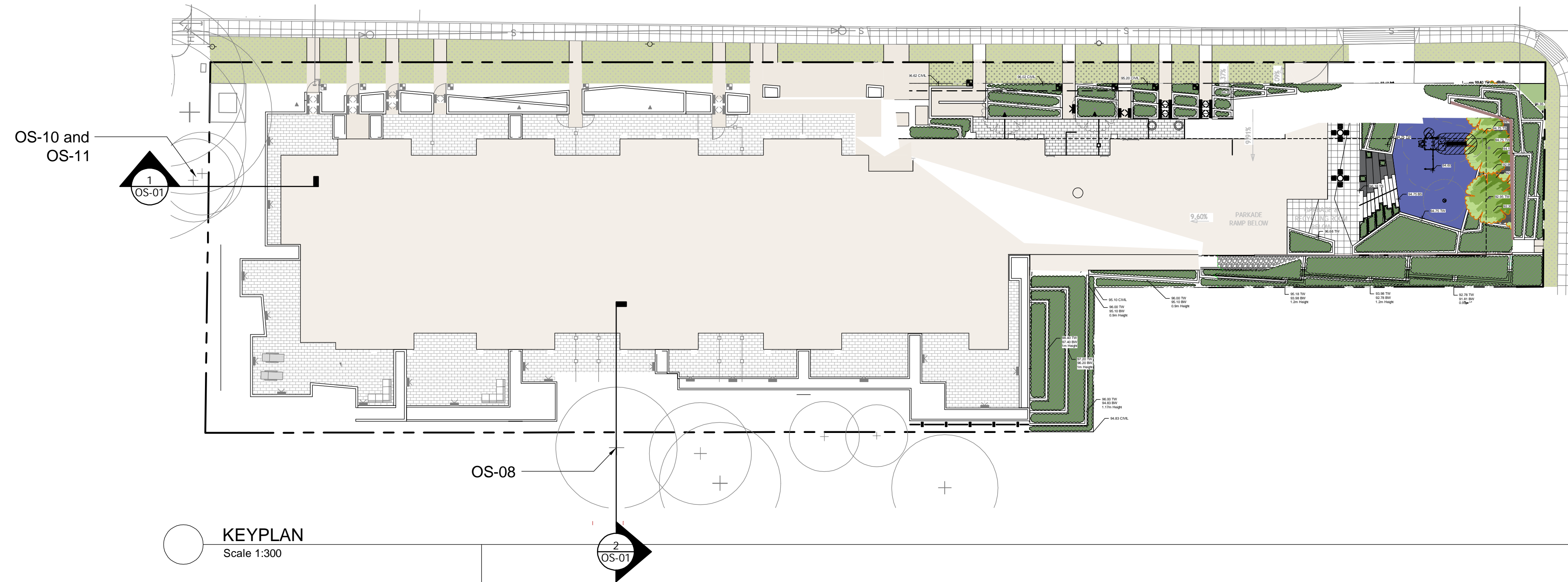
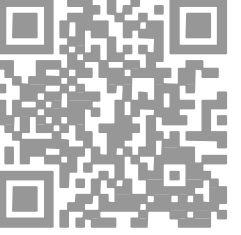
The tendency of trees or parts of trees to fall due to environmental conditions and internal problems are unpredictable. Defects are often hidden within the tree or underground. The project arborist has endeavored to use his skill, education, and judgment to assess the potential for failure, with reasonable methods and detail. It is the owner's responsibility to maintain the trees and inspect the trees to reasonable standards and to carry out recommendations for mitigation suggested in this report.

If you have any further questions or concerns regarding this report, please contact VDZ+A Consulting Inc. at 604-882-0024.

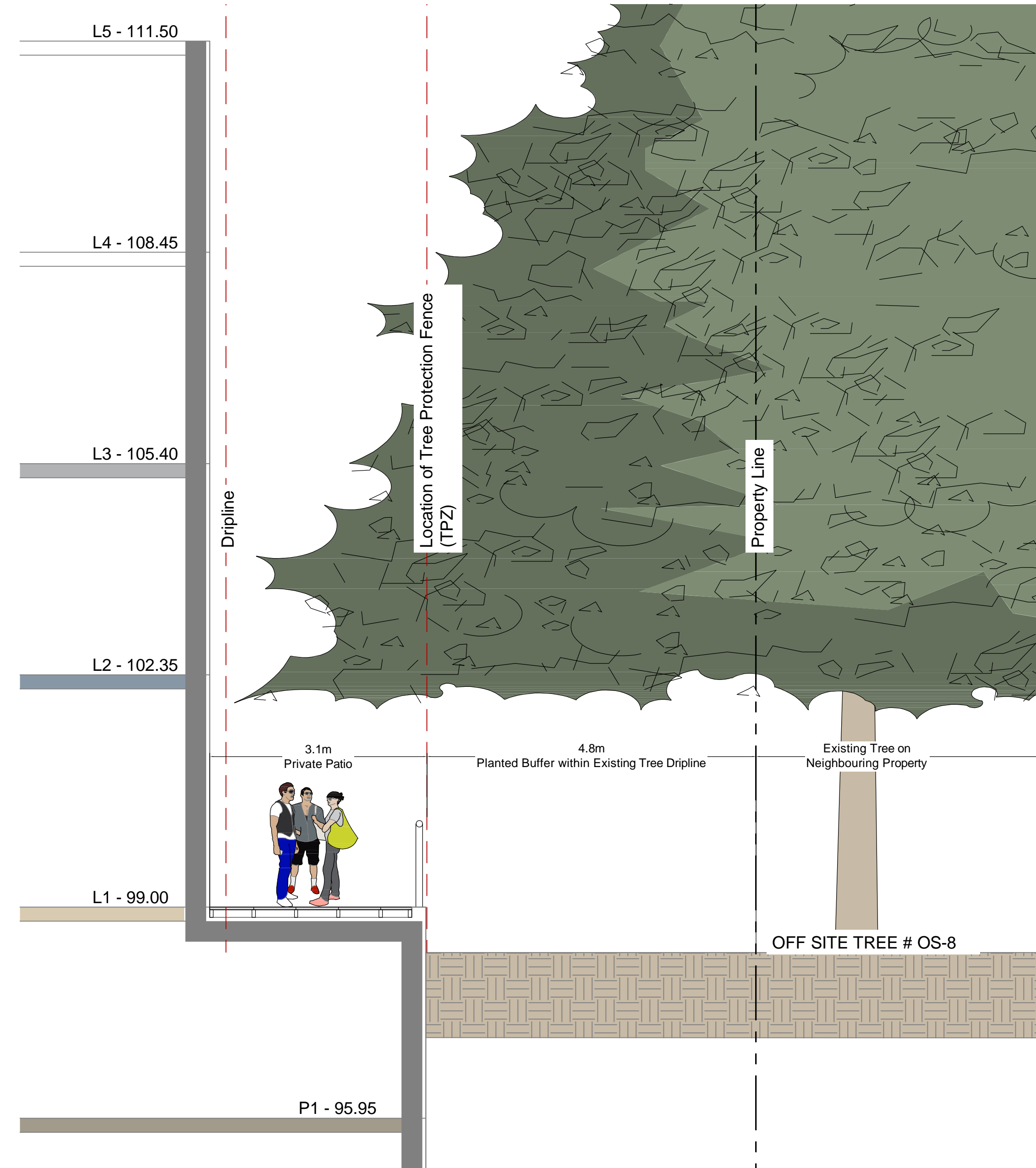
Sincerely,



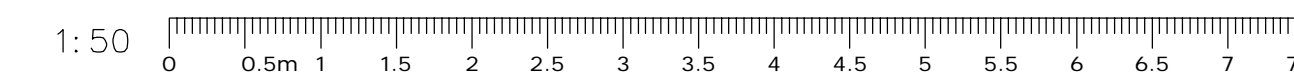
D. Glyn Romaine TFT
ISA Certified Arborist PN-7929A
ISA Tree Risk Assessment Qualification



1 SECTION AT OFF-SITE TREE OS10 AND OS11
 Scale 1:50



2 SECTION AT OFF-SITE TREE OS8
 Scale 1:50



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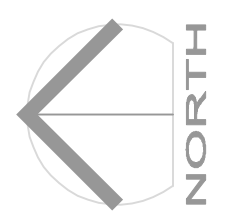
Project:
 Vidal Street Development

 Location:
 Vidal Street & Thrift Ave,
 White Rock, BC

Drawn: DV	Stamp:
Checked: SH	
Approved: GR	
Scale: 1:50	Original Sheet Size: 24"x36"

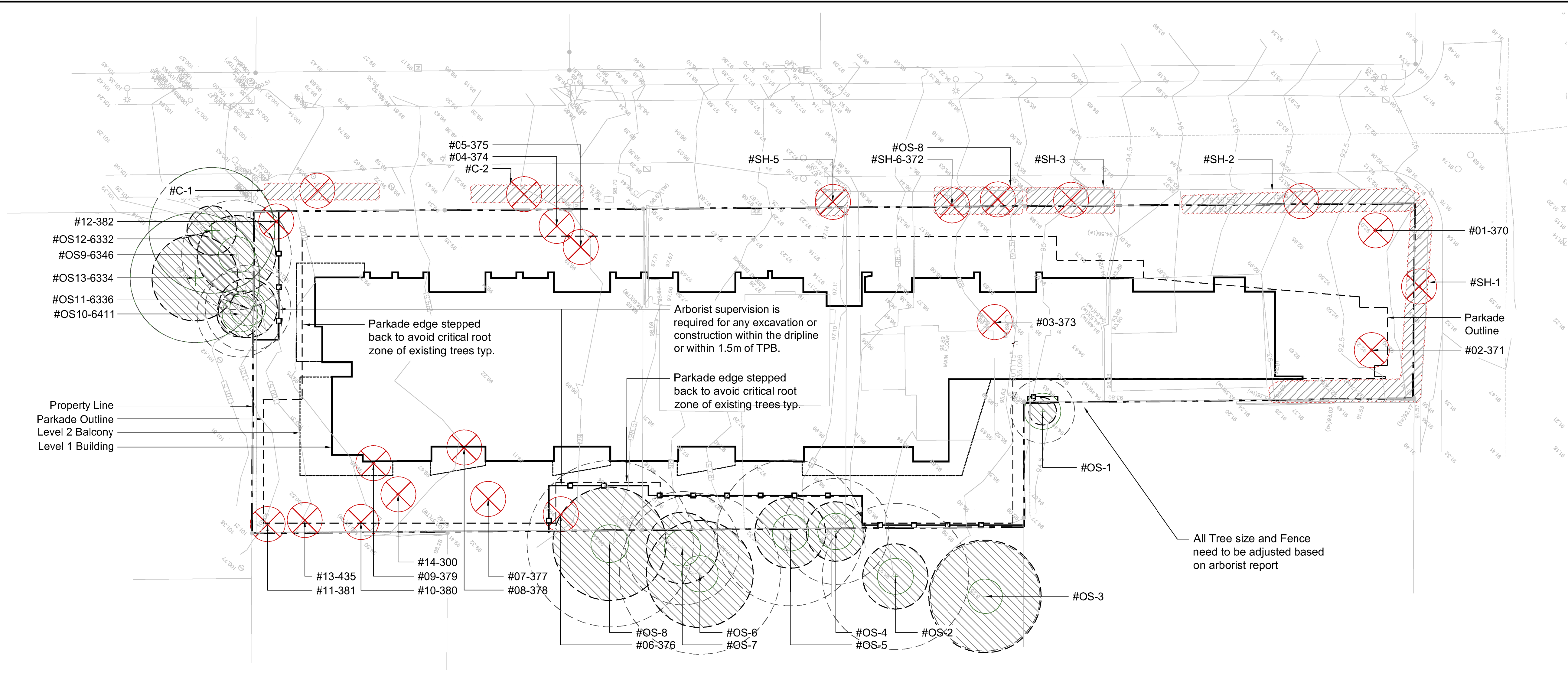
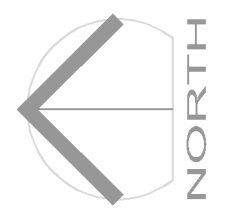
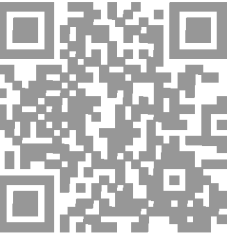
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Drawing Title:
SECTIONS AT OFFSITE TREES



VDZ Project #:
DP2018-59

Drawing #:
OS-01



1 TREE PROTECTION AND REMOVAL PLAN
 Scale 1:250

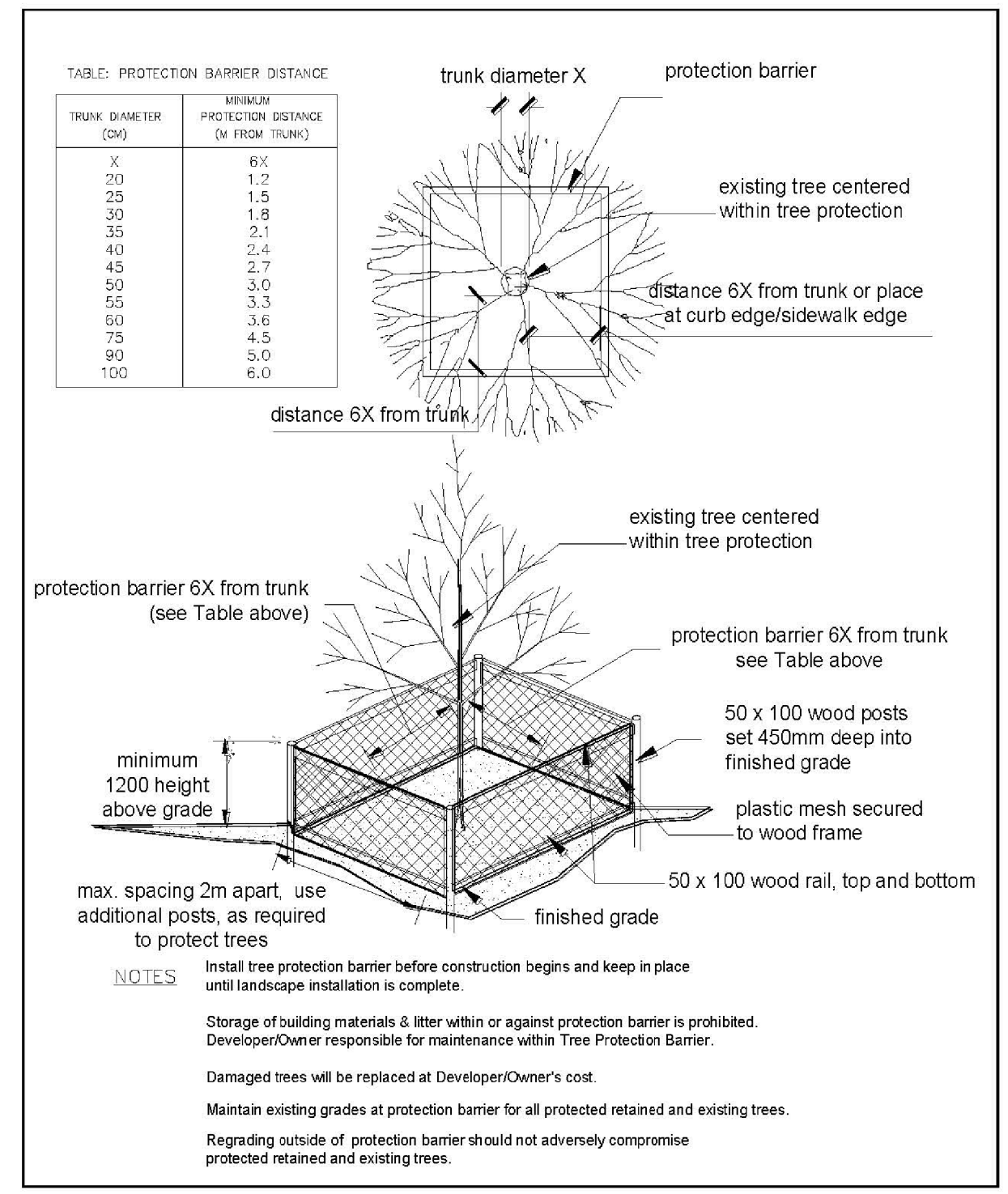
Consolidated Version - White Rock Tree Management Bylaw, 2008, No. 1831
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LEGEND

Existing Tree to be Retained CRZ: Critical Root Zone CR: Crown Radius	Existing Tree to be Removed	Tree Protection Fencing		

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I:\VDZ\SRV\LANG\VDZ\DATA\PROJECTS\DEVELOPMENT\PERMIT\ACTIVEDP2018-59 VIDAL STREET\DWGS\SHEET\L-02 TREE PROTECTION AND REMOVAL PLAN.DWG

PROJECT: VIDAL STREET DEVELOPMENT

SITE ADDRESS: 14937 Thrift Ave & 1441/1443-45/1465 Vidal Street, White Rock, BC

CLIENT: WESTSTONE GROUP
10090 152ND St.
Surrey, BC, V3R 8X8

VDZ PROJECT # DP2018-59

SITE REVIEW DATE(s): October 16, 2018
September 15, 2020
July 8, 2022, July 18, 2023

PREPARED BY: VDZ+A Consulting Ltd.
102 – 355 Kingsway
Vancouver, BC
V5T 3J7

PROJECT ARBORIST: D. Glyn Romaine
ISA Certified Arborist, PN-7929A
ISA Tree Risk Assessment Qualified
Email: glyn@vdz.ca
Phone: 236 521 4645

Signed:



D. Glyn Romaine

Original Report November 5, 2018
Revision 1 May 8, 2019
Revision 2 September 23, 2020 – A.L.
Revision 3 July 11, 2022 – D.G.R. - Updated Survey.
Revision 4 September 26, 2023 – D.G.R.



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INTRODUCTION

ASSIGNMENT

VDZ + A Consulting Inc. (VDZ) have been retained by the client to prepare an arborist report to assess the tree(s) located at 14937 Thrift Avenue & 1441 / 1443-45 / 1465 Vidal Street, White Rock, BC. VDZ arborists performed site reviews entailing identification and visual assessment of the tree(s) on-site. A tree survey of all off-site trees was completed by the client or representative(s).

The Project Arborist will provide recommendations for the retention of tree(s) based on the existing site conditions and the proposed use of the site. Mitigation of development impact on the tree(s) has been considered as part of the tree assessment process.

LIMITS OF THE ASSIGNMENT

VDZ's observations were limited to site visits on October 16, 2018, September 15, 2020, and July 8, 2022, and July 18, 2023. No tissue or soil samples were sent to a lab for identification or analysis. VDZ + A Consulting Inc. located the trees using existing landmarks and onsite navigation.

TESTING AND ANALYSIS

VDZ arborists used visual tree assessment and mallet sounding to test the trees' health, condition, and risk level.

PURPOSE AND USE OF REPORT

The purpose of this report is to assist the property owner in compliance with the White Rock Tree Protection Bylaw, 2021 No. 2407.



SITE DESCRIPTION

SITE REVIEW

The site consists of four residential lots, three of which have existing houses.. The southernmost lot is a single-family residential home that fronts onto Thrift Avenue. It is joined via the north property line to the first three lots proceeding up the west side of Vidal Street. From Thrift Avenue, Vidal Street inclines north. To the west lay an assortment of low-rise multifamily residences and to the north is a newer high-rise development.



Fig. 1 – Aerial view of property (WROMS)

PROPOSED SITE DEVELOPMENT

The demolition of existing structure and the development of midrise multi-family residential building.



ENVIRONMENTAL DESCRIPTION

Vegetation on the site consists of ornamental trees, shrubs and hedges, and lawn. Knotweed was observed at 1445 Vidal. Himalayan blackberry, English Ivy and Scotch broom have established at 1465 Vidal.

There are no seasonal creeks that transect the property.

There is no evidence of raptors nests, osprey nests or heron colonies on the site. Removal of trees however between March 1 – August 31 (date subject to change depending on seasonal nesting behavior and therefore must be confirmed with City of White Rock) will require a bird nesting survey. This is as prescribed by the federal Migratory Birds Convention Act (MBCA), 1994 and Section 34 of the BC Wildlife Act. It is the responsibility of the owner/developer to ensure they are in compliance with the city's regulations governing nesting birds on sites where development is occurring.

Off-site Trees – There are private off-site trees associated with this project.

Municipal Trees – There are City of White Rock trees associated with this project.

Trees Straddling the Property Line – There are trees straddling the property line associated with this project

TREE PRESERVATION SUMMARY

All the Trees identified on the Tree Retention/Removal Plan and within the Tree Assessment Data Table have been given their Retention/Removal recommendation on a preliminary basis. Final recommendations will be based upon design/construction and grading details.

Long-term tree preservation success is dependent on minimizing the impact caused during pre-construction clearing operations, construction, and post construction activities. Best efforts must be made to ensure the Tree Protection Zone remains undisturbed.

Ongoing monitoring of retained trees through the development process and implementation of mitigating works (watering, mulching, etc.) is essential for success. Once excavation starts, the consulting arborist needs to be contacted to monitor the work that is done near the trees.

TREE HEALTH CARE PLAN DURING CONSTRUCTION

To ensure continued health of the protected trees during construction, the following is recommended:

1. Remove dead, dying, and diseased branches prior to the start of construction.



2. Install tree protection barriers per bylaw specifications.
3. Regular weekly watering of trees between June 1 – October 1.
4. Application of wood chips within the tree protection zone (1-3 inches).
5. Monthly monitoring of protected trees by assigned Arborist.

Retained protected trees will require supplemental watering on a weekly basis (weather dependent), as well as the application of wood chips or mulch to the tree protection zone within the tree protection barriers. Wood chips are preferred to ensure porous movement through soil and protection from compaction during construction. The mulch or wood chip height should not exceed the root collar (not to exceed 10cm) to avoid moisture retention concentrated on the stem. In addition to the City's requirements, recommendations include the pruning of dead or dying limbs, if applicable, prior to construction for worker safety, as well as monthly monitoring of the trees by an Arborist to ensure the health and well-being of the protected trees.

As there are off-site trees with driplines that extend into the subject property, there may be interconnected root systems within the grouping (OS9-OS11) which likely extend onto the property. BC Plant Health Care Root Radar results determined the roots of tree 06 has poor structure and multiple trunks with decay. In addition, OS2-OS6 have feeder or structural roots which grow towards the property. Any work done within the critical root zone will need to be monitored by the arborist. Any retention wall should be maintained to avoid root disruption and destabilization.

SUMMARY OF FINDINGS

- 14 protected trees were identified on-site. All are in conflict with the proposed development and are recommended for removal.
- 5 hedges and 1 tree straddle city property and are in conflict with civil upgrades and are recommended for removal.
- 2 trees on city property were identified. Both are in conflict with civil upgrades and are recommended for removal.
- 13 trees located off-site on private property were identified. All are recommended for retention with the proposed development.
- OS 03-OS 08 have driplines that extends to/over subject property line. Root radar was used to assess root systems. The project arborist must be present to monitor excavation within 1.5 m of the driplines, and during and during any construction within 1.5 m of the Tree Protection Barriers.
- Knotweed was observed at 1441 Vidal. This should be managed, and all plant parts must be disposed of separately.
- Hypodermic needles were observed at 1445 Vidal.



TABLE 1

_DBH = Diameter at Breast Height (1.4m) LCR = Live Crown Ratio CRZ = Critical Root Zone TPZ = Tree Protection Zone

TREE #	TAG #	COMMON NAME <i>BOTANICAL NAME</i>	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
<p>Comments written for 376 and OS2-OS8, in italics, have been transferred from the BC Plant Health Care Inc. Arborist Report for Tree Root Mapping, dated March 18, 2019. Building design has changed base on these findings and excavation to the property line is no longer proposed in proximity to OS4-OS8.</p>								
<p>The following trees are located on 14937 Thrift Avenue.</p>								
01	370	English holly <i>Ilex aquifolium</i>	Yes	45	4.5	80	WITHIN PROPOSED PARKADE EXCAVATION.	Remove
02	371	English holly <i>Ilex aquifolium</i>	Yes	35	3.5	80	WITHIN PROPOSED PARKADE EXCAVATION.	Remove
<p>The following trees are located on 1441 Vidal Street.</p>								
03	373	Threadleaf false-cypress <i>Chamaecyparis pisifera</i> 'Filifera'	Yes	54 (17, 18, 19)	3.0	60	Fair form and structure. TRUNK – Growing directly adjacent to the foundation of the existing house. WITHIN PROPOSED BUILDING ENVELOPE	Remove
<p>The following trees are located on 1465 Vidal Street.</p>								
04	374	Crimson King Norway maple <i>Acer platanoides</i> 'Crimson King'	Yes	44	5.1	80	DBH measured at 1 m. Fair form and structure. CROWN – Previously side pruned for utility line clearance. Previously topped. WITHIN PROPOSED PARKADE EXCAVATION.	Remove
05	375	Common lilac <i>Syringa vulgaris</i>	No	31 (10, 10, 11)	3.0	30	HANDPLOTTED Poor form and structure. TRUNK – Multi-stem from base. Single limb failure since original visit. WITHIN PROPOSED PARKADE EXCAVATION.	Remove



TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
06	376	Red alder <i>Alnus rubra</i>	Yes	114 (42, 41, 31)	9.4	80	Fair form and structure. TRUNK – 3stems from base. Decay present in one stem (0.5 meters in length). Rope girdling eastern trunk, previous tear-out on western trunk. Natural lean east. <i>BC Plant Health Care root radar results:</i> <i>Poor structure with multiple trunks and decay. Conflict with proposed development.</i> WITHIN PROPOSED PARKADE EXCAVATION.	Remove
07	377	Flowering plum <i>Prunus cerasifera</i>	No	62 (15, 18, 29)	5.8	80	HANDPLOTTED Fair form and structure. CROWN: Heavy ivy up trunk into crown. Some dieback at branch ends. WITHIN PROPOSED PARKADE EXCAVATION.	Remove
08	378	Mountain ash <i>Sorbus aucuparia</i>	No	38 (11, 12, 15)	4.5	80	HANDPLOTTED Fair form and structure. CROWN: Heavy ivy up trunk into crown. Some dieback at branch ends. WITHIN PROPOSED PARKADE EXCAVATION.	Remove
09	379	Japanese maple <i>Acer palmatum</i>	No	36 (10, 13, 13)	5.6	75	HANDPLOTTED Fair form and structure. TRUNK: Ivy up trunk. WITHIN PROPOSED PARKADE EXCAVATION.	Remove
10	380	Mountain ash <i>Sorbus aucuparia</i>	No	37 (11, 13, 13)	4.5	40	HANDPLOTTED Fair form and structure. CROWN – Shade suppressed on north and east sides. TRUNK: Ivy up trunk. WITHIN PROPOSED PARKADE EXCAVATION.	Remove
11	381	Vine maple <i>Acer circinatum</i>	No	51 (15, 16, 20)	4.0	80	HANDPLOTTED Fair form and structure. TRUNK: Multi-stemmed. Ivy up trunk. WITHIN PROPOSED PARKADE EXCAVATION.	Remove



TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
12	382	Bitter cherry <i>Prunus emarginata</i>	No	54 (16, 16, 22)	4.5	80	HANDPLOTTED Fair form and structure. Multi-stemmed. CROWN: Dieback on one stem. WITHIN PROPOSED PARKADE EXCAVATION.	Remove
13	435	Fruiting cherry. <i>Prunus sp.</i>	No	31	4.3	50	Good form and structure TRUNK: Ivy up trunk. WITHIN PROPOSED PARKADE EXCAVATION.	Remove
14	300	Crimson King Norway maple <i>Acer platanoides</i> 'Crimson King'	No	23	5.5	60	Good form and structure TRUNK: Ivy up trunk. WITHIN PROPOSED PARKADE EXCAVATION.	Remove
The following trees are straddling the City of White Rock property.								
SH 01	No tag	Common privet hedge <i>Ligustrum vulgare</i>	Yes	-	1.3	100	Height = 2.2M Shared with 14937 Thrift Ave. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
SH 02	No tag	Boxwood hedge <i>Buxus sempervirens</i>	Yes	-	1.0	100	Height = 2.0M Shared with 14937 Thrift Ave. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
SH 03	No tag	Common privet hedge <i>Ligustrum vulgare</i>	Yes	-	1.5	100	Height = 2.5M Shared with 14937 Thrift Ave. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
SH 04	No tag	English laurel <i>Prunus laurocerasus</i>	Yes	-	2.2	100	Height = 5.0M Shared with 1441 Vidal St. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
SH 05	No tag	English laurel <i>Prunus laurocerasus</i>	Yes	-	1.8	100	Height = 3.5M Shared with 1443-45 Vidal St. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove

TREE ASSESSMENT



TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
SH 06	372	Cherry <i>Prunus</i> sp.	Yes	59	5.5	30	Growing within the SH 04 hedge. Fair condition. CROWN: Some dieback. Shared with 1441 Vidal St. Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
The following trees belong to the City of White Rock.								
C 1	No tag	Pyramidalis hedge <i>Thuja occidentalis</i> 'Pyramidalis'	Yes	-	1.0	100	HANDPLOTTED Height = 6.0M Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
C 2	No tag	Mixed hedge	No	-	2.5	100	HANDPLOTTED Height = 6.0M Indirect conflict with civil sidewalk upgrades and proposed street trees. Written permission required from City to remove.	Remove
The following trees are located offsite.								
Trees OS 1 – OS 8 were inspected visually from a distance. DBH figures have been estimated by the Project Arborist.								
OS 01	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	25	3.5	90	Good form and structure. TRUNK – Located within (0.25 meters) of retaining wall on two sides. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS 02	No tag	Paper birch <i>Betula papyrifera</i>	Yes	55	8.0	50	Good form and structure. CROWN – Dripline extends 3.0 meters onto subject property. <i>BC Plant Health Care root radar results:</i> Feeder roots detected in the 0-20 cm depth range. The tree is about 6 meters from the proposed development. Critical Root Zone does not enter the subject lot. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain



TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
OS 03	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	95	6.0	75	<p>Good form and structure. OS 03 – OS 05 are part of a larger grouping of trees with approximately 6.0 meter dripline(s) that extend to subject property line. ROOTS – Interconnected within grouping and likely extending onto subject property.</p> <p><i>BC Plant Health Care root radar results:</i> <i>Feeder roots detected in the 0 – 20 cm depth range. The tree is about 8 meters from the proposed development. Critical Root Zone does not enter the subject lot. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i></p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain
OS 04	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	50	5.8	75	<p>Good form and structure. OS 03 – OS 05 are part of a larger grouping of trees with approximately 6.0 meter dripline(s) that extend to subject property line. ROOTS – Interconnected within grouping and likely extending onto subject property.</p> <p><i>BC Plant Health Care root radar results:</i> <i>Assessment blocked by a shed. Roots may grow towards the shed. About 24% of Critical Root Zone will be impacted. Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i></p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain



TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
OS 05	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	60	8.0	60	<p>Good form and structure. OS 03 – OS 05 are part of a larger grouping of trees with approximately 6.0 meters dripline(s) that extend to subject property line. ROOTS – Interconnected within grouping and likely extending onto subject property.</p> <p><i>BC Plant Health Care root radar results:</i> May have structural, lateral, and feeder roots growing towards the east in the 0 – 20 cm depth range. About 27% of Critical Root Zone will be impacted. Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain
OS 06	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	90	8.8	75	<p>Good form and structure. CROWN – Dripline extends 3.5 meters onto subject property.</p> <p><i>BC Plant Health Care root radar results:</i> The tree is about 6 meters from the proposed development. Critical Root Zone does not enter the subject lot. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain



TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
OS 07	No tag	Western redcedar <i>Thuja plicata</i>	Yes	60	6.2	60	<p>Good form and structure. CROWN – Dripline extends 3.8 meters onto subject property.</p> <p><i>BC Plant Health Care root radar results: May have structural, lateral, and feeder roots growing towards its southeast in the 0 – 20 cm depth range. About 6% of Critical Root Zone may be impacted. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i></p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain
OS 08	No tag	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	95	9.1	50	<p>Good form and structure. CROWN – Dripline extends 7.0 meters onto subject property.</p> <p><i>BC Plant Health Care root radar results: Assessment blocked by Tree 376 and shrubs. About 25% of Critical Root Zone will be impacted. Retain with no cut at Property Line. Design a point-footing retaining wall with suspended beams. Arborist oversight recommended for the excavation at Property Line for the installation of the proposed retaining wall / landscape feature.</i></p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain
Trees OS 9 – OS 13 form the edge of a larger grouping of private off-site trees to the north of the site.								
OS 9	6346	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	67	6.0	50	<p>Good form and structure. TRUNK: Crook at 16 m.</p> <p>Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.</p>	Retain

TREE ASSESSMENT



TREE #	TAG #	COMMON NAME BOTANICAL NAME	LOCATED ON THE SURVEY	DBH (cm)	Crown Radius (m)	LCR (%)	COMMENTS	RETAIN / REMOVE
OS 10	6411	Western redcedar <i>Thuja plicata</i>	Yes	38	4.7	80	Fair form and structure. CROWN: Sheared on south side. TRUNK – Previously topped. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS 11	6336	Western redcedar <i>Thuja plicata</i>	Yes	38	4.7	80	Fair form and structure. CROWN: Sheared on south side. TRUNK – Previously topped. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS12	6332	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	41	6.9	80	Good form and structure. Crown: Previous shearing or clearance pruning on south side. Minor flagging. ROOTS: Large exposed roots. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain
OS13	6334	Douglas-fir <i>Pseudotsuga menziesii</i>	Yes	71	7.1	80	Good form and structure. Trunk: Resinosis. Tree Protection Barrier (TPB) required. Arborist supervision required during excavation and any construction activities within 1.5 m of the dripline.	Retain



TREE REPLACEMENT SUMMARY

Onsite & Straddling:

Size	To be Removed	Replacement Trees Required
Undersized (<20cm dbh), (hedges, invasive holly)	5	0
≤ 50cm dbh	9	18
51-65cm dbh	5	15
66-75cm dbh	0	0
76-85cm dbh	0	0
>85cm dbh	1	6
Total	20	39

Offsite City:

Size	To be Removed	Replacement Trees
(<30cm dbh) (hedges)	2	0
≤ 50cm dbh	0	0
51-65cm dbh	0	0
66-75cm dbh	0	0
76-85cm dbh	0	0
>85cm dbh	0	0
Total	2	0

TREE PROTECTION AND REPLACEMENT SECURITIES

Tree Protection securities:

Size of Tree Retained	Securities
Dbh ≤ 50cm	\$3,000.00 per retained tree
Dbh of 51-65cm	\$4,500.00 per retained tree
Dbh > 65cm	\$10,000 per retained tree

Tree Replacement securities:

Size Tree Removed*	Replacement Ratio	Securities / Cash-in-lieu (\$1,500 per replacement tree)
≤ 50cm dbh	2:1	\$3,000
51-65cm dbh	3:1	\$4,500
66-75cm dbh	4:1	\$6,000
76-85cm dbh	5:1	\$7,500
>85cm dbh	6:1	\$9,000

PHOTOS



Fig. 2 - View facing south along Vidal Street to Thrift Avenue.



Fig. 3 – Off-site Douglas-fir tree



Fig. 4 – Tree 03 growing within S4



Fig. 5 – View of Trees OS2 – OS8



Fig. 6 – Stand of off-site conifers located directly west of 1441/1443-45/1465 Vidal Street.



Fig. 7 – View facing north/northwest. OS 9 – OS 11 make up part of the edge of a larger grouping of conifers.



Fig. 8 – Alternate view of Trees OS 9 – OS 11



Fig. 9 – Red alder (376) located on 1465 Vidal Street.



PHOTOS – September 15, 2020



Fig. 9 – View facing east on 1465 Vidal st, tree protection fencing damaged. Needs repair.

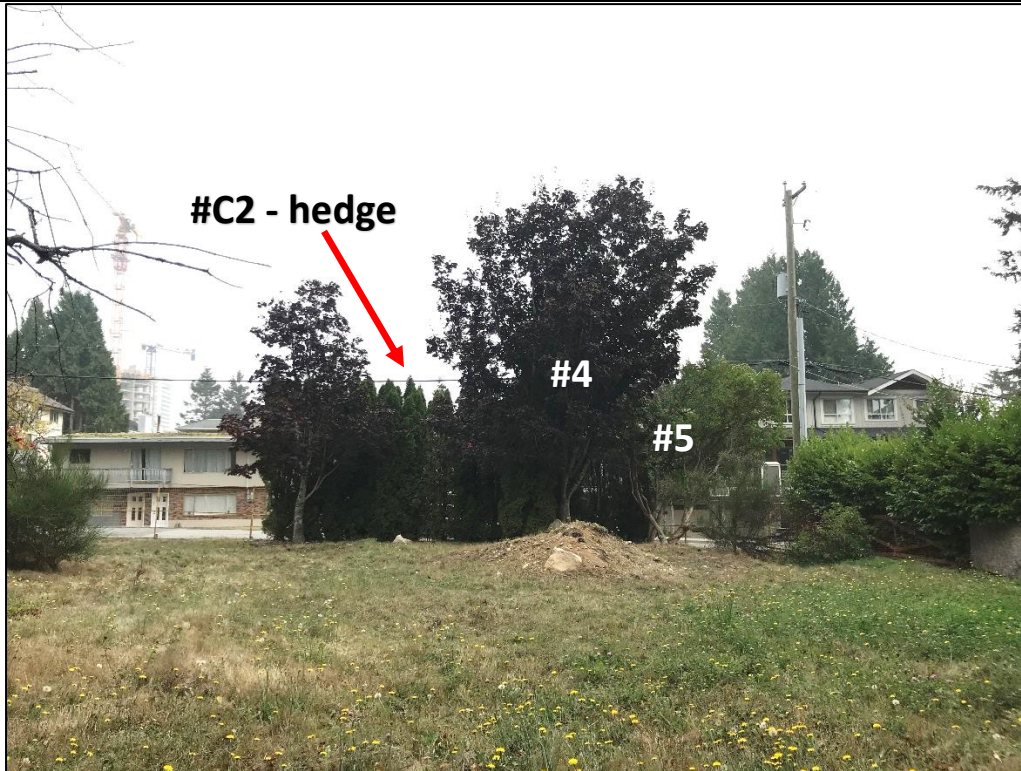




Fig. 10 – View facing east. Southeast corner of 1445 Vidal st. C2 hedge, #4 norway maple, and #5 lilac.



Fig. 11 – Northwest corner of 1465 Vidal.



Fig. 12 – Looking south from 1443-45 Vidal St.



Fig. 13 – Tree #5, failed limb.



Fig. 14 – Pruning of tree branches along east property line, 1465, 1443-45.



Fig. 15 – North property line of 1441 Vidal St, east corner.



Fig. 16 – North property line of 1441 Vidal St, west corner.



CONSTRUCTION ACTIVITY AROUND TREE PROTECTION ZONE

TREE PROTECTION FENCING

Specifications for Tree Protection Barriers

TRUNK DIAMETER (CM)	MINIMUM PROTECTION DISTANCE (M FROM TRUNK)
X	6X
20	1.2
25	1.5
30	1.8
35	2.1
40	2.4
45	2.7
50	3.0
55	3.3
60	3.6
75	4.5
90	5.0
100	6.0

NOTES

- Install tree protection barrier before construction begins and keep in place until landscape installation is complete.
- Storage of building materials & litter within or against protection barrier is prohibited. Developer/Owner responsible for maintenance within Tree Protection Barrier.
- Damaged trees will be replaced at Developer/Owner's cost.
- Maintain existing grades at protection barrier for all protected retained and existing trees.
- Regrading outside of protection barrier should not adversely compromise protected retained and existing trees.



GENERAL REQUIREMENTS AND LIMITATIONS FOR OPERATIONS WITHIN THE TREE PROTECTION ZONE

- The Contractor shall not engage in any construction activity within the Tree Protection Zone (TPZ) without the approval of the Project Arborist including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree Protection Zone maybe indicated on the drawings along with any required remedial activity as listed below.
- If construction activity is unavoidable within the Tree Protection Zone, notify the Project Arborist and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree Protection Zone from the activity. Remedial actions shall include but shall not be limited to the following:
 - In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either using hand tools, directional boring and/or Air Spade. If any excavation work is required within the Tree Protection Zone (TPZ), the Project Arborist must be present during excavation, and a trench should be 'hand dug' to a depth of 60 cm outside the Drip Line, to uncover any potential roots. The Project Arborist should cleanly prune roots and recommend the appropriate treatment for any structural roots encountered.
 - Knife excavation where indicated or with other low impact equipment that will not cause damage to the tree, roots soil.
 - When encountered, exposed roots, 1 inches and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the Project Arborist. Excavation shall be tunnelled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.
 - Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be RETAINED when specifically indicated by the Project Arborist. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboriculture practices (ANSI A300, part 8) and be performed under supervision of the Project Arborist.
 - Do not permit foot traffic, scaffolding or the storage of materials within the Tree Protection Zone.
 - Protect the Tree Protection Zone at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves and roots of all plants; and contamination of the soil, bark or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the Project Arborist of any spills, compaction or damage and take corrective action immediately using methods approved by the Project Arborist



GLOSSARY OF KEY TERMS

Abutment: A structure built to support the lateral pressure of an arch or span, e.g., at the ends of a bridge.

Adapted Trunk Diameter Method: This method uses the trees age and tolerance to construction damage to determine the factor that will be multiplied by the diameter to provide a sufficient tree protection zone given these factors.

Age: The relative age (young, intermediate, mature) within the particular stand of trees or forest.

Algae: Is a simple, nonflowering plant (includes seaweeds and many single-celled forms). They do contain chlorophyll (but lack true stems, roots, and vascular tissue)

ALR: The Agricultural Land Reserve in which agriculture is recognized as the priority.

Bole: The stem or trunk of a tree.

Chlorotic: Yellowing of plant tissues caused by nutrient deficiency &/or pathogen.

Co-dominant Leaders: Forked dominant stems nearly the same size in diameter, arising from a common junction.

Co-dominant Within Stand: Individual tree whose height is generally equal to trees (regardless of species) within the same stand.

Compaction: Compression of the soil that breaks down soil aggregates and reduces soil volume and total pore space, especially macropore space.

Conk: A fungal fruiting structure typically found on trunks and indicating internal decay.

Dead Standing: A tree that has died but is still standing erect.

DBH: The Diameter of the tree at 1.40 meters above the ground.

Dominant Within Stand: Individual tree whose height is significantly greater than adjacent trees (regardless of species) within the same stand.

C-rad: Crown radius, is the dripline measured from the edge of the trunk to the outermost branches of the crown.

CRZ: Critical Root Zone - means the area of land surrounding the trunk of a tree contained within a radius equal to the DBH of the tree multiplied by six (6), or one (1) metre beyond the drip line of the tree, whichever is greater.

Fair: Healthy but has some defects such as co-dominant trunk, dead branches.



Feeder Roots: The smaller roots responsible for water and nutrient absorption and gas exchange. These roots can extend far beyond the Drip Line (or outer canopy) of the tree.

Fungus (singular) / Fungi (plural): Unicellular, multicellular or syncytial spore-producing organisms that feed on organic matter (including molds, yeast, mushrooms and toadstools)

Girdling Root: Root that encircles all or part of the trunk of a tree or other roots and constricts the vascular tissue and inhibits secondary growth and the movement of water.

Good: Good form and structure, healthy with no defects.

Hazardous: Significant hazard exists with a high risk of immediate failure; which could result in serious damage to property or person(s).

Height: Height of tree is approximate.

LCR: Live Crown Ratio – The ratio of crown length to total tree length.

Level 1 Limited Visual Assessment: Limited visual assessment looking for obvious defects such as, but not limited to dead trees, large cavity openings, large dead or broken branches, fungal fruiting structures, large cracks, and severe leans.

Level 2 Basic Visual Assessment: Detailed visual inspection (aboveground roots, trunk, canopy) of tree(s) may include the use of simple tools to perform assessment (i.e. sounding mallet, trowel, measuring tape, binoculars). The assessment does not include advanced resistance drilling of trunk.

Level 3 Advanced Assessment: To provide detailed information about specific tree parts, defects, targets, or side conditions. May included aerial inspection, resistance drilling of tree parts, laboratory diagnosis of fungal or plant tissue.

Mildew: Is a minute powdery or web-like fungi (of different colours) that is found on diseased or decaying substances.

Moss: A small, green, seedless plant that grows on stones, trees or ground.

No Disturbance Zone: $(\text{Trunk Diameter} \times 6) + \text{Trunk Radius} + (60 \text{ cm excavation zone})$. For example, a 50-cm diameter tree would have a No Disturbance Zone = 3.85 meters measured from the edge of the trunk.

Poor: multiple defects, disease, poor structure and or form, root and or canopy damage.

Phloem: Plant vascular tissue that transports sugar and growth regulators. Situated on the inside of the bark, just outside the cambium. Is bidirectional (transports up and down). Contrast with xylem.

Phototropic: Growth toward light source or stimulant.



Retain & Monitor: Monitor health and condition of tree every 12 months for signs of deterioration.

Root Crown: Also, called the root collar, it includes the flare at the base of the trunk and the initial roots that develop below the trunk. These roots generally taper and subdivide rapidly to form the root system of the tree.

SPEA: Streamside Protection and Enhancement Area

Spiral Decline: The health and condition of the tree is deteriorating.

Sub-dominant Within Stand: Individual tree whose height is significantly less than adjacent trees (regardless of species) within the same stand.

Suppressed: Individual tree whose growth, health and condition are negatively impacted by adjacent tree(s).

TPZ: Tree Protection Zone - The area between the trunk and the Tree Protection Barrier.

Wildlife Tree: A tree or a group of trees that are identified to be retained to provide future wildlife habitat. Wildlife habitat can exist in tree risks (cavities, dead snags, broken tops). Often times the tree risk to potential targets (people & property) is reduced by removing that part of the tree posing the risk of failure, but the tree (or portion of) is retained to provide future habitat.

Witches Broom: A dense mass of shoots growing from a single point, with the resulting structure resembling a broom or a bird's nest.

Xylem: Thin overlapping cells that helps provide support and that conducts water and nutrients upward from the roots all the way to the leaves.



LIMITATIONS

This report is valid for the day the trees were reviewed. This report is not to be re-printed, copied, published, or distributed without prior approval by VDZ + A Consulting Inc.

Sketches, diagrams, and photographs contained in this report being intended as visual aids, should not be construed as engineering reports or legal surveys.

Only the subject tree(s) was inspected and no others. This report does not imply or in any other way infer that other trees on this site or near this site are sound and healthy.

The tendency of trees or parts of trees to fall due to environmental conditions and internal problems are unpredictable. Defects are often hidden within the tree or underground. The project arborist has endeavored to use his skill, education, and judgment to assess the potential for failure, with reasonable methods and detail. It is the owner's responsibility to maintain the trees and inspect the trees to reasonable standards and to carry out recommendations for mitigation suggested in this report.

REFERENCES

Bond, Jerry & Buchanan, Beth (2006) *Best Management Practices: Tree Inventories*, International Society of Arboriculture, Champaign, IL.

Dunster, Dr. Julian (2003) *Preliminary Species Profiles for Tree Failure Assessment*. ISA Pacific Northwest Chapter, Silverton, OR, USA

Dunster, Dr. Julian & Edmonds, Dr. R. (2014) *Common Fungi Affecting Pacific Northwest Trees*, ISA Pacific Northwest Chapter, Silverton, OR, USA

Fite, Kelby & Smiley, E. Thomas (2016) *Best Management Practices: Managing Trees During Construction*, International Society of Arboriculture, Champaign, IL.

Sibley, David Allen (2009) *The Sibley Guide to Trees*. Alfred A. Knopf, New York, NY

Smiley, E.T., Matheny, N., Lilly, S. (2011) *Best Management Practices: Tree Risk Assessment*. International Society of Arboriculture, Champaign, IL.

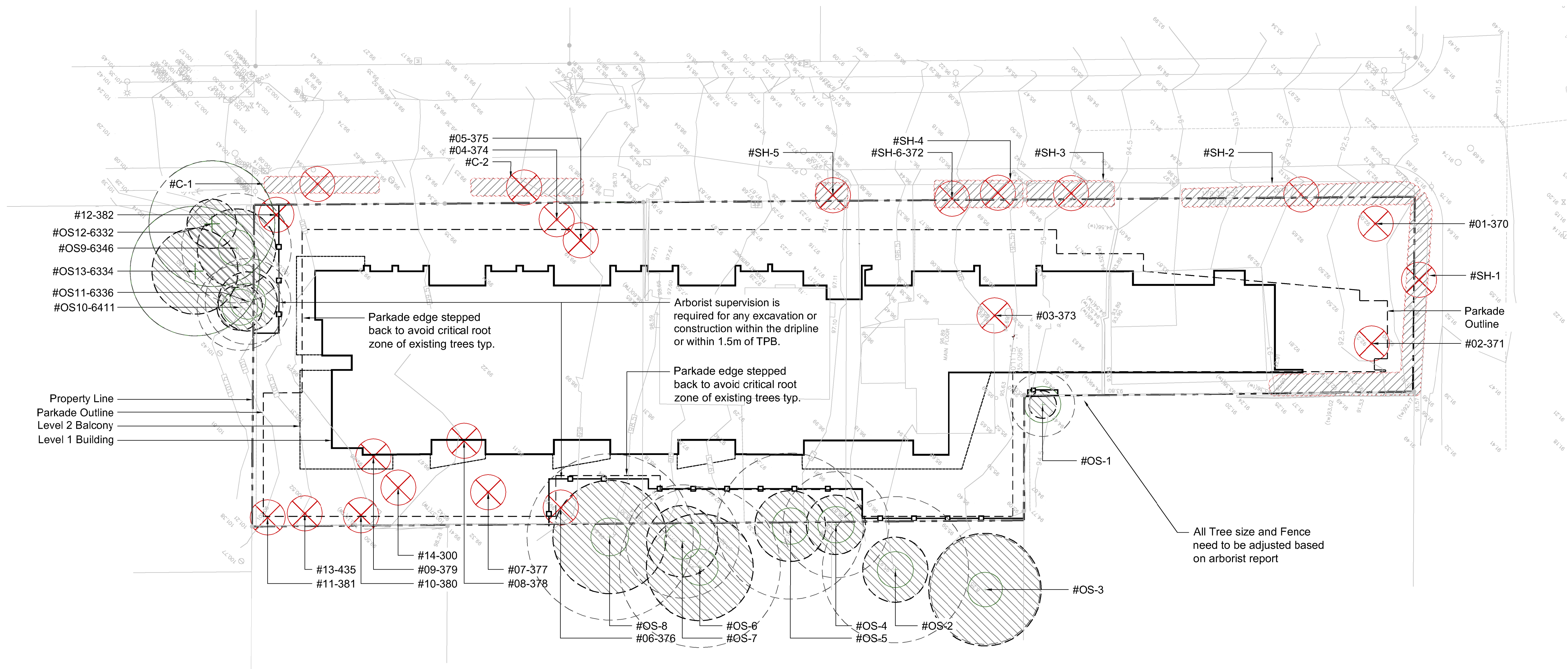
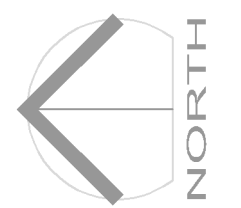
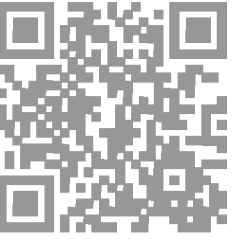


TREE MANAGEMENT PLAN

See attached Tree Mangement Plan

Original size: 24x36

Print as 11x17 for foldout



1 TREE PROTECTION AND REMOVAL PLAN
 Scale 1:250

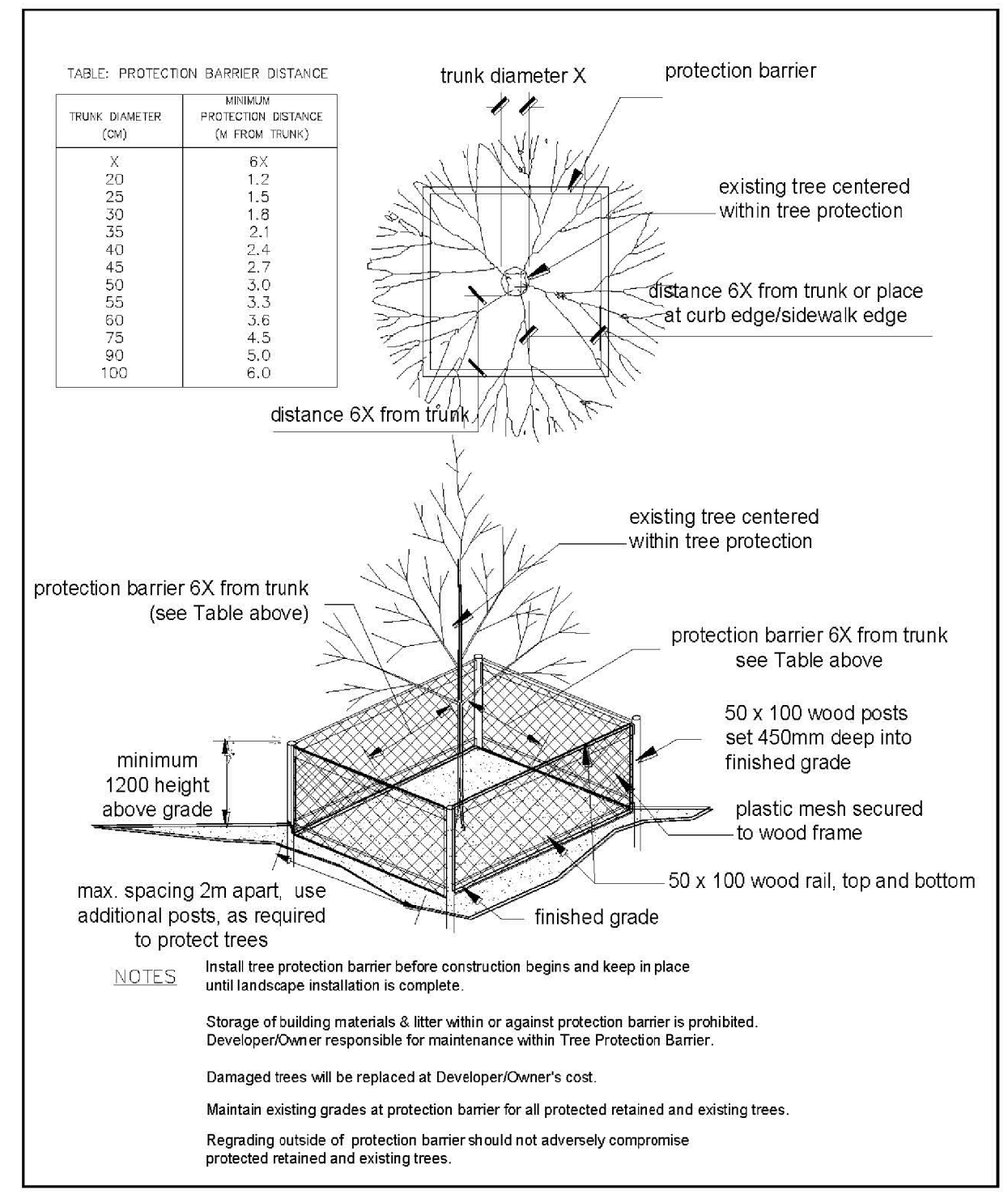
Consolidated Version - White Rock Tree Management Bylaw, 2008, No. 1831
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LEGEND

Tag #	CRZ CR	CRZ CR
Existing Tree to be Retained	Existing Tree to be Removed	Tree Protection Fencing
CRZ: Critical Root Zone	CR: Crown Radius	

Tree Tag Legend
 XX - Tag number
 C-XX - Municode tree
 OS-XX - Off-site tree
 SH-XX - Straddling tree. Written permission required from owner to remove trees.

SCHEDULE "A"
 Specifications for Tree Protection Barriers



- Note:**
- Contact Arborist (Glyn Romaine, 604 841 9977, glyn@vdz.ca) for inspection 72 hrs prior to any grading or excavation within the tree protection zone. (typ) If during excavation it is found that it cannot be completed without severing roots that are critical to the trees health or stability it may be necessary to remove additional trees.
 - Read this plan together with the arborist report prepared by VDZ+A.
 - An additional 1m setback is shown for all hand-plotted trees to be retained
 - If Stump Grinding is to occur in close proximity to trees which are to be retained then it is requested stumps to be removed under Arborist supervision.
 - It is the responsibility of the client or his/her representative to contact the project arborist for the purpose of:
 - *Locating TPZ Fencing
 - *Locating Work Zone and Machine access corridors where required
 - *Reviewing the Report with the project foreman or site supervisor.

2 TREE PROTECTION FENCE
 Scale NTS

No.	By:	Description	Date
14	SS	Re-Issued for DP	July 13, 2023
13	SS	Issued for DP	March 08, 2023
12	SH	Issued for Planning Review	May 31, 2022
11	SH	Issued for DP	Oct 18, 2021
10	SH	Response to ADP Comments	July 23, 2021
9	ET	Re-Issued for ADP	June 4, 2021
8	LJ	Issued for ADP	March 9, 2021
7	SH	Issued for Coordination	Feb. 26, 2021
6	SH	Issued for Coordination	Dec. 23, 2020
5	SH	Issued for Coordination	Oct. 6, 2020
4	SH	Issued for DP	June 25, 2020
3	SH	Issued for DP	March 6, 2020
2	SH	Issued for DP	May 24, 2019
1	JW	Issued for DP Review	Nov 16, 2018

REVISIONS TABLE FOR DRAWINGS
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No.	By:	Description	Date
6	GR	Arborist Report Update	Sept. 26, 2023
5	SH	Arborist Response	Sept. 26, 2022
4	KM	Arborist Report Revision	Sept 23rd, 2020
3	KM	Arborist Report Revision	Feb 4, 2020
2	SH	Arborist Report Revision	June 18, 2019
1	SH	Arborist Report Revision	May 15, 2019

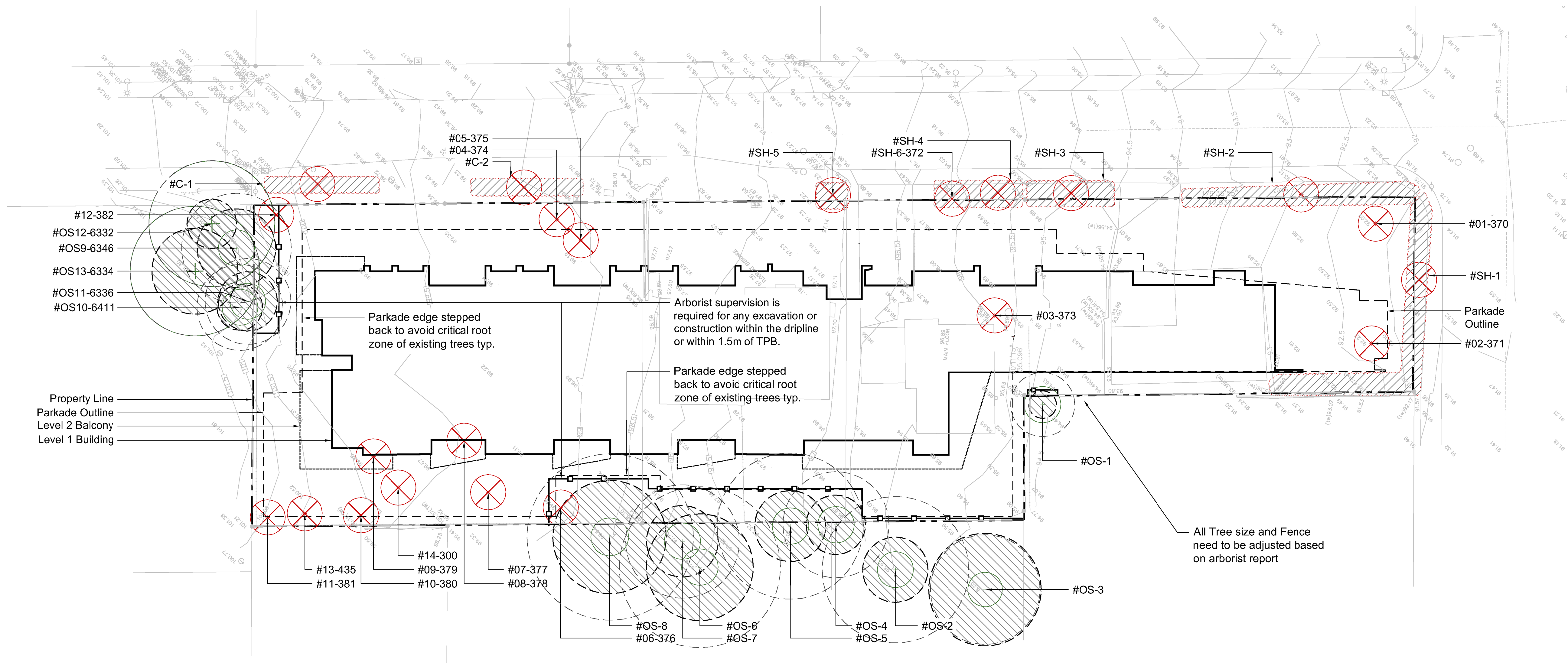
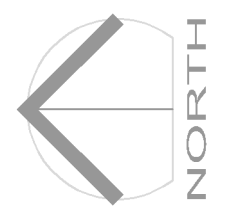
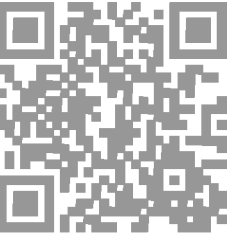
REVISIONS TABLE FOR SHEET

Project: Vidal Street Development

Location: Vidal Street & Thrift Ave, White Rock, BC

Drawn: DV	Stamp:
Checked: SH	
Approved: GR	Original Sheet Size: 24"x36"
Scale: 1:250	CONTRACTOR SHALL CHECK ALL DIMENSIONS ON THE WORK AND REPORT ANY DISCREPANCY TO THE CONSULTANT BEFORE PROCEEDING. ALL DRAWINGS AND SPECIFICATIONS ARE THE EXCLUSIVE PROPERTY OF THE OWNER AND MUST BE RETURNED AT THE COMPLETION OF THE WORK. ALL REVISIONS/DP/PPA/HA/HP DRAWINGS MUST NOT BE PRIED FOR CONSTRUCTION UNLESS LABELED ISSUED FOR TENDER/CONSTRUCTION.

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1 TREE PROTECTION AND REMOVAL PLAN
 Scale 1:250

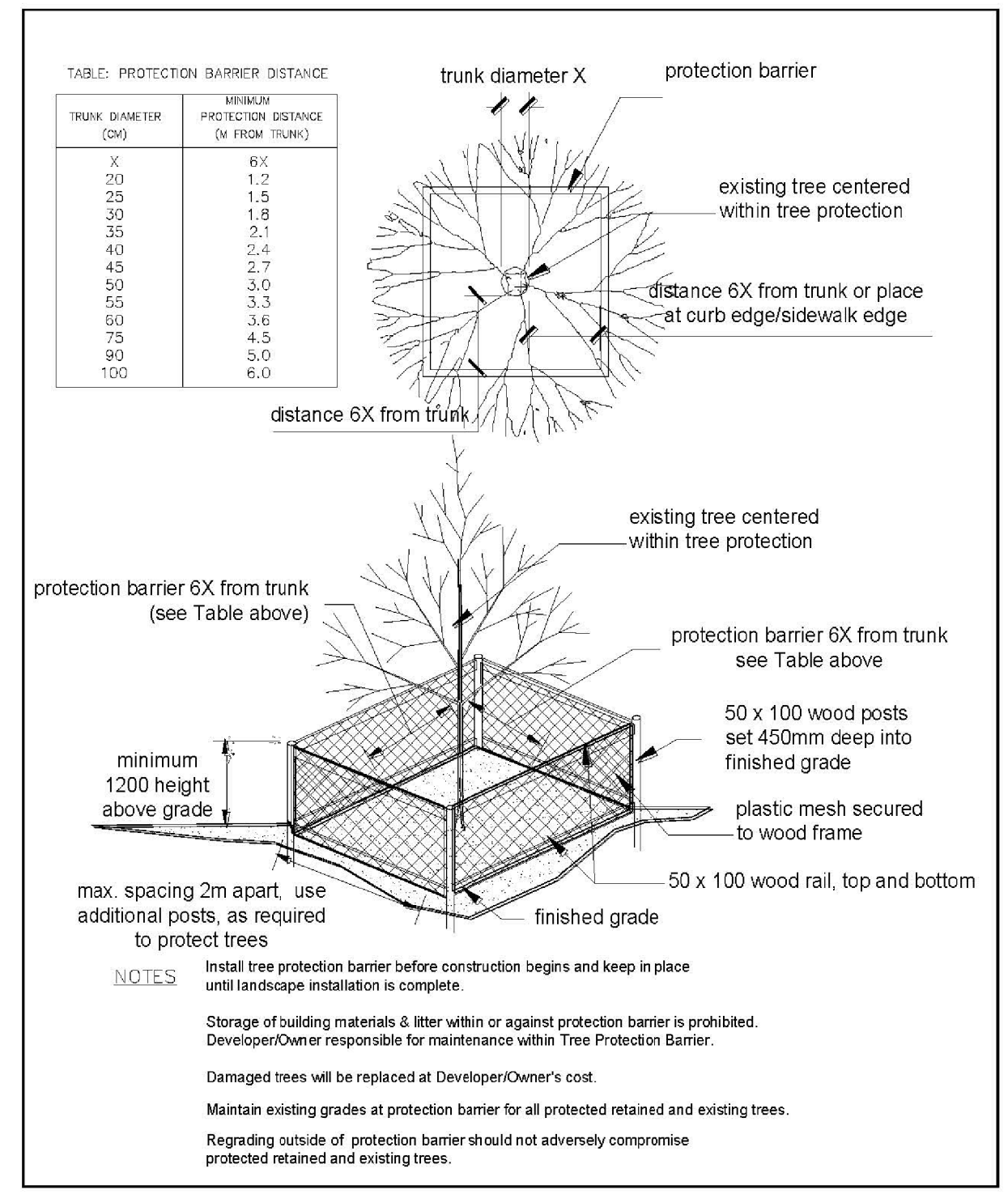
Consolidated Version - White Rock Tree Management Bylaw, 2008, No. 1831
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LEGEND

Tag #	CRZ CR	CRZ CR
Existing Tree to be Retained	Existing Tree to be Removed	Tree Protection Fencing
CRZ: Critical Root Zone		
CR: Crown Radius		

Tree Tag Legend
 XX - Tag number
 C-XX - Munciple tree
 OS-XX - Off-site tree
 SH-XX - Straddling tree. Written permission required from owner to remove trees.

SCHEDULE "A"
 Specifications for Tree Protection Barriers



- Note:**
- Contact Arborist (Glyn Romaine, 604 841 9977, glyn@vdz.ca) for inspection 72 hrs prior to any grading or excavation within the tree protection zone. (typ) If during excavation it is found that it cannot be completed without severing roots that are critical to the trees health or stability it may be necessary to remove additional trees.
 - Read this plan together with the arborist report prepared by VDZ+A.
 - An additional 1m setback is shown for all hand-plotted trees to be retained
 - If Stump Grinding is to occur in close proximity to trees which are to be retained then it is requested stumps to be removed under Arborist supervision.
 - It is the responsibility of the client or his/her representative to contact the project arborist for the purpose of:
 - *Locating TPZ Fencing
 - *Locating Work Zone and Machine access corridors where required
 - *Reviewing the Report with the project foreman or site supervisor.

2 TREE PROTECTION FENCE
 Scale NTS

No.	By:	Description	Date
14	SS	Re-Issued for DP	July 13, 2023
13	SS	Issued for DP	March 08, 2023
12	SH	Issued for Planning Review	May 31, 2022
11	SH	Issued for DP	Oct 18, 2021
10	SH	Response to ADP Comments	July 23, 2021
9	ET	Re-Issued for ADP	June 4, 2021
8	LJ	Issued for ADP	March 9, 2021
7	SH	Issued for Coordination	Feb. 26, 2021
6	SH	Issued for Coordination	Dec. 23, 2020
5	SH	Issued for Coordination	Oct. 6, 2020
4	SH	Issued for DP	June 25, 2020
3	SH	Issued for DP	March 6, 2020
2	SH	Issued for DP	May 24, 2019
1	JW	Issued for DP Review	Nov 16, 2018

REVISIONS TABLE FOR DRAWINGS
 Copyright reserved. This drawing and design is the property of van der Zelen + associates inc. and may not be reproduced or used for other projects without permission.

No.	By:	Description	Date
6	GR	Arborist Report Update	Sept. 26, 2023
5	SH	Arborist Response	Sept. 26, 2022
4	KM	Arborist Report Revision	Sept 23rd, 2020
3	KM	Arborist Report Revision	Feb 4, 2020
2	SH	Arborist Report Revision	June 18, 2019
1	SH	Arborist Report Revision	May 15, 2019

REVISIONS TABLE FOR SHEET

Project:
Vidal Street Development

Location:
Vidal Street & Thrift Ave,
White Rock, BC

Drawn: DV	Stamp:
Checked: SH	
Approved: GR	Original Sheet Size: 24"x36"
Scale: 1:250	CONTRACTOR SHALL CHECK ALL DIMENSIONS ON THE WORK AND REPORT ANY DISCREPANCY TO THE CONSULTANT BEFORE PROCEEDING. ALL DRAWINGS AND SPECIFICATIONS ARE THE EXCLUSIVE PROPERTY OF THE OWNER AND MUST BE RETURNED AT THE COMPLETION OF THE WORK. ALL REVISIONS/DP/PPA/HA/HP DRAWINGS MUST NOT BE PRIED FOR CONSTRUCTION UNLESS LABELED ISSUED FOR TENDER/CONSTRUCTION.

I:\VDZ\SRV\LANG\VDZ\DATA\PROJECTS\DEVELOPMENT\PERMIT\ACT\DP2018-59 VIDAL STREET\DWGS\SHEET\L-02 TREE PROTECTION AND REMOVAL PLAN.DWG



Weststone Group
300 – 10090 152nd Street
Surrey, B.C.
V3R 8X8

November 2, 2017
File: 15514

Attention: Sulu Kunshygarova

**Re: Geotechnical Investigation Report: Proposed Residential Development
1441, 1443, 1445 and 1446 Vidal Street, White Rock, B.C**

1.0 INTRODUCTION

We understand that it is proposed to construct a new residential development at the above referenced site. There are presently no design drawings available, though we understand that the proposed development will consist of a 12 storey mid-rise tower constructed over one level of below grade parking. We envisage reinforced concrete structure construction throughout.

This report provides the results of our field investigation and makes preliminary geotechnical recommendations for the design and construction of the proposed development. The findings and recommendations provided in this report are subject to possible revision pending our review of detailed development design drawings.

This report was prepared exclusively for Weststone Group, for their use and for the use of others on their development team but remains the property of GeoPacific Consultants Ltd.

2.0 SITE DESCRIPTION

The proposed site consists of 3 adjoining residential lots located along the west side of Vidal Street. The lot at addresses 1443 and 1445 Vidal Street comprise a single lot which is occupied by a duplex. The site is essentially rectangular with approximate measurements of 35 m in the west to east direction and 135 m in the north to south direction.

The site is bounded by Vidal Street to the east and residential lots in all other directions. The City of White Rock GIS (WROMS) indicates that the site slopes from north to south with elevation differential of about 1.5 m.

We were unable to access the lots on 1441, 1443 and 1445 Vidal Street. The lot at address 1446 Vidal Street was cleared of all existing improvements and was covered with trees and vegetation. The remaining lots were occupied with single family dwellings, paved/graveled driveways, grass, vegetation and fenced backyards. The location of the site relative to existing properties is shown on our Drawing No. 15514-01, following the text of this report.

3.0 FIELD INVESTIGATION

3.1 Site Investigation

GeoPacific completed a geotechnical site investigation on October 25, 2017. The investigation consisted of a review of geological maps, visual inspection, and augered test holes supplemented with dynamic cone penetration test (DCPT) soundings.

Prior to drilling, the test hole locations were cleared of underground services using geophysical methods by GeoPacific's utility locating personnel.

Three test holes were advanced using the subcontracted drilling services of Uniwide Drilling of Prince George, BC. The test holes were advanced to depths ranging from 9.1 to 10.7 m below existing site grades. One of the test holes was supplemented with DCPT soundings to assist in characterizing the in-situ relative density of the soil. The DCPT data is included on the corresponding test hole logs.

The test holes were located and logged by geotechnical technician from our office and were backfilled immediately after the completion of logging and sampling in accordance with provincial abandonment requirements.

The test hole locations are shown on our Drawing No. 15514-1 included with this report.

4.0 SUBSURFACE CONDITIONS

4.1 Soil Profile

According to the Geological Survey of Canada Surficial Geology Map 1484A the subject site is underlain by Capilano Sediments consisting of raised marine, deltaic, fluvial deposit, marine and glaciomarine stony and stoneless silts (till like) to clay loam with minor sand and silt. Glacial till typically underlies these deposits at depth.

Sand and Gravel (Fill)

Sand and gravel fill was identified in all our test holes. The sand and gravel contained trace to some silt and appears to be compact. The fill extended to depths of 0.3 m to 1.4 m.

Silty Sand (Till)

The sand and gravel fill is underlain by dense to very dense silty sand with some gravel. The silty sand moisture content ranged from 8.1% to 9.3%. The till extended to the full depth of our investigation. Cobbles and boulders are also commonly encountered within the till like soils.

4.2 Groundwater Conditions

The static groundwater table was not identified in our investigation and is expected to be well below development grades. Seepage from silty soils are expected to be light to moderate. Perched water is also possible in the surficial fills. We expect that the presence of perched ground water to vary seasonally with generally higher groundwater levels in the wetter months of the year.

5.0 DISCUSSION

5.1 General Comments

The proposed development will consist of 12 levels of above grade structure over a single level of below grade parking. We envisage reinforced concrete structure below and above grade. We expect loading induced by the new development will be moderate to heavy with loading of up to 6,000 kN on columns and 200 kN per lineal metre on walls. Floor loadings are expected to be light, in the range of 6 to 8 kPa.

The contemplated structure may be supported on conventional spread and strip footings. We anticipate that the footings will likely be founded on the dense to very dense silty sand (Till).

Shoring will be required to support neighbouring properties and/or utilities presuming the parkade extends at or close to PL. Our design recommendations for temporary excavations are provided in Section 6.7.

The subsurface soils are not considered prone to liquefaction or other forms of ground softening under the design earthquake defined under the 2012 British Columbia Building Code.

We envision that some perched groundwater will be encountered while excavating and will need to be controlled. A graded excavation with sumps at low points should be adequate to control seepage.

We confirm, from a geotechnical point of view, that the proposed building development is feasible provided the recommendations outlined in Sections 6.0 are incorporated into the overall design.

6.0 RECOMMENDATIONS

6.1 Site Preparation

Prior to construction of foundations and floor slabs, all unsuitable materials including vegetation, topsoil, fill, organic material, debris, and loose or otherwise disturbed soils must be removed to expose a subgrade of very dense silty sand. However, as the development is to be constructed with a below grade component, we expect that the excavation depth will be driven by the architectural design rather than the soils encountered. Suitable bearing soils are expected at the proposed foundation elevations. Crushed gravel or engineered fill can be placed beneath the slab-on-grade only.

“Engineered Fill” is generally defined as clean sand to sand and gravel containing silt less than 5% by weight, compacted in 300 mm loose lifts to a minimum of 98% of the ASTM D698 (Standard Proctor) maximum dry density at a moisture content that is within 2% of optimum for compaction.

It is very important that the stripped subgrade be protected by lean mix concrete to preserve its bearing qualities and that it remain dry and free of ponded water prior to pouring concrete for footings. Any softened, disturbed subgrade should be removed under the review of GeoPacific, and replaced with lean mix (5.0 MPa) concrete beneath the foundations.

6.2 Foundations

Footings which are founded on competent dense to very dense silty sand (Till), as described in Section 4.1, can be designed on the basis of a serviceability limit state (SLS) bearing pressure of 500 kPa for strip or pad footings.

Factored ultimate limit state (ULS) bearing pressures, for transient loads such as those induced by wind and earthquakes, may be taken as 1.5 x the SLS bearing pressures provided above.

We estimate for foundations designed as recommended, settlements will not exceed 25 mm total and 2 mm per metre differential.

Irrespective of the allowable bearing pressures given, pad footings should not be less than 600 mm by 600 mm and strip footings should not be less than 450 mm in width. Footings should also be buried a minimum of 450 mm below the surface for frost protection.

Adjacent footings should achieve a maximum elevation difference equal to half of their horizontal distance to avoid superimposing the upper foundation loading to the lower foundation.

Foundation subgrades must be inspected by the geotechnical engineer prior to footing construction.

6.3 Seismic Design of Foundations

We did not encounter any soils considered to be prone to liquefaction or strain softening during cyclic loading caused by the design earthquake as defined in the 2012 British Columbia Building Code. The subgrade conditions underlying this site may be classified as Site Class C as defined in Table 4.1.8.4.A of the 2012 British Columbia Building Code.

6.4 Lateral Pressures on Foundation Walls

The earth pressures on the basement walls depends upon a number of factors including the backfill material, surcharge loads, backfill slope, drainage, rigidity of the basement wall and method of construction including sequence and degree of compaction. For a fully restrained basement wall designed for static pressures a pressure distribution of 8 H (kPa) triangular, where H is the height of the restrained soil in meters, should be employed. For an unrestrained basement wall a static pressure distribution of 5 H (kPa) triangular may be used.

Dynamic loading induced by the 2012 BCBC design earthquake should be added to the static loads and should be taken as 4 H (kPa) inverted triangular.

Restrained versus unrestrained conditions depend upon the degree of wall movement. A flexible, or unrestrained wall, is allowed to move 0.002H outwards at the top of the wall, where H is the height of the wall. A restrained or rigid wall is prevented from rotating out at the top of the wall either by intervening walls or floors which prevent deflection of the wall. Partial movements of the wall may result in pressures somewhat less than the restrained condition but it is not possible to predict intermediate cases with any degree of certainty.

We have assumed that a free draining granular backfill will be used behind the basement walls and that a perimeter drainage system will also be employed to collect any water from behind the walls. Therefore, our wall loading scenarios presented above assume that no water pressure will be generated behind the walls.

All earth pressures are based upon no surcharges or slopes above the walls. All soil parameters and loads are assumed to be unfactored.

The geotechnical engineer should be contacted for the review of all backfill materials and procedures.

6.5 Slab-On-Grade Floors

In order to provide suitable support for slab-on-grade floors we recommend that any fill placed under the slab should be granular and essentially “clean” with not more than 5% passing the #200 sieve. In addition, this granular fill must be compacted to a minimum of 98% Standard Proctor (ASTM D698) maximum dry density with water content within 2% of optimum for compaction.

Floor slabs should be directly underlain by a minimum of 150 mm of a free draining granular material, such as 19 mm clear crushed rock. A moisture barrier should underlie the slab directly above the free draining granular material.

Compaction of the slab-on-grade fill must be reviewed by the geotechnical engineer.

6.6 Foundation Drainage

A perimeter drainage system will be required for the below grade structure to prevent the development of water pressure on the foundation walls and the basement floor slabs. Groundwater flows are expected to be relatively light to moderate, likely in the range of 30 to 50 liters/minute for the entire excavation. These flow rates should be confirmed at the time of construction.

6.7 Excavation and Shoring

The proposed development is to include a single level of below grade construction. We expect that shoring will be used to support the surrounding grades if the development is close to existing improvements such as buildings, roads, services, and property lines.

Vertical cuts may be supported with the use of a shotcrete membrane tied back with post-tensioned soil anchors. In areas where sand layers within the till like soils are encountered, hollow core (IBO) anchors may be required where a drilled anchor hole will not remain open to allow the installation of a conventional anchor bar.

We expect that the perimeter excavation would be sloped where possible and where is a sufficient room to do so since it is more economical to do so. We would expect that slopes cut to 3H to 4V can be constructed in the dense to very dense silty sand and 1V to 1H in the surficial fills.

Our experience in this area indicates that cobbles and boulders may be present within the till like soils. Cobbles and small boulders can typically be removed with conventional excavation equipment. However, large boulders may require splitting/blasting to facilitate their removal from the site.

Some seepage into excavations from surficial fills and the till like soils should be expected. We envisage that groundwater inflows can generally be controlled with conventional sumps and sump pumps.

Some face saving measures may be required where seepage occurs at the shoring face.

6.8 Utilities

Site utilities will be required beneath the grade supported slab. The design of these systems must consider the location and the depth of the foundations. The service trenches and excavations required for the

installation of underground vaults and/or manholes should be outside of a 1H:1V slope measured downward and outward from the underside of foundations.

Backfilling of trenches and excavations should be done with 19 mm clear crush gravel following the required pipe bedding.

All excavations and trenches must conform to the latest Occupational Health and Safety Regulation supplied by the Workers Compensation Board of British Columbia.

Excavation in excess of 1.2 m in depth requiring worker-entry must be reviewed by a geotechnical engineer.

6.9 Re-Use of Native Soils

Excavated soils derived from the site are expected to be silt predominant; therefore, they are not suitable as engineered fill.

7.0 DESIGN REVIEWS AND CONSTRUCTION INSPECTIONS

As required for Municipal “Letters of Assurance”, GeoPacific Consultants Ltd. will carry out sufficient field reviews during construction to ensure that the geotechnical design recommendations contained within this report have been adequately communicated to the design team and to the contractors implementing the design. These field reviews are not carried out for the benefit of the contractors and therefore do not in any way effect the contractors obligations to perform under the terms of his/her contract.

It is the contractors’ responsibility to advise GeoPacific Consultants Ltd. (a minimum of 48 hours in advance) that a field review is required. Field reviews are normally required at the time of the following activities:

- | | |
|--------------------|---|
| 1. Stripping | Review of stripping depth. |
| 2. Excavation | Review of temporary slopes and soil conditions. |
| 3. Shoring | Review of shoring installation and decommissioning. |
| 4. Engineered Fill | Review of materials and compaction degree. |
| 5. Foundation | Review of foundation subgrade. |
| 6. Slab-on Grade | Review of under slab fill materials and compaction. |
| 7. Backfill | Review of placement of backfill along foundation walls. |

It is critical that these reviews are carried out to ensure that our intentions have been adequately communicated. It is also critical that contractors working on the site view this document in advance of any work being carried out so that they become familiar with the sensitive aspects of the works proposed. It is the responsibility of the developer to notify GeoPacific Consultants Ltd. when conditions or situations not outlined within this document are encountered.

8.0 CLOSURE

This report has been prepared exclusively for Westone Group for the purpose of providing geotechnical recommendations for the design and construction of the proposed building, temporary excavations and related earthworks. The report remains the property of GeoPacific Consultants Ltd. and unauthorized use of, or duplication of, this report is prohibited.

We are pleased to be of assistance to you on this project and we trust that our comments and recommendations are both helpful and sufficient for your current purposes. If you would like further details or would like clarification of any of the above, please do not hesitate to call.

For:

GeoPacific Consultants Ltd.

Reviewed By:



NOV 07 2017

Arye Lipshitz
Geotechnical Technician

John G. Carter, P.Eng.
Principal

Appendix A
Test Hole Logs



LEGEND:

◆ TH17-# - TEST HOLE (TH) LOCATIONS

SITE PLAN
SCALE = NTS



REVISIONS:

DATE:	October 25, 2017		
DRAWN BY:	APPROVED BY:	REVIEWED BY:	
AL	JCC		
SCALE:	SEE ABOVE		

Residential Development
1441, 1443, 1445 and 1446 Vidal Street, White Rock, BC
TEST HOLE LOCATIONS

FILE NO.:	15514
DWG. NO.:	01
REVISIONS:	A B C



GEOPACIFIC
VANCOUVER REMEDIATION SPECIALISTS

1773 W. 26th Avenue
Vancouver, B.C. V6L 2R7
TEL: 604.273.8888
F: 604.273.8889

Test Hole Log: TH17-01

File: 15514

Project: Residential Development

Client: Weststone Group

Site Location: 1465, 1455, 1443 and 1441 Vidal Street, Surrey, BC



GEOPACIFIC
CONSULTANTS

1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE										
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)	Moisture Content (%)	DCPT (blows per foot)				Groundwater / Well	Remarks
					10	20	30	40		
0		Ground Surface	0.0							
1		Sand and gravel (Fill) Compact, trace to some silt, medium grained sand, brown, moist to wet								
2		Silty sand (Till) Dense to very dense, some gravel, medium grained sand, grey, moist		8.3						
3				9.5						
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36		End of Borehole	10.7							
37										
38										
39										
40										

Logged: AL
Method: Solid stem auger
Date: October 25, 2017

Datum: Ground surface
Figure Number: A. 1.
Page: 1 of 1

Test Hole Log: TH17-02

File: 15514

Project: Residential Development

Client: Weststone Group

Site Location: 1465, 1455, 1443 and 1441 Vidal Street, Surrey, BC



GEOPACIFIC
CONSULTANTS

1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	DCPT (blows per foot) 10 20 30 40	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)				
0		Ground Surface	0.0				
0 to 1		Sand and gravel (Fill) Compact, trace to some silt, medium grained sand, brown, wet	0.0				
1 to 9.1		Silty sand (Till) Dense to very dense, some gravel, medium grained sand, grey, moist	0.9				
9.1		End of Borehole	9.1				

Logged: AL
Method: Solid stem auger
Date: October 25, 2017

Datum: Ground surface
Figure Number: A.2.
Page: 1 of 1

Test Hole Log: TH17-03

File: 15514

Project: Residential Development

Client: Weststone Group

Site Location: 1465, 1455, 1443 and 1441 Vidal Street, Surrey, BC



GEOPACIFIC
CONSULTANTS

1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-9922 Fax: 604-439-9189

INFERRED PROFILE							
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)	Moisture Content (%)	DCPT (blows per foot) 10 20 30 40	Groundwater / Well	Remarks
0		Ground Surface	0.0				
1		Sand and gravel (Fill) Compact, trace to some silt, medium grained sand, brown, wet	0.0		15		
2					18		
3					22		
4					35		
5				14.7	>50		DCPT refusal at 5'
6		Silty sand (Till) Dense to very dense, some gravel, medium grained sand, grey, moist	1.4				
7							
8							
9							
10				9.3			
11							
12							
13							
14							
15							
16							
17							
18				8.1			
19							
20							
21							
22							
23							
24							
25							
26							
27							
28				8.7			
29							
30							
31		End of Borehole	9.1				
32							
33							
34							
35							
36							
37							
38							
39							
40							

Logged: AL
Method: Solid stem auger
Date: October 25, 2017

Datum: Ground surface
Figure Number: A.3.
Page: 1 of 1



LEGEND

OVERLAND FLOW DIRECTION



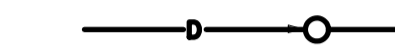
MAJOR CATCHMENT BOUNDARY



MINOR CATCHMENT BOUNDARY



EXISTING STORM SEWER



EXISTING MANHOLE LABELS



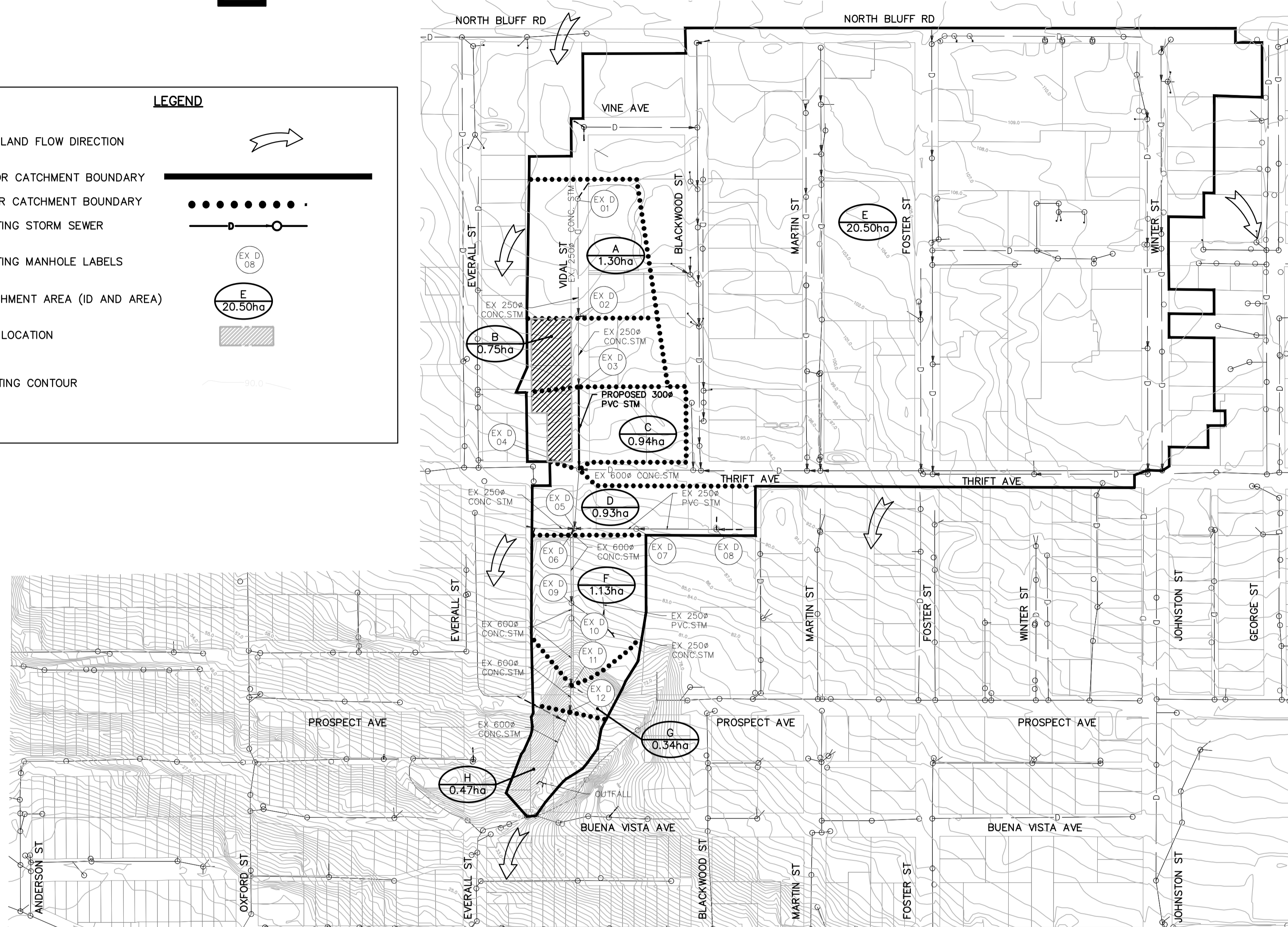
CATCHMENT AREA (ID AND AREA)



SITE LOCATION



EXISTING CONTOUR



STORMWATER MANAGEMENT PLAN
SCALE : 1:2500

Storage requirements per Modified Rational Method							
Project: Vidal Street Development, White Rock							
White Rock STP Rain Gauge							
AREA	Hectares	A=	0.39				
DESIGN RETURN PERIOD	Years		5				
CONTROL TO 50% OF THE 2-YEAR POST-DEVELOPMENT RATE							
RUNOFF COEFFICIENT		R=	0.8				
TIME OF CONCENTRATION	Minutes	Tc=	15				
RAINFALL INTENSITY	mm/hour	I =	23.64				
2-yr RELEASE RATE	cms	Q _{2yr} =	0.020				
50% 2yr-RELEASE RATE	cms	Q _{2yr,50%} =	0.010				
5-YEAR POST DEVELOPMENT CONDITIONS							
RUNOFF COEFFICIENT			0.85				
EFFECTIVE AREA	Hectares	AR=	0.33				
Time (min)	Intensity (mm/hr)	Post Q (cms)	Storm Volume (cu.m)	Release Q (cms)	Release Volume (cu.m)	Storage Volume (cu.m)	
5	63.39	0.06	17.43	0.010	3.00	14.43	
10	43.93	0.04	24.16	0.010	6.00	18.16	
15	35.45	0.03	29.25	0.010	9.00	20.25	
20	30.44	0.03	33.48	0.010	12.00	21.48	
30	24.57	0.02	40.54	0.010	18.00	22.54	
40	21.10	0.02	46.42	0.010	24.00	21.56	
50	18.75	0.02	51.56	0.010	30.00	20.20	
60	17.03	0.02	56.20	0.010	36.00	18.00	
120	11.80	0.01	77.88	0.010	72.00	5.88	
180	9.52	0.01	94.25	0.010	108.00	-13.75	
240	8.18	0.01	107.98	0.010	144.00	-36.02	
300	7.27	0.01	119.96	0.010	180.00	-60.04	
360	6.60	0.01	130.68	0.010	216.00	-85.32	
420	6.08	0.01	140.45	0.010	252.00	-111.55	
480	5.67	0.01	149.69	0.010	288.00	-138.31	
540	5.32	0.00	158.00	0.010	324.00	-166.00	
600	5.04	0.00	166.32	0.010	360.00	-193.68	
ORIFICE CALCULATION:				AREA=	q	Dia=	4q
				C	2gh	CxPlix	2gh
q =	0.010						
C =	0.62	Dia=	87.30398 mm				
g =	9.81						
h =	0.37						

DETENTION/FLOW CONTROL REQUIREMENTS

CONTROL TO 50% OF THE 2-YEAR POST DEVELOPMENT RATE. RELEASE RATE=0.010m³/sec.
REQUIRED DETENTION=22.54m³=23m³.

Pipe Run Info		Drainage Area Parameters					IDF Info.		Flow Calculations		Pipe Design											
Service	Length (m)	Catchment Identifier	Catch. Area (m ²)	Runoff Coeff. R _s	Runoff Coeff. R ₁₀₀	Cumulative (R ^{*A}) _s (m ²)	Cumulative (R ^{*A}) ₁₀₀ (m ²)	Cumulative T _c (minutes)	I _s (mm/hr)	I ₁₀₀ (mm/hr)	1.5 year Q _s (m ³ /s)	1:100 year Q ₁₀₀ (m ³ /s)	Diameter D (mm)	Pipe Rough. n	Slope S (%)	Pipe at Capacity Q _{cap} (m ³ /s)	V _{cap} (m/s)	Time t (minutes)	Q ⁵ HGL (%)	Q ¹⁰⁰ HGL (%)	100 YR HGL	
EX D 1	EX D 2	104.00	A	13000	0.7	0.84	9100	10920	20.00	29.54	53.83	0.075	0.163	250	0.013	3.29	0.108	2.197	0.79	1.58	7.54	IN PIPE
EX D 2	EX D 3	62.34	B	7500	0.7	0.84	14350	17220	15.00	34.47	63.61	0.137	0.304	250	0.013	7.10	0.158	3.228	0.32	5.34	26.18	ON SURFACE
EX D 3	EX D 4	73.66	C	9400	0.7	0.84	20930	25116	15.32	34.08	62.83	0.198	0.438	300	0.013	6.70	0.250	3.541	0.35	4.20	20.55	ON SURFACE
EX D 4	EX D 5	82.00	E	205000	0.7	0.84	164430	197316	15.67	33.68	62.02	1.538	3.399	250	0.013	7.80	0.166	3.383	0.26	669.05	3267.60	ON SURFACE
EX D 5	EX D 6	6.94	D	9300	0.7	0.84	170940	205128	15.92	33.38	61.44	1.585	3.501	250	0.013	6.90	0.156	3.182	0.04	710.59	3465.66	ON SURFACE
EX D 6	EX D 9	66.58	F	11300	0.7	0.84	178850	214620	15.96	33.34	61.36	1.656	3.658	600	0.013	10.89	2.026	7.166	0.15	7.28	35.49	ON SURFACE
EX D 9	EX D 10	13.50		0	0.7	0.84	178850	214620	16.12	33.17	61.01	1.648	3.637	600	0.013	14.39	2.329	8.238	0.03	7.20	35.10	ON SURFACE
EX D 10	EX D 11	53.00	G	3400	0.25	0.30	179700	215640	16.14	33.14	60.95	1.654	3.651	600	0.013	35.7	3.669	12.975	0.07	7.26	35.36	ON SURFACE
EX D 11	outfall	90.00	H	4700	0.25	0.30	180875	217050	16.21	33.07	60.81	1.661	3.666	750	0.025	19.79	2.575	5.829	0.26	8.24	40.11	BELOW SURFACE

LEGAL: 3	A	ISSUED FOR DP	2019-01-29	EFU																			
	B	UPDATED BASEPLAN	2019-05-23	EFU																			
REV		DESCRIPTION	YYYY-MM-DD	BY	REV		DESCRIPTION	YYYY-MM-DD	BY														

PROJ. MGR.	ST
DESIGN/DRAWN	EFU
PEER REVIEWED	ST
HORIZ. SCALE	1:500
VERT. SCALE	1:500

THE WEDLER GROUP

- Abbotsford 1.804.746.0300
- Chilliwack 1.804.792.0651
- Courtenay 1.250.334.3263
- Surrey 1.804.588.1919

WEDLER ENGINEERING

www.wedler.com

WS VIDAL PROPERTIES LP

VIDAL-RESIDENTIAL BUILDING

1441, 1443-45, 1465 VIDAL ST AND 14937 THRIFT AVE, WHITE ROCK

CONCEPTUAL SATORMWATER MANAGEMENT PLAN

DRAWING NO.	2
	S19-0280/A-02
LOCAL GOVERNMENT FILE	-FILE-
PHASE	REVISION
	.A.

G:\02000299\S19-0280A-STORMWATER MANAGEMENT PLAN - 03.dwg 2019/5/24 09:50:58 AM efu



Weststone Group
13328 104th Avenue
Surrey, B.C.
V3T 1V4

June 2, 2020
File: 15514

Attention: Krista Grewal

**Re: Geotechnical Investigation Report: Proposed Residential Development
1441, 1443, 1445, 1465 Vidal Street and 14937 Thrift Avenue, White Rock, B.C**

1.0 INTRODUCTION

We understand that a residential development is proposed for the above referenced site. The proposed development will consist of 5 to 6 storey wood framed building with rooftop amenity deck over two to three levels of reinforced concrete underground parking. The underground portion of the development is to be constructed in close proximity to property lines. This report has been prepared with reference to the architectural drawings prepared by Keystone Architecture & Planning Ltd., dated May 2, 2020.

This report provides the results of our field investigation and makes geotechnical recommendations for the design and construction of the proposed development. The findings and recommendations provided in this report are subject to possible revision pending our review of detailed development design drawings.

This report was prepared exclusively for Weststone Group, for their use and for the use of others on their development team but remains the property of GeoPacific Consultants Ltd.

2.0 SITE DESCRIPTION

The proposed site consists of 4 adjoining residential lots located northwest of the intersection of Vidal Street and Thrift Avenue in White Rock, BC. The site is bounded by Vidal Street to the east, Thrift Avenue to the south and residential lots in all other directions.

Based on a surveyed topographical plan provided by Target Land Surveying issued on April 4, 2018, the site slopes from north to south with elevation differential of about 9 m.

Due to limited access to the majority of the lots, our investigation was carried out solely on 1465 Vidal Street. The lot was cleared of all existing improvements and was covered with trees and vegetation. The remaining lots were occupied with single family dwellings, paved/graveled driveways, grass, vegetation and fenced backyards. The location of the site relative to existing properties is shown on our Drawing No. 15514-01, following the text of this report.

3.0 FIELD INVESTIGATION

3.1 Site Investigation

GeoPacific completed a geotechnical site investigation on October 25, 2017. The investigation consisted of a review of geological maps, visual inspection, and augered test holes supplemented with dynamic cone penetration test (DCPT) soundings.

Prior to drilling, the test hole locations were cleared of underground services using geophysical methods

by GeoPacific's utility locating personnel.

Three test holes were advanced using the subcontracted drilling services of Uniwide Drilling of Prince George, BC. The test holes were advanced to depths ranging from 9.1 to 10.7 m below existing site grades. One of the test holes was supplemented with DCPT soundings to assist in characterizing the in-situ relative density of the soil. The DCPT data is included on the corresponding test hole logs.

The test holes were located and logged by geotechnical technician from our office and were backfilled immediately after the completion of logging and sampling in accordance with provincial abandonment requirements.

The test hole locations are shown on our Drawing No. 15514-1 included with this report.

4.0 SUBSURFACE CONDITIONS

4.1 Soil Profile

According to the Geological Survey of Canada Surficial Geology Map 1484A the subject site is underlain by Capilano Sediments consisting of raised marine, deltaic, fluvial deposit, marine and glaciomarine stony and stoneless silts (till like) to clay loam with minor sand and silt. Glacial till typically underlies these deposits at depth.

Sand and Gravel (Fill)

Sand and gravel fill was identified in all our test holes. The sand and gravel contained trace to some silt and appears to be compact. The fill extended to depths of 0.3 m to 1.4 m.

Silty Sand (Till)

The sand and gravel fill is underlain by dense to very dense silty sand with some gravel. The silty sand moisture content ranged from 8.1% to 9.3%. The till extended to the full depth of our investigation. Cobbles and boulders are also commonly encountered within the till like soils.

Detailed soil descriptions are included on the test hole logs included in Appendix A.

4.2 Groundwater Conditions

The static groundwater table was not identified in our investigation and is expected to be well below development grades. Seepage from silty soils are expected to be light to moderate. Perched water is also possible in the surficial fills. We expect that the presence of perched ground water to vary seasonally with generally higher groundwater levels in the wetter months of the year.

5.0 DISCUSSION

5.1 General Comments

The proposed development will consist of 5 to 6 levels of above grade structure over a 2 to 3 levels of below grade parking. We envisage reinforced concrete structure below and above grade. We expect loading induced by the new development will be moderate with loading of up to 3,000 kN on columns and 200 kN per lineal metre on walls. Floor loadings are expected to be light, in the range of 6 to 8 kPa.

The contemplated structure may be supported on conventional spread and strip footings. We anticipate that the footings will likely be founded on the dense to very dense silty sand (Till).

Shoring will be required to support neighbouring properties and/or utilities where the parkade extends at or close to PL. Our design recommendations for temporary excavations are provided in Section 6.7.

The subsurface soils are not considered prone to liquefaction or other forms of ground softening under the design earthquake defined under the 2018 British Columbia Building Code.

We envision that some perched groundwater will be encountered while excavating and will need to be controlled. A graded excavation with sumps at low points should be adequate to control seepage.

We confirm, from a geotechnical point of view, that the proposed building development is feasible provided the recommendations outlined in Sections 6.0 are incorporated into the overall design.

6.0 RECOMMENDATIONS

6.1 Site Preparation

Prior to construction of foundations and floor slabs, all unsuitable materials including vegetation, topsoil, fill, organic material, debris, and loose or otherwise disturbed soils must be removed to expose a subgrade of dense to very dense silty sand. However, as the development is to be constructed with a below grade component, we expect that the excavation depth will be driven by the architectural design rather than the soils encountered. Suitable bearing soils are expected at the proposed foundation elevations. Crushed gravel or engineered fill can be placed beneath the slab-on-grade only.

“Engineered Fill” is generally defined as clean sand to sand and gravel containing silt less than 5% by weight, compacted in 300 mm loose lifts to a minimum of 98% of the ASTM D698 (Standard Proctor) maximum dry density at a moisture content that is within 2% of optimum for compaction.

It is very important that the stripped subgrade be protected by lean mix concrete to preserve its bearing qualities and that it remain dry and free of ponded water prior to pouring concrete for footings. Any softened, disturbed subgrade should be removed under the review of GeoPacific, and replaced with lean mix (5.0 MPa) concrete beneath the foundations.

6.2 Foundations

Footings which are founded on competent dense to very dense silty sand (Till), as described in Section 4.1, can be designed on the basis of a serviceability limit state (SLS) bearing pressure of 500 kPa for strip or pad footings.

Factored ultimate limit state (ULS) bearing pressures, for transient loads such as those induced by wind and earthquakes, may be taken as 1.5 x the SLS bearing pressures provided above.

We estimate for foundations designed as recommended, settlements will not exceed 25 mm total and 2 mm per metre differential.

Irrespective of the allowable bearing pressures given, pad footings should not be less than 600 mm by 600 mm and strip footings should not be less than 450 mm in width. Footings should also be buried a minimum

of 450 mm below the surface for frost protection.

Adjacent footings should achieve a maximum elevation difference equal to half of their horizontal distance to avoid superimposing the upper foundation loading to the lower foundation.

Foundation subgrades must be inspected by the geotechnical engineer prior to footing construction.

6.3 Seismic Design of Foundations

We did not encounter any soils considered to be prone to liquefaction or strain softening during cyclic loading caused by the design earthquake as defined in the 2018 British Columbia Building Code. The subgrade conditions underlying this site may be classified as Site Class C as defined in Table 4.1.8.4.A of the 2018 British Columbia Building Code.

6.4 Lateral Pressures on Foundation Walls

The earth pressures on the basement walls depends upon a number of factors including the backfill material, surcharge loads, backfill slope, drainage, rigidity of the basement wall and method of construction including sequence and degree of compaction. For a fully restrained basement wall designed for static pressures a pressure distribution of $8 H$ (kPa) triangular, where H is the height of the restrained soil in meters, should be employed. For an unrestrained basement wall a static pressure distribution of $5 H$ (kPa) triangular may be used.

Dynamic loading induced by the 2018 BCBC design earthquake should be added to the static loads and should be taken as $2.5 H$ (kPa) inverted triangular.

Restrained versus unrestrained conditions depend upon the degree of wall movement. A flexible, or unrestrained wall, is allowed to move $0.002H$ outwards at the top of the wall, where H is the height of the wall. A restrained or rigid wall is prevented from rotating out at the top of the wall either by intervening walls or floors which prevent deflection of the wall. Partial movements of the wall may result in pressures somewhat less than the restrained condition but it is not possible to predict intermediate cases with any degree of certainty.

We have assumed that a free draining granular backfill will be used behind the basement walls and that a perimeter drainage system will also be employed to collect any water from behind the walls. Therefore, our wall loading scenarios presented above assume that no water pressure will be generated behind the walls.

All earth pressures are based upon no surcharges or slopes above the walls. All soil parameters and loads are assumed to be unfactored.

The geotechnical engineer should be contacted for the review of all backfill materials and procedures.

6.5 Slab-On-Grade Floors

In order to provide suitable support for slab-on-grade floors we recommend that any fill placed under the slab should be granular and essentially “clean” with not more than 5% passing the #200 sieve. In addition, this granular fill must be compacted to a minimum of 98% Standard Proctor (ASTM D698) maximum dry density with water content within 2% of optimum for compaction.

Floor slabs should be directly underlain by a minimum of 150 mm of a free draining granular material, such as 19 mm clear crushed rock. A moisture barrier should underlie the slab directly above the free draining granular material.

Compaction of the slab-on-grade fill must be reviewed by the geotechnical engineer.

6.6 Foundation Drainage

A perimeter drainage system will be required for the below grade structure to prevent the development of water pressure on the foundation walls and the basement floor slabs. Groundwater flows are expected to be relatively light to moderate, likely in the range of 30 to 50 liters/minute for the entire excavation. These flow rates should be confirmed at the time of construction.

6.7 Excavation and Shoring

The proposed development is to include two to three levels of below grade construction. We expect that shoring will be used to support the surrounding grades. Partial open cuts above the shoring wall are expected to be feasible where the building is offset from the property lines.

Vertical cuts may be supported with the use of a shotcrete membrane tied back with post-tensioned soil anchors. In areas where sand layers within the till like soils are encountered, hollow core (IBO) anchors may be required where a drilled anchor hole will not remain open to allow the installation of a conventional anchor bar.

We expect that the perimeter excavation would be sloped where possible and where is a sufficient room to do so since it is more economical to do so. We would expect that slopes cut to 3H to 4V can be constructed in the dense to very dense silty sand and 1H to 1V in the surficial fills. Above any shoring walls, 1H:1V cuts would be feasible.

Our experience in this area indicates that cobbles and boulders may be present within the till like soils. Cobbles and small boulders can typically be removed with conventional excavation equipment. However, large boulders may require splitting/blasting to facilitate their removal from the site.

Some seepage into excavations from surficial fills and the till like soils should be expected. We envisage that groundwater inflows can generally be controlled with conventional sumps and sump pumps. Some face-saving measures may be required where seepage occurs at the shoring face.

6.8 Utilities

Site utilities will be required beneath the grade supported slab. The design of these systems must consider the location and the depth of the foundations. The service trenches and excavations required for the installation of underground vaults and/or manholes should be outside of a 1H:1V slope measured downward and outward from the underside of foundations.

Backfilling of trenches and excavations should be done with 19 mm clear crush gravel following the required pipe bedding.

All excavations and trenches must conform to the latest Occupational Health and Safety Regulation

supplied by the Workers Compensation Board of British Columbia.

Excavation in excess of 1.2 m in depth requiring worker-entry must be reviewed by a geotechnical engineer.

6.9 Re-Use of Native Soils

Excavated soils derived from the site are expected to be silt predominant; therefore, they are not suitable as engineered fill.

7.0 DESIGN REVIEWS AND CONSTRUCTION INSPECTIONS

As required for Municipal “Letters of Assurance”, GeoPacific Consultants Ltd. will carry out sufficient field reviews during construction to ensure that the geotechnical design recommendations contained within this report have been adequately communicated to the design team and to the contractors implementing the design. These field reviews are not carried out for the benefit of the contractors and therefore do not in any way effect the contractors obligations to perform under the terms of his/her contract.

It is the contractors’ responsibility to advise GeoPacific Consultants Ltd. (a minimum of 48 hours in advance) that a field review is required. Field reviews are normally required at the time of the following activities:

- | | |
|--------------------|---|
| 1. Stripping | Review of stripping depth. |
| 2. Excavation | Review of temporary slopes and soil conditions. |
| 3. Shoring | Review of shoring installation and decommissioning. |
| 4. Engineered Fill | Review of materials and compaction degree. |
| 5. Foundation | Review of foundation subgrade. |
| 6. Slab-on Grade | Review of under slab fill materials and compaction. |
| 7. Backfill | Review of placement of backfill along foundation walls. |

It is critical that these reviews are carried out to ensure that our intentions have been adequately communicated. It is also critical that contractors working on the site view this document in advance of any work being carried out so that they become familiar with the sensitive aspects of the works proposed. It is the responsibility of the developer to notify GeoPacific Consultants Ltd. when conditions or situations not outlined within this document are encountered.

8.0 CLOSURE

This report has been prepared exclusively for Westone Group for the purpose of providing geotechnical recommendations for the design and construction of the proposed building, temporary excavations and related earthworks. The report remains the property of GeoPacific Consultants Ltd. and unauthorized use of, or duplication of, this report is prohibited.

We are pleased to be of assistance to you on this project and we trust that our comments and recommendations are both helpful and sufficient for your current purposes. If you would like further details or would like clarification of any of the above, please do not hesitate to call.

For:
GeoPacific Consultants Ltd.

Reviewed By:



Zakhar Okunev, B.Eng., E.I.T
Project Engineer

Kevin Bodnar, M.Eng., P.Eng.
Principal



LEGEND:

◆ - TEST HOLE (TH) LOCATIONS



SITE PLAN
SCALE = NTS

REFERENCE:

GEO PACIFIC
MANAGEMENT CONSULTANTS

4775 W. 72nd Avenue
Vancouver, B.C. V6P 4L2
P: 604.263.0808
F: 604.263.0809

DATE:	October 25, 2017
DRAWN BY:	AL
APPROVED BY:	JCC
REVIEWED BY:	
SCALE:	SEE ABOVE

Residential Development
1441, 1443, 1445 and 1446 Vidal Street, White Rock, BC
TEST HOLE LOCATIONS

FILE NO.:	15514
DWG. NO.:	01
REVISIONS:	
A	
B	
C	

Appendix A

Test Hole Logs

Test Hole Log: TH17-01

File: 15514

Project: Residential Development

Client: Weststone Group

Site Location: 1465, 1455, 1443 and 1441 Vidal Street, Surrey, BC



GEOPACIFIC
CONSULTANTS

1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	DCPT (blows per foot) 10 20 30 40	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)				
0		Ground Surface	0.0				
0.5		Sand and gravel (Fill) Compact, trace to some silt, medium grained sand, brown, moist to wet					
1.0		Silty sand (Till) Dense to very dense, some gravel, medium grained sand, grey, moist		8.3			
3.0				9.5			
6.0				7.7			
8.0				8.4			
10.7		End of Borehole	10.7				

Logged: AL
Method: Solid stem auger
Date: October 25, 2017

Datum: Ground surface
Figure Number: A.1.
Page: 1 of 1

Test Hole Log: TH17-02

File: 15514

Project: Residential Development

Client: Weststone Group

Site Location: 1465, 1455, 1443 and 1441 Vidal Street, Surrey, BC



GEOPACIFIC
CONSULTANTS

1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	DCPT (blows per foot) 10 20 30 40	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)				
0		Ground Surface	0.0				
0 to 1		Sand and gravel (Fill) Compact, trace to some silt, medium grained sand, brown, wet	0.0				
1 to 9.1		Silty sand (Till) Dense to very dense, some gravel, medium grained sand, grey, moist	0.9				
9.1		End of Borehole	9.1				

Logged: AL
Method: Solid stem auger
Date: October 25, 2017

Datum: Ground surface
Figure Number: A.2.
Page: 1 of 1

Test Hole Log: TH17-03

File: 15514

Project: Residential Development

Client: Weststone Group

Site Location: 1465, 1455, 1443 and 1441 Vidal Street, Surrey, BC



GEOPACIFIC
CONSULTANTS

1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	DCPT (blows per foot) 10 20 30 40	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)				
Ground Surface							
0		Sand and gravel (Fill) Compact, trace to some silt, medium grained sand, brown, wet	0.0		15		DCPT refusal at 5'
1				14.7	18		
2					22		
3					35		
4					>50		
5		Silty sand (Till) Dense to very dense, some gravel, medium grained sand, grey, moist	1.4				
6				9.3			
7							
8				8.1			
9				8.7			
10		End of Borehole	9.1				

Logged: AL
Method: Solid stem auger
Date: October 25, 2017

Datum: Ground surface
Figure Number: A.3.
Page: 1 of 1



LEGEND

OVERLAND FLOW DIRECTION

SUB CATCHMENT BOUNDARY

LOCAL CATCHMENT BOUNDARY

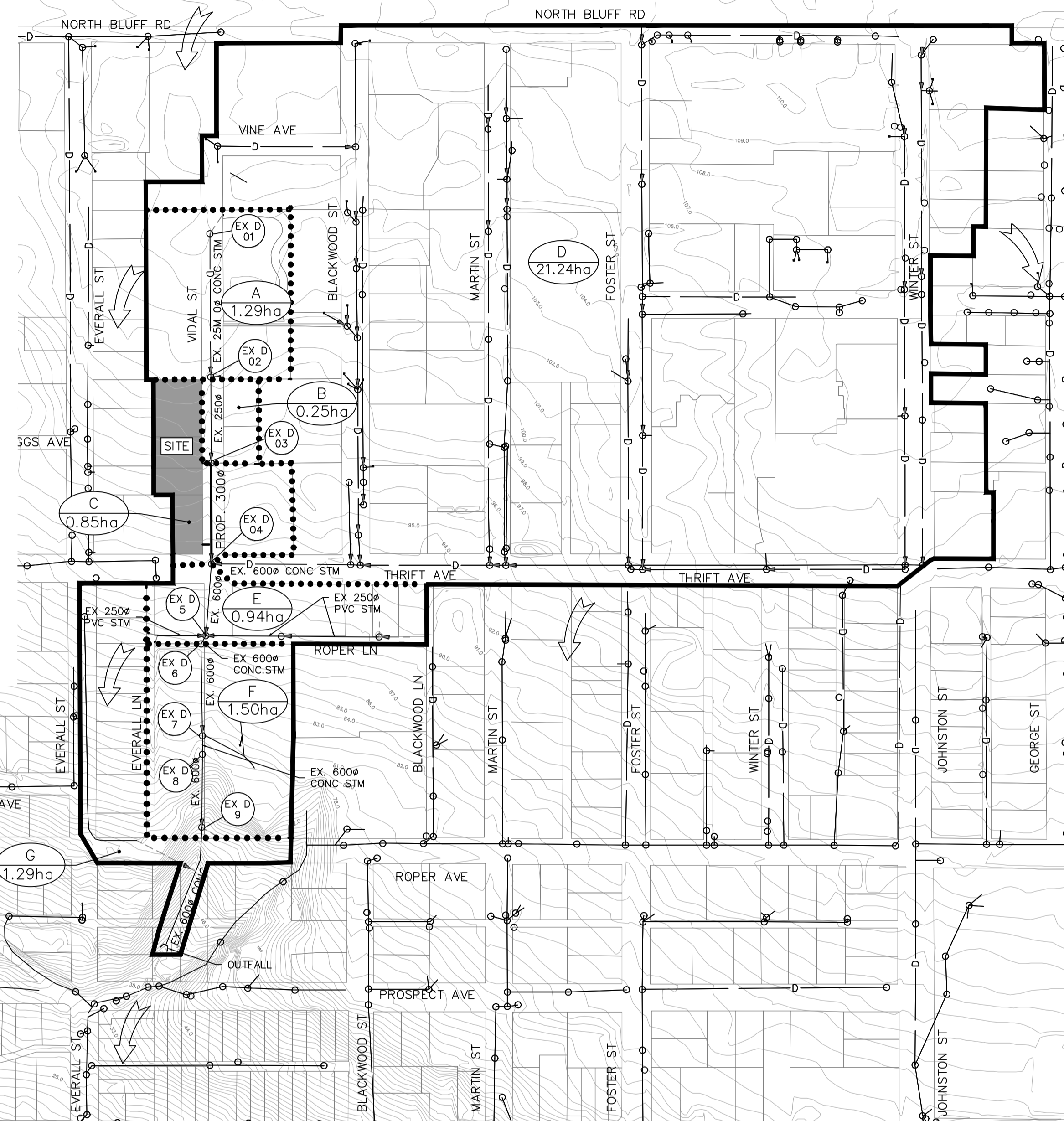
EXISTING STORM SEWER

EXISTING MANHOLE LABELS

CATCHMENT AREA (ID AND AREA)

SITE LOCATION

EXISTING CONTOUR



STORMWATER MANAGEMENT PLAN
SCALE : 1:2500

Storage requirements per Modified Rational Method						
Project Vidal Street Development, White Rock						
White Rock STP Rain Gauge						
ARE A	Hectares	A=	0.39			
DESIGN RETURN PERIOD	Years		5			
CONTROL TO 50% OF THE 2-YEAR POST-DEVELOPMENT RATE						
RUNOFF COEFFICIENT		R=	0.6			
TIME OF CONCENTRATION	Minutes	Tc=	15			
RAINFALL INTENSITY	mm/hour	I=	23.64			
2-yr RELEASE RATE	cms	Q _{2yr} =	0.015			
50% 2yr-RELEASE RATE	cms	Q _{2yr/50%} =	0.008			
5-YEAR POST DEVELOPMENT CONDITIONS						
RUNOFF COEFFICIENT			0.85			
EFFECTIVE AREA	Hectares	AR=	0.33			
Time (min)	Intensity (mm/hr)	Post Q (cms)	Storm Volume (cu.m)	Release Q (cms)	Release Volume (cu.m)	Storage Volume (cu.m)
5	63.39	0.06	17.43	0.008	2.40	15.03
10	43.93	0.04	24.16	0.008	4.80	19.36
15	35.45	0.03	29.25	0.008	7.20	22.05
20	30.44	0.03	33.48	0.008	9.60	23.88
30	24.57	0.02	40.54	0.008	14.40	26.14
40	21.10	0.02	46.42	0.008	19.20	27.22
50	18.75	0.02	51.56	0.008	24.00	27.56
60	17.03	0.02	56.20	0.008	28.80	27.40
120	11.80	0.01	77.88	0.008	57.60	20.28
180	9.52	0.01	94.25	0.008	86.40	7.85
240	8.18	0.01	107.98	0.008	115.20	-7.22
300	7.27	0.01	119.96	0.008	144.00	-24.04
360	6.60	0.01	130.68	0.008	172.80	-42.12
420	6.08	0.01	140.45	0.008	201.60	-61.15
480	5.67	0.01	149.69	0.008	230.40	-80.71
540	5.32	0.00	158.00	0.008	259.20	-101.20
600	5.04	0.00	166.32	0.008	288.00	-121.68
ORIFICE CALCULATION:		AREA=	q	Dia=		4q
		C	2gh	C _x P _x		2gh
q =	0.008			Dia=		78.08705 mm
C =	0.62					
g =	9.81					
h =	0.37					

DETENTION/FLOW CONTROL REQUIREMENTS

CONTROL TO 50% OF THE 2-YEAR POST DEVELOPMENT RATE. RELEASE RATE=0.008m³/sec.
REQUIRED DETENTION=27.56m³=28m³.



DRAINAGE SYSTEM DESIGN - CALCULATION SHEET

Client: **WS Vidal Properties Ltd.** Date: **May 20, 2022**
 Project: **1441-14937 Thrift Avenue, White Rock** Date Printed: **February 17, 2023**
 Project #: **S19-0280/A** By: **LJ** DESIGN RETURN PERIOD: 5 year / 100 year

Based on Survey - White Rock STP IDF Curve

Pipe Run Info		Drainage Area Parameters					IDF Info		Flow Calculations		Pipe Design												
Service	Length L (m)	Catchment Identifier	Catch Area A (m ²)	Runoff Coeff R _s	Runoff Coeff R ₁₀₀	Cumulative (R+A) _s (m ²)	Cumulative (R+A) ₁₀₀ (m ²)	Cumulative T _c (minutes)	Intensity I _s (mm/hr)	Intensity I ₁₀₀ (mm/hr)	15 year Q _s (m ³ /s)	100 year Q ₁₀₀ (m ³ /s)	Diameter D (mm)	Pipe Rough n	Slope S (%)	Pipe at Capacity Q _{cap} (m ³ /s)	V _{cap} (m/s)	Time t (minutes)	Q ¹⁰⁰ HGL (%)	Q ¹⁵ HGL (%)	100 YR HGL		
EXD1	EXD2	104.0	A	12870	0.7	0.84	9009	10811	15.00	35.45	67.87	0.089	0.204	250	0.013	3.3	0.108	2.197	0.79	2.23	11.75	IN PIPE	
EXD2	EXD3	62.3	B	2610	0.7	0.84	10766	12919	13.79	34.50	65.95	0.103	0.237	250	0.013	7.1	0.158	3.228	0.32	3.01	15.84	ON SURFACE	
EXD3	EXD4	73.2	C	8460	0.7	0.84	16688	20026	16.11	34.13	65.21	0.158	0.363	300	0.013	6.7	0.250	3.541	0.34	2.68	14.07	ON SURFACE	
EXD4	EXD5	52.5	D	212370	0.7	0.84	148659	178391															
EXD5	EXD6	6.5	E	9370	0.7	0.84	171906	206287	16.46	33.75	64.44	1.612	3.692	600	0.013	7.0	1.625	5.746	0.15	6.89	36.16	ON SURFACE	
EXD6	EXD7	66.5	F	18040	0.7	0.84	171906	206287	16.61	33.59	64.10	1.604	3.673	600	0.013	11.1	2.047	7.238	0.01	6.82	35.79	ON SURFACE	
EXD7	EXD8	135	F	18040	0.7	0.84	182434	218921	16.62	33.57	64.07	1.701	3.896	600	0.013	11.0	2.033	7.189	0.15	7.68	40.27	ON SURFACE	
EXD8	EXD9	530	F	182434	0.7	0.84	182434	218921	16.78	33.41	63.74	1.693	3.876	600	0.013	14.3	2.322	8.212	0.03	7.60	39.85	ON SURFACE	
EXD9	Outfall	90.5	G	12940	0.7	0.84	182434	218921	16.80	33.38	63.68	1.692	3.873	600	0.013	33.2	3.338	12.513	0.07	7.59	39.78	ON SURFACE	
							191492	229790	16.87	33.31	63.53	1.772	4.055	750	0.025	19.8	2.575	5.829	0.26	9.37	49.08	BELOW SURFACE	

LEGAL:
 LOT 1 PLAN EPP46879
 LOT 8 PLAN 13684
 LOT 41 PLAN 35379
 STRATA PLAN W62236
 ALL OF SEC 10 TP 1 NWD

BM/ ELEVATIONS ARE GEODETIC
 TBM (OBS-2005-N METERS) DERIVED FROM
 CONTROL MONUMENT 89H5101 LOCATED
 AT SE CORNER OF THE INTERSECTION OF
 VIDAL ST. AND THRIFT AVE.
 ELEVATION=91.149m

REV	DESCRIPTION	YYYY-MM-DD	BY	REV	DESCRIPTION	YYYY-MM-DD	BY
A	ISSUED FOR DP	2019-01-29	EF				
B	UPDATED BASEPLAN	2020-02-24	EF				
C	UPDATED BASEPLAN	2022-05-18	ST				
D	RE-ISSUED FOR DP	2023-02-17	PT				

PROJ. MGR. SR
 DESIGN/DRAWN LJ/ST
 PEER REVIEWED TJ
 HORIZ. SCALE 1:2500
 VERT. SCALE --



THE WEDLER GROUP
 ■ Abbotsford 1.604.746.0300
 ■ Chilliwack 1.604.792.0651
 ■ Courtenay 1.250.334.3263
 ■ Surrey 1.604.588.1919

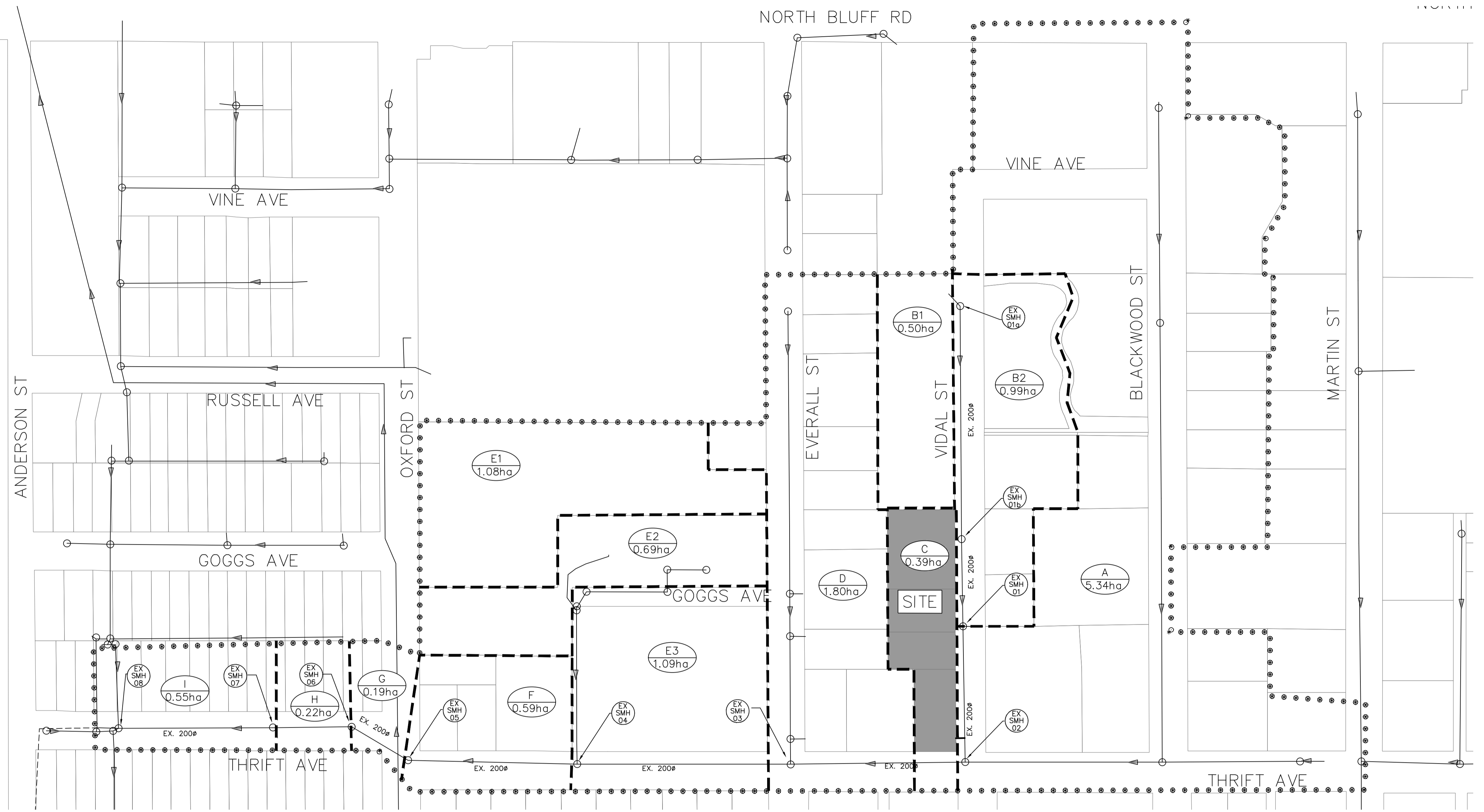
WS VIDAL PROPERTIES LP
 VIDAL-RESIDENTIAL BUILDING
 1441, 1443-45, 1465 VIDAL ST AND 14937 THRIFT AVE, WHITE ROCK
STORMWATER MANAGEMENT PLAN

DRAWING NO. -2-
S19-0280/A-03
 LOCAL GOVERNMENT FILE -FILE-
 PHASE REVISION
D



LEGEND

- MINOR CATCHMENT BOUNDARY
- LOCAL CATCHMENT BOUNDARY
- EXISTING SANITARY SEWER
- EXISTING MANHOLE LABELS EX
SMH
01
- CATCHMENT AREA (ID AND AREA) E
0.00ha
- SITE LOCATION



SANITARY CATCHMENTS PLAN
SCALE : 1:1250

NOTE: AS POPULATION/HA WAS NOT AVAILABLE FOR CITY OF WHITE ROCK DESIGN CRITERIA, CITY OF SURREY DATA WAS USED.

LEGAL: LOT 1 PLAN EPP46879 LOT 8 PLAN 13684 LOT 41 PLAN 35379 STRIATA PLAN W62236 ALL OF SEC 10 TP 1 NWD	A	ISSUED FOR DP	2023-02-17	PT					
BM/ ELEVATIONS ARE GEODETIC TMU (QVRS-2005-N METERS) DERIVED FROM CONTROL MONUMENT 89H5101 LOCATED AT SE CORNER OF THE INTERSECTION OF VIDAL ST. AND THRIFT AVE. ELEVATION=91.149m	REV	DESCRIPTION	YYYY-MM-DD	BY	REV	DESCRIPTION	YYYY-MM-DD	BY	

PROJ. MGR.	SR
DESIGN/DRAWN	LJ/PT
PEER REVIEWED	TJ
HORIZ. SCALE	1:1250
VERT. SCALE	--

WEDLER
 ENGINEERING
 www.wedler.com
 EGBC PERMIT TO PRACTICE NUMBER: 1000196

- THE WEDLER GROUP
- Abbotsford 1.604.746.0300
 - Chilliwack 1.604.792.0651
 - Courtenay 1.250.334.3263
 - Surrey 1.604.588.1919

WS VIDAL PROPERTIES LP	DRAWING NO.	-4-
VIDAL-RESIDENTIAL BUILDING		
1441, 1443-45, 1465 VIDAL ST AND 14937 THRIFT AVE, WHITE ROCK		
SANITARY CATCHMENTS PLAN	LOCAL GOVERNMENT FILE	S19-0280/A-04
	PHASE	REVISION
		A

WS Vidal Properties LP
315 – 13338 Central Avenue
Surrey, B.C.
V3T 0M3

November 9, 2023
File: 15514

Attention: Krista Baronian

**Re: Geotechnical Investigation Report – Vidal St Project
1441-1465 Vidal Street and 14937 Thrift Avenue, White Rock, B.C.**

1.0 INTRODUCTION

We understand that a residential development is proposed for the above referenced site. Based on the Architectural Drawings prepared by Keystone Architecture & Planning Ltd., dated July 4, 2023, the proposed development will consist of a 6 storey, wood framed, residential building with a rooftop amenity deck over up to 4 levels of below grade, reinforced concrete parking structure. The below grade portion of the development is to be constructed in close proximity to property lines. Foundation depths are expected to extend up to 14 m below grade at the northern extent.

This report provides the results of our field investigation and makes geotechnical recommendations for the design and construction of the proposed development. This report was prepared exclusively for WS Vidal Properties LP, for their use and for the use of others on their development team but remains the property of GeoPacific Consultants Ltd.

2.0 SITE DESCRIPTION

The proposed site consists of 4 adjoining residential lots located northwest of the intersection of Vidal Street and Thrift Avenue in White Rock, BC. The site is bounded by Vidal Street to the east, Thrift Avenue to the south and residential lots in all other directions.

Based on a surveyed topographical plan provided by Target Land Surveying issued on April 4, 2018, the site slopes from north to south with elevation differential of about 9 m.

The northern lot, 1465 Vidal Street, was cleared of all pre-existing improvements and is covered with trees and vegetation. The remaining lots are occupied with single family dwellings, paved/graveled driveways, grass, vegetation and fenced backyards. The location of the site relative to existing properties is shown on our Drawing No. 15514-01, following the text of this report.

3.0 FIELD INVESTIGATION

3.1 Site Investigation

GeoPacific initially investigated the site on October 25, 2017. Due to limited access to the majority of the lots, the initial investigation was carried out solely on 1465 Vidal Street. At that time, a total of 3 auger test holes (TH17-01 to TH17-03) were drilled to depths between 9.1 and 10.7 m below pre-existing grades and were supplemented with 1 Dynamic Cone Penetration Test (DCPT) sounding completed to approximately 1.5 m below pre-existing grade.

GeoPacific completed a supplementary investigation for the current development scope on October 26, 2023, to confirm soil conditions below the proposed foundation depths which are expected to extend up to 14 m below grade. At that time, 2 sonic test holes (TH23-01 and TH23-02), complete with one monitoring (standpipe piezometer), were conducted using a sonic drill rig supplied and operated by Blue Max Drilling Inc. of Surrey, BC. The test hole was terminated approximately 18.3 m below existing site grades. The monitoring well, installed at TH23-01, was screened between 15.3 and 18.3 m below existing site grades.

Prior to our investigations, a BC one call was placed, and the test hole locations were cleared of buried services. All test holes were backfilled and sealed in accordance with provincial abandonment requirements following classification, sampling, and logging of the soils in the field by our geotechnical staff. Our test hole logs are presented in Appendix A.

The approximate locations of the test holes are shown on our Drawing No. 15514-01.

4.0 SUBSURFACE CONDITIONS

4.1 Soil Profile

According to the Geological Survey of Canada Surficial Geology Map 1484A the subject site is underlain by Capilano Sediments consisting of raised marine, deltaic, fluvial deposit, marine and glaciomarine stony and stoneless silts (till like) to clay loam with minor sand and silt. Glacial till typically underlies these deposits at depth. A general description of the soils encountered is provided below. For specific subsurface soil descriptions at the test hole locations refer to the test hole logs provided in Appendix A

Sand and Gravel (Fill)

Sand and gravel fill was identified in all our test holes. The sand and gravel contained trace to some silt and appears to be compact. The fill extends to depths of 0.3 m to 1.8 m below grade.

Silty Sand (Glacial Till)

The sand and gravel fill is underlain by very dense glacial till comprised of silty sand, some gravel. The moisture content ranges from 6.8% to 10.5%. The till extended beyond the maximum extent of our investigation, approximately 18.3 m below existing grade. Cobbles and boulders are also commonly encountered within the till like soils. The fines contents of the till encountered typically ranged from 26.8% to 32%, with a higher fines content noted approximately 10.9 m below existing grade within a silty layer at TH23-01.

4.2 Groundwater Conditions

The static groundwater table was not encountered during our investigation. No water was present in the monitoring well as of November 1st, 2023. Based on our site investigation, well logs and our experience within the surrounding area, we expect that the static groundwater depth is significantly below the proposed excavation grades.

Perched groundwater seepage from silty soils are expected to be light to moderate. Perched water may also be encountered in the surficial fills. We expect that the presence of perched ground water to vary seasonally with generally higher levels in the wetter months of the year.

5.0 DISCUSSION

5.1 General Comments

As noted in Section 1.0, we understand that a residential development is proposed for the above referenced site. Based on the Architectural Drawings prepared by Keystone Architecture & Planning Ltd., dated July 4, 2023, the proposed development will consist of a 6 storey, wood framed, residential building with a rooftop amenity deck over up to 4 levels of below grade, reinforced concrete parking structure. The below grade portion of the development is to be constructed in close proximity to property lines. Foundation depths are expected to extend up to 14 m below grade at the northern extent.

Based on the results of our geotechnical investigations and the anticipated foundation depths, we expect that the development will be founded on very dense glacial till. We expect that these soils will provide adequate support for conventional pad and strip footings.

Shoring will be required to facilitate excavation and support neighbouring properties, structures or utilities given that the proposed below grade structure is to be constructed in close proximity to the property lines. Our design recommendations for temporary excavations are provided in Section 6.7.

The subsurface soils are not considered prone to liquefaction or other forms of ground softening under the design earthquake defined under the 2018 British Columbia Building Code.

We envision that some perched groundwater will be encountered while excavating and will need to be controlled. A graded excavation with sumps at low points should be adequate to control seepage. Based on the site investigations completed it is not anticipated that the static groundwater table will be encountered during excavation works.

We confirm, from a geotechnical point of view, that the proposed building development is feasible provided the recommendations outlined in Sections 6.0 are incorporated into the overall design.

6.0 RECOMMENDATIONS

6.1 Site Preparation

Prior to construction of foundations and floor slabs, all unsuitable materials including vegetation, topsoil, fill, organic material, debris, and loose or otherwise disturbed soils must be removed to expose a subgrade of dense to very dense silty sand. However, as the development is to be constructed with a below grade component, we expect that the excavation depth will be driven by the architectural design rather than the soils encountered. Suitable bearing soils are expected at the proposed foundation elevations. Crushed gravel or engineered fill can be placed beneath the slab-on-grade only.

“Engineered Fill” is generally defined as clean sand to sand and gravel containing silt less than 5% by weight, compacted in 300 mm loose lifts to a minimum of 95% of the ASTM D1557 (Modified Proctor) maximum dry density at a moisture content that is within 2% of optimum for compaction.

It is very important that the stripped subgrade be protected by lean mix concrete to preserve its bearing qualities and that it remain dry and free of ponded water prior to pouring concrete for footings. Any softened, disturbed subgrade should be removed under the review of GeoPacific and replaced with lean mix (5.0 MPa) concrete beneath the foundations.

GeoPacific shall be contacted for the review of foundation grade reinstatement, and engineered fill placement and compaction.

6.2 Foundations

Footings which are founded on very dense glacial till, as described in Section 4.1, can be designed on the basis of a serviceability limit state (SLS) bearing pressure of 500 kPa for strip or pad footings.

Factored ultimate limit state (ULS) bearing pressures, for transient loads such as those induced by wind and earthquakes, may be taken as 1.5 x the SLS bearing pressures provided above.

We estimate for foundations designed as recommended, settlements will not exceed 25 mm total and 2 mm per metre differential.

Irrespective of the allowable bearing pressures given, pad footings should not be less than 600 mm by 600 mm and strip footings should not be less than 450 mm in width. Footings should also be buried a minimum of 450 mm below the surface for frost protection.

Adjacent footings should achieve a maximum elevation difference equal to half of their horizontal distance to avoid superimposing the upper foundation loading to the lower foundation.

Foundation subgrades of all buildings must be reviewed by GeoPacific prior to blinding and footing construction.

6.3 Seismic Design of Foundations

We did not encounter any soils considered to be prone to liquefaction or strain softening during cyclic loading caused by the design earthquake as defined in the 2018 British Columbia Building Code. The subgrade conditions underlying this site may be classified as Site Class C as defined in Table 4.1.8.4.A of the 2018 British Columbia Building Code.

6.4 Lateral Pressures on Foundation Walls

The earth pressures on the basement walls depends upon a number of factors including the backfill material, surcharge loads, backfill slope, drainage, rigidity of the basement wall and method of construction including sequence and degree of compaction. For a fully restrained basement wall designed for static pressures a pressure distribution of 8 H (kPa) triangular, where H is the height of the restrained soil in meters, should be employed. For an unrestrained basement wall a static pressure distribution of 5 H (kPa) triangular may be used.

Dynamic loading induced by the 2018 BCBC design earthquake should be added to the static loads and should be taken as 2.5 H (kPa) inverted triangular.

Restrained versus unrestrained conditions depend upon the degree of wall movement. A flexible, or unrestrained wall, is allowed to move $0.002H$ outwards at the top of the wall, where H is the height of the wall. A restrained or rigid wall is prevented from rotating out at the top of the wall either by intervening walls or floors which prevent deflection of the wall. Partial movements of the wall may result in pressures somewhat less than the restrained condition, but it is not possible to predict intermediate cases with any degree of certainty.

We have assumed that a free draining granular backfill will be used behind the basement walls and that a perimeter drainage system will also be employed to collect any water from behind the walls. Therefore, our wall loading scenarios presented above assume that no water pressure will be generated behind the walls.

All earth pressures are based upon no surcharges or slopes above the walls. All soil parameters and loads are assumed to be unfactored.

GeoPacific shall be contacted for the review of all backfill materials and procedures.

6.5 Slab-On-Grade Floors

In order to provide suitable support for slab-on-grade floors we recommend that any fill placed under the slab should be granular and essentially “clean” with not more than 5% passing the #200 sieve. In addition, this granular fill must be compacted to a minimum of 98% Standard Proctor (ASTM D698) maximum dry density with water content within 2% of optimum for compaction.

Floor slabs should be directly underlain by a minimum of 150 mm of a free draining granular material, such as 19 mm clear crushed rock. A moisture barrier should underlie the slab directly above the free draining granular material.

Compaction of the slab-on-grade fill must be reviewed by GeoPacific.

6.6 Foundation Drainage

A perimeter drainage system will be required for the below grade structure to prevent the development of water pressure on the foundation walls and the basement floor slabs. Groundwater flows are expected to be relatively light to moderate, likely in the range of 30 to 50 liters/minute for the entire excavation. These flow rates should be confirmed at the time of construction.

6.7 Excavation and Shoring

The proposed development is to include up to 4 levels of below grade construction. Shoring will be required to facilitate excavation and support neighbouring properties, structures or utilities given that the proposed below grade structure is to be constructed in close proximity to the property lines. Partial open cuts above the shoring wall may be feasible where the building is offset from the property lines.

Vertical cuts may be supported with the use of a shotcrete membrane tied back with post-tensioned soil anchors. In areas where sand layers within the till like soils are encountered, hollow core (IBO) anchors may be required where a drilled anchor hole will not remain open to allow the installation of a conventional anchor bar.

We expect that the perimeter excavation would be sloped where sufficient space is available as it is more economical to do so. We would expect that slopes cut of 3H:4V (3 Horizontal to 4 Vertical) can be constructed

in the dense to very dense silty sand and 1H:1V in the surficial fills. Above any shoring walls, 1H:1V slope cuts would be feasible.

Our experience in this area indicates that cobbles and boulders may be present within the till like soils. Cobbles and small boulders can typically be removed with conventional excavation equipment. However, large boulders may require splitting/blasting to facilitate their removal from the site.

Some seepage into excavations from surficial fills and the till like soils should be expected. We envisage that groundwater inflows can generally be controlled with conventional sumps and sump pumps. Some face-saving measures may be required where seepage occurs at the shoring face.

6.8 Utilities

Site utilities will be required beneath the grade supported slab. The design of these systems must consider the location and the depth of the foundations. The service trenches and excavations required for the installation of underground vaults and/or manholes should be outside of a 1H:1V slope measured downward and outward from the underside of foundations.

Backfilling of trenches and excavations should be done with 19 mm clear crush gravel following the required pipe bedding.

All excavations and trenches must conform to the latest Occupational Health and Safety Regulation supplied by the Workers Compensation Board of British Columbia.

Temporary cut slopes in excess of 1.2 m in height must be covered in polyethylene sheeting and require review by a professional engineer in accordance with WorkSafe BC guidelines, prior to worker entry.

6.9 Re-Use of Native Soils

Excavated soils derived from the site are expected to be silt predominant. Therefore, they are not considered suitable for re-use as engineered fill.

7.0 DESIGN REVIEWS AND CONSTRUCTION INSPECTIONS

As required for Municipal “Letters of Assurance”, GeoPacific Consultants Ltd. will carry out sufficient field reviews during construction to ensure that the geotechnical design recommendations contained within this report have been adequately communicated to the design team and to the contractors implementing the design. These field reviews are not carried out for the benefit of the contractors and therefore do not in any way effect the contractors’ obligations to perform under the terms of his/her contract.

It is the contractors’ responsibility to advise GeoPacific Consultants Ltd. (a minimum of 48 hours in advance) that a field review is required. Field reviews are normally required at the time of the following activities:

- | | | |
|----|-----------------|---|
| 1. | Excavation | Review of temporary cut slopes. |
| 2. | Shoring | Review of shotcrete shoring construction, anchor installation and testing, anchor de-tensioning and removal, and shotcrete removal. |
| 3. | Foundation | Review of foundation subgrade. |
| 4. | Slab-on-grade | Review of subgrade and under-slab fill materials and compaction. |
| 5. | Backfill | Review of backfill materials and compaction against foundation walls. |
| 6. | Engineered Fill | Review of fill materials and compaction. |

It is critical that these reviews are carried out to ensure that our intentions have been adequately communicated. It is also critical that contractors working on the site view this document in advance of any work being carried out so that they become familiar with the sensitive aspects of the works proposed. It is the responsibility of the developer to notify GeoPacific Consultants Ltd. when conditions or situations not outlined within this document are encountered.

8.0 CLOSURE

This report has been prepared exclusively for Weststone Group for the purpose of providing geotechnical recommendations for the design and construction of the proposed building, temporary excavations and related earthworks. The report remains the property of GeoPacific Consultants Ltd. and unauthorized use of, or duplication of, this report is prohibited.

We are pleased to be of assistance to you on this project and we trust that our comments and recommendations are both helpful and sufficient for your current purposes. If you would like further details or would like clarification of any of the above, please do not hesitate to call.

For:
GeoPacific Consultants Ltd.

Helen McGhee, M.Eng., E.I.T.
Geotechnical E.I.T.

Bobby Sandhu, B.Eng., E.I.T.
Geotechnical E.I.T.

Reviewed By



NOV 09 2023

Permit to Practice
EGBC
1000782

Kevin Bodnar, M.Eng., P.Eng.
Principal

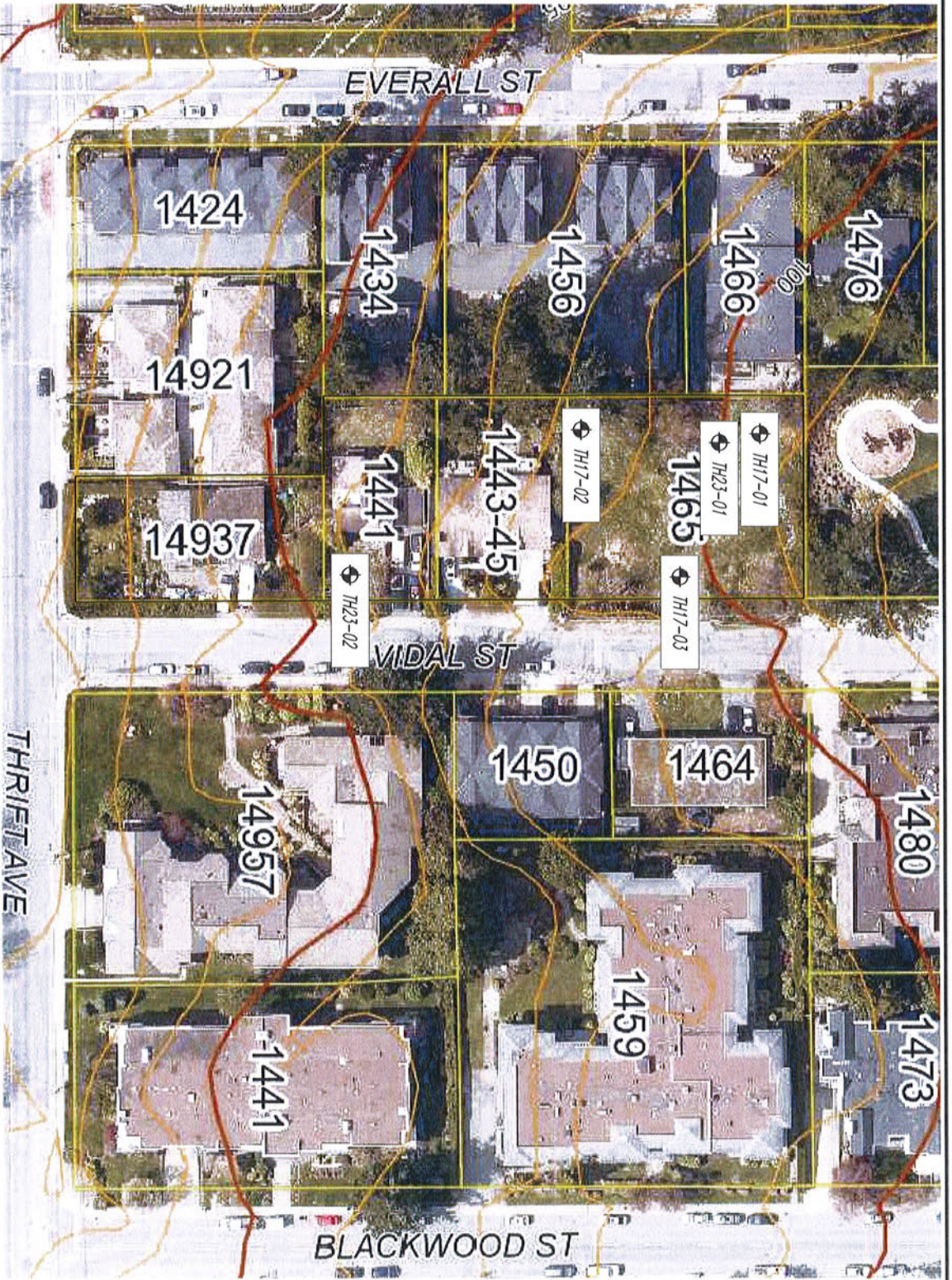
Appendix A

Test Hole Logs



GEOPACIFIC
VANCOUVER LANDSCAPE ARCHITECTS

1779 W. 78th Avenue
VANCOUVER, B.C. V6P 0P2
P 604.439.0922
F 604.439.9189



LEGEND:

- ◆ TH17-f - 2017 TEST HOLE (TH) LOCATIONS
- ◆ TH23-f - 2023 TEST HOLE (TH) LOCATIONS
- APPROXIMATE SITE BOUNDARY

SITE PLAN
SCALE = NTS

REFERENCE: WROMS - 2023-10-18

DATE	NOVEMBER 3, 2023		
DRAWN BY:	BSS	APPROVED BY:	ZO
SCALE	SEE ABOVE		

PROPOSED RESIDENTIAL DEVELOPMENT
14397 THRIFT AVE, 1441-1465 VIDAL ST, WHITE ROCK, BC
TEST HOLE LOCATIONS

FILE NO.	15514	REVISIONS
DATE	15514-01	A
		B
		C

Test Hole Log: TH23-01

File: 15514

Project: Vidal St Project

Client: WS Vidal Properties LP

Site Location: 1441-1465 Vidal St and 14937 Thrift Ave, White Rock, B.C.



GEOPACIFIC
CONSULTANTS

1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	Groundwater / Well	Remarks	
Depth	Symbol	SOIL DESCRIPTION	Depth/Elev (m)				
0		Ground Surface	0.00				
1		SAND AND GRAVEL (FILL) SAND, SOME SILT and GRAVEL. Loose to compact, sand is fine grained, gravel is subangular, brown, wet.	0.00			Root fragments throughout, drier with depth	
2							
3							
4							
5							
6							
7			WEATHERED GLACIAL TILL SAND and GRAVEL w/ COBBLES. Compact, sand is fine grained, gravel is subangular, grey brown, dry.	1.83			
8							
9							
10							
11			3.05				
12		GLACIAL TILL SAND, SILTY and GRAVELLY w/ COBBLES. Compact to dense, gravel uniformly graded, grey, dry. (Profile inferred 10-12ft)	4.57	9.9		Moisture content changes to moist Cobble content increases with depth Increase in gravel content with depth	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27				7.1			
28							
29							
30			9.14				
31							
32							
33				13.1			

Logged: HMG
Method: Sonic
Date: 27-10-2023

Datum: Ground Surface
Figure Number: A.4.
Page: 1 of 2

Test Hole Log: TH23-01

File: 15514

Project: Vidal St Project

Client: WS Vidal Properties LP

Site Location: 1441-1465 Vidal St and 14937 Thrift Ave, White Rock, B.C.



GEOPACIFIC
CONSULTANTS

1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE						
Depth	Symbol	SOIL DESCRIPTION	Depth/Elev (m)	Moisture Content (%)	Groundwater / Well	Remarks
34	11	GLACIAL TILL SAND, SILTY w/ some GRAVEL and COBBLE. Loose to compact, sand is fine grained, gravel is subangular, grey brown, moist to wet. (Profile inferred 30-32ft)	11.58	9.4		MC changes to wet
35						Fines 40.4%
36	12	GLACIAL TILL SAND, SILTY w/ some GRAVEL and COBBLES. Compact, sand is fine grained, gravel is subangular, grey brown, moist.	12.19			Increase in gravels and cobbles
37						Increase in fine sand content
38	13	GLACIAL TILL SAND and GRAVEL, some SILT w/ COBBLES.				Increase in moisture content
39						Fines 27.4%
40	14	Loose to compact, sand is fine grained, gravel is subangular, grey, dry becoming wet. (profile inferred 40-43ft)				Increase in sand fines with depth
41						Decrease in cobble content
42	15					
43						
44	16					
45						
46	17					
47						
48	18					
49						
50	19					GW recorded November 1st 2023. No Groundwater recorded
51						
52	20					
53						
54						
55						
56						
57						
58						
59						
60						
61						
62						
63						
64						
65						
66						

Logged: HMG
Method: Sonic
Date: 27-10-2023

Datum: Ground Surface
Figure Number: A.4.
Page: 2 of 2

Test Hole Log: TH23-02

File: 15514

Project: Vidal St Project

Client: WS Vidal Properties LP

Site Location: 1441-1465 Vidal St and 14937 Thrift Ave, White Rock, B.C



GEOPACIFIC
CONSULTANTS

1779 West 75th Avenue, Vancouver, BC. V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth/Elev (m)			
0		Ground Surface	0.00			
1		FILL SILTY SAND. Loose, sand is fine to medium grained, Brown, dry	0.91			
2		SANDY SILT SANDY SILT w/ GRAVEL and some cobbles. Loose to compact, sand is medium grained, gravel is subangular, dark brown, dry.	1.52			Many Gravels>10mm
3		WEATHERED GLACIAL TILL SAND and GRAVEL. Compact, sand is fine to medium grained, gravel is subangular, brown, moist.	2.13			
4		GLACIAL TILL SILTY SAND and GRAVEL. Dense, sand is fine to medium grained, brown, moist.	3.05			
5		GLACIAL TILL SILTY SAND and GRAVEL. Dense to very dense, sand is fine grained, light brown, moist.	7.62	10.5		Becoming Moist with Depth
6		SAND AND GRAVEL SAND AND GRAVEL. Compact, fine to medium grained sand, gravel is subangular, grey, dry to moist.				Some Gravels<10mm

Logged: HMG
Method: Sonic
Date: 27-10-2023

Datum: Ground Surface
Figure Number: A.5.
Page: 1 of 2

Test Hole Log: TH23-02

File: 15514

Project: Vidal St Project

Client: WS Vidal Properties LP

Site Location: 1441-1465 Vidal St and 14937 Thrift Ave, White Rock, B.C



GEOPACIFIC
CONSULTANTS

1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE						
Depth	Symbol	SOIL DESCRIPTION	Depth/Elev (m)	Moisture Content (%)	Groundwater / Well	Remarks
34	11	GLACIAL TILL SILTY SAND and GRAVEL. Dense to very dense, sand is fine grained, gravel is subangular, grey, moist.	10.67	7.8		Fines 32.0%
35						
36	12					Gravels increase with depth
37						
38	13					
39						
40	14	SAND AND GRAVEL SAND AND GRAVEL, some SILT. Dense to very dense, sand is medium grained, grey, moist.	13.72	6.4		
41						
42	15					
43						
44	16					
45						
46	17	SAND AND GRAVEL SAND AND GRAVEL. Dense to very dense, sand is medium grained, grey, moist.	16.76	9.1		Increase in Gravel content
47						
48	18					Fines 26.8%
49						
50	19					
51						
52	20	End of Borehole	18.29			
53						
54						
55						
56						
57						
58						
59						
60						
61						
62						
63						
64						
65						
66						

Logged: HMG
Method: Sonic
Date: 27-10-2023

Datum: Ground Surface
Figure Number: A.5.
Page: 2 of 2



SITE PLAN
SCALE = 1:400

WATER TREATMENT SYSTEM SHALL INCLUDE:

- CO2 pH ADJUSTMENT - BMP C252
- SETTLING TANKS - BMP C250
- MECHANICAL FILTRATION - BMP C251

SYSTEM MAY BE RELOCATED AS REQUIRED. WATER TREATMENT SYSTEM TO BE DESIGNED AND SIZED BY SUPPLIER TO STORE AND TREAT STORM WATER FROM THE SPECIFIED DESIGN STORM. DISCHARGE TO MEET THE DISCHARGE REQUIREMENTS AND BE MONITORED AS PER SPECIFICATIONS ON PAGE G-ESC.3.

SUMP TO BE CONSTRUCTED AT LOW POINT(S) OF SITE TO COLLECT STORM WATER. SUMP SHALL INCORPORATE A SEDIMENT TRAP AND FLOAT-ACTUATED PUMP AS SHOWN IN THE DETAILS. SUMP MUST BE MAINTAINED REGULARLY TO PREVENT BUILD UP OF SEDIMENT FROM BEING PUMPED INTO TREATMENT SYSTEM. DO NOT PLACE PUMPS DIRECTLY IN SEDIMENT. BMP C240

STORM WATER TREATMENT SYSTEM DESIGN
SYSTEM SIZED BASED ON STORMWATER RUNOFF FLOW RATES AS FOLLOWS:

DISCHARGE RATE (PEAK FLOW) $Q = 10.5 \text{ L/s}$
DISCHARGE RATE (24 HOUR) $Q = 1.75 \text{ L/s}$

GROUNDWATER INFLOWS MAY IMPACT THE WATER TREATMENT SIZE REQUIREMENTS.

DESIGN PARAMETERS
RATIONAL METHOD: $Q = CA$
WHERE: $Q =$ PEAK DISCHARGE FLOW RATE
 $C =$ RUNOFF COEFFICIENT $C = 0.75$
 $I =$ RAINFALL INTENSITY $I = 17 \text{ mm/HR}$
 $A =$ SITE CATCHMENT AREA $A = 2970.0 \text{ m}^2$

DESIGN PERIOD: 2-YEAR STORM EVENT @ $T_c = 30 \text{ min}$
IDF CURVE FOR WHITE ROCK (ENVIRONMENT CANADA)

- LEGEND:**
- GRADE DIRECTION
 - ▶▶▶ WATER FLOW
 - CATCH BASIN PROTECTION
 - STOCKPILE
 - SUMP
 - + 19-75mm CLEAR CRUSH GRAVEL

NO.	DATE	BY	REVISION



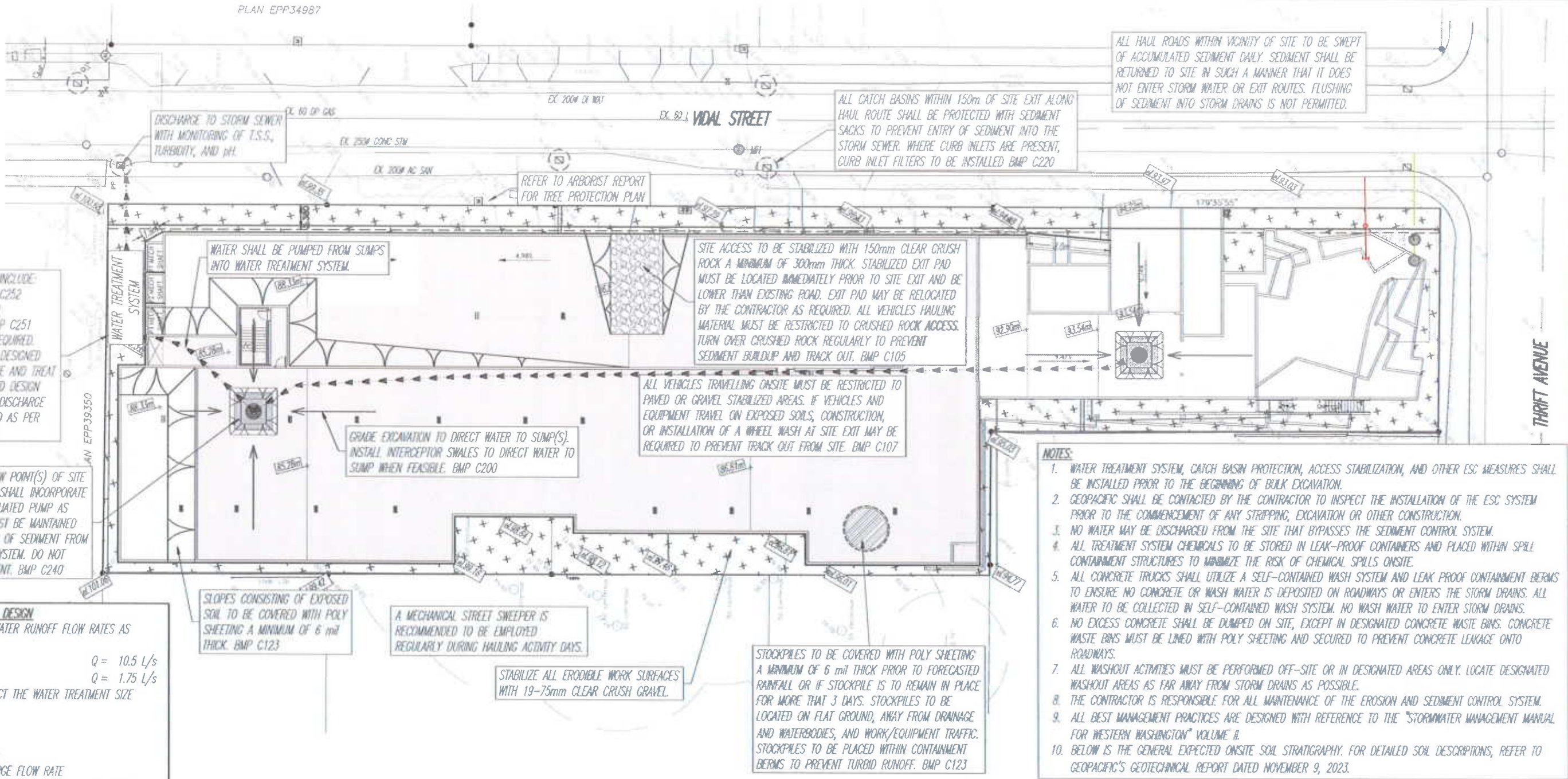
DESIGNED BY:
K.D.S.
DRAWN BY:
N.S.K.
APPROVED BY:
A.Ge.
REVIEWED BY:
A.Ge.
SCALE:
AS SHOWN

RESIDENTIAL DEVELOPMENT
1441-1465 VIDAL STREET & 14937 THRIFT AVENUE, WHITE ROCK, B.C.
EROSION & SEDIMENT CONTROL PLAN

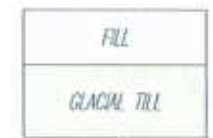
FILE NO:
15514
DRAWING NO:
G-ESC1
DATE:
DECEMBER 7, 2023



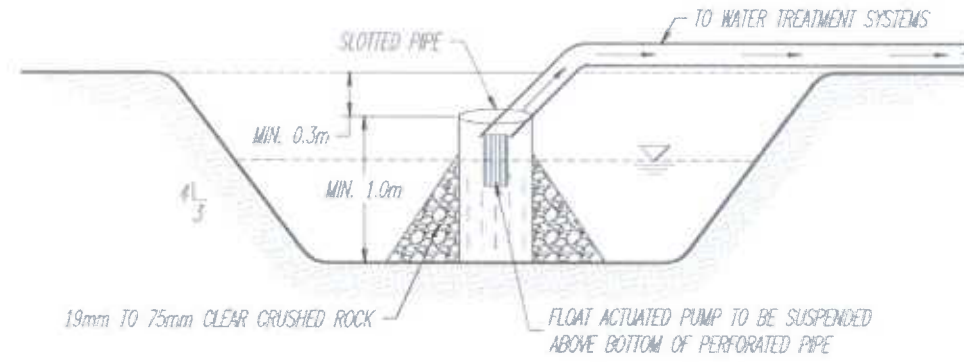
DEC 08 2023



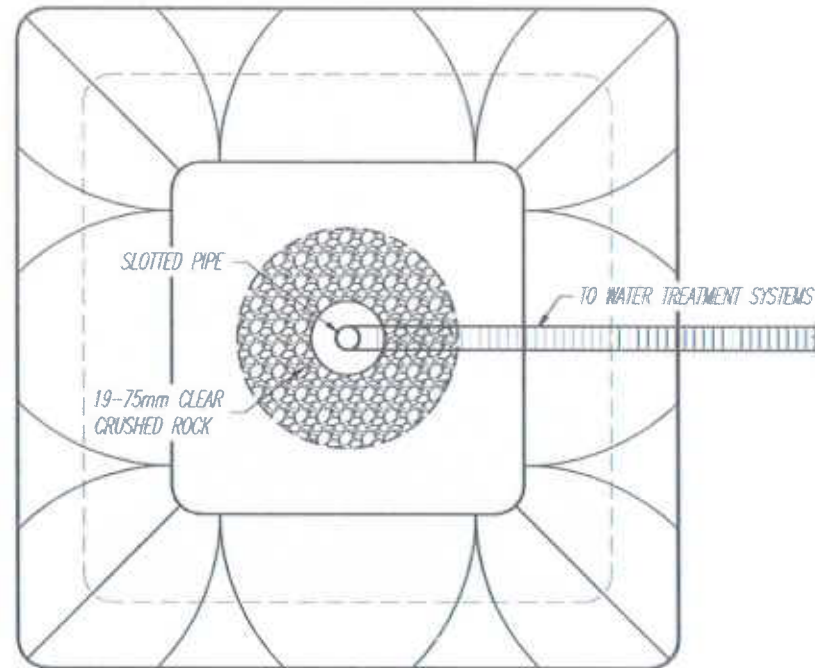
- NOTES:**
1. WATER TREATMENT SYSTEM, CATCH BASIN PROTECTION, ACCESS STABILIZATION, AND OTHER ESC MEASURES SHALL BE INSTALLED PRIOR TO THE BEGINNING OF BULK EXCAVATION.
 2. GEOPACIFIC SHALL BE CONTACTED BY THE CONTRACTOR TO INSPECT THE INSTALLATION OF THE ESC SYSTEM PRIOR TO THE COMMENCEMENT OF ANY STRIPPING, EXCAVATION OR OTHER CONSTRUCTION.
 3. NO WATER MAY BE DISCHARGED FROM THE SITE THAT BYPASSES THE SEDIMENT CONTROL SYSTEM.
 4. ALL TREATMENT SYSTEM CHEMICALS TO BE STORED IN LEAK-PROOF CONTAINERS AND PLACED WITHIN SPILL CONTAINMENT STRUCTURES TO MINIMIZE THE RISK OF CHEMICAL SPILLS ONSITE.
 5. ALL CONCRETE TRUCKS SHALL UTILIZE A SELF-CONTAINED WASH SYSTEM AND LEAK PROOF CONTAINMENT BERMS TO ENSURE NO CONCRETE OR WASH WATER IS DEPOSITED ON ROADWAYS OR ENTERS THE STORM DRAINS. ALL WATER TO BE COLLECTED IN SELF-CONTAINED WASH SYSTEM. NO WASH WATER TO ENTER STORM DRAINS.
 6. NO EXCESS CONCRETE SHALL BE DUMPED ON SITE, EXCEPT IN DESIGNATED CONCRETE WASTE BINS. CONCRETE WASTE BINS MUST BE LINED WITH POLY SHEETING AND SECURED TO PREVENT CONCRETE LEAKAGE ONTO ROADWAYS.
 7. ALL WASHOUT ACTIVITIES MUST BE PERFORMED OFF-SITE OR IN DESIGNATED AREAS ONLY. LOCATE DESIGNATED WASHOUT AREAS AS FAR AWAY FROM STORM DRAINS AS POSSIBLE.
 8. THE CONTRACTOR IS RESPONSIBLE FOR ALL MAINTENANCE OF THE EROSION AND SEDIMENT CONTROL SYSTEM.
 9. ALL BEST MANAGEMENT PRACTICES ARE DESIGNED WITH REFERENCE TO THE "STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON" VOLUME II.
 10. BELOW IS THE GENERAL EXPECTED ONSITE SOIL STRATIGRAPHY. FOR DETAILED SOIL DESCRIPTIONS, REFER TO GEOPACIFIC'S GEOTECHNICAL REPORT DATED NOVEMBER 9, 2023.



ONSITE SOIL STRATIGRAPHY
N.T.S.



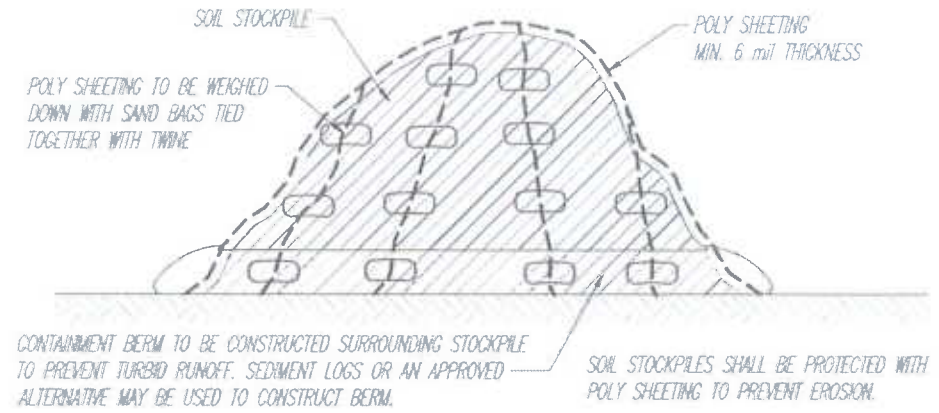
TYPICAL CROSS SECTION



TYPICAL PLAN VIEW

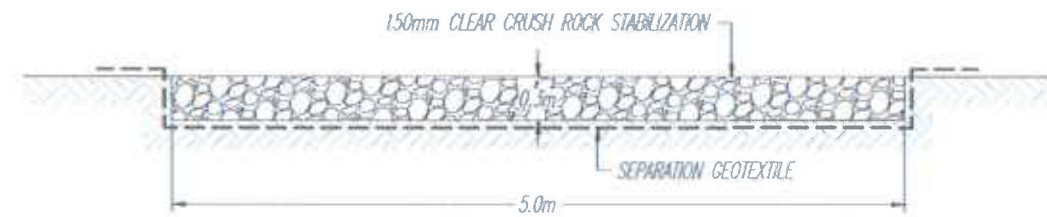
SUMP WITH SEDIMENT TRAP DETAIL - BMP C240

1:50



PLASTIC SHEETING - BMP C123

N.T.S.



GEOTEXTILE SEPARATION SPECS

GRAB TENSILE STRENGTH (ASTM D4751)	200psi MIN.
GRAB TENSILE ELONGATION (ASTM D4632)	30% MAX.
MULLEN BURST STRENGTH (ASTM D3786 - 80A)	400psi MIN.
AVERAGE OPENING SIZE (ASTM D4751)	20 - 45 (U.S. STANDARD SIZE)

STABILIZED CONSTRUCTION ACCESS DETAIL - BMP C105

1:50

LEGEND:

NO.	DATE	BY	REVISION



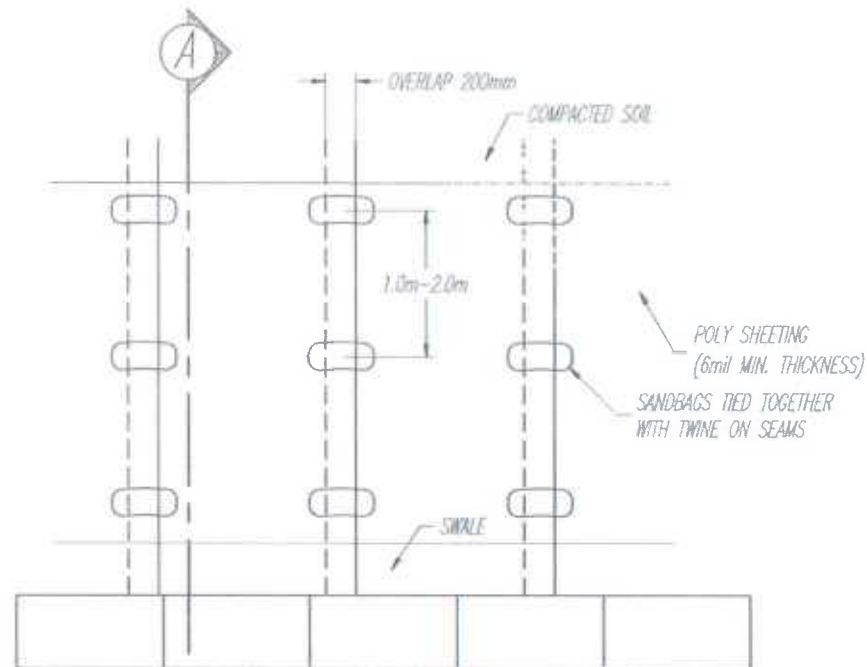
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RESIDENTIAL DEVELOPMENT
1441-1465 VIDAL STREET & 14937 THRIFT AVENUE, WHITE ROCK, B.C.
EROSION & SEDIMENT CONTROL DETAILS (1 OF 2)

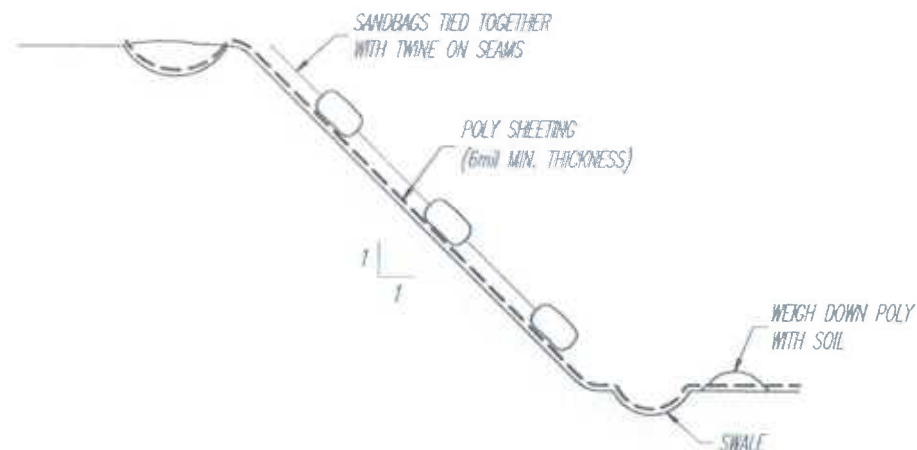
FILE NO:
15514
DRAWING NO:
G-ESC2A
DATE:
DECEMBER 7, 2023



ORIGINAL PAPER SIZE: 11" X 17"



SLOPE PLAN VIEW



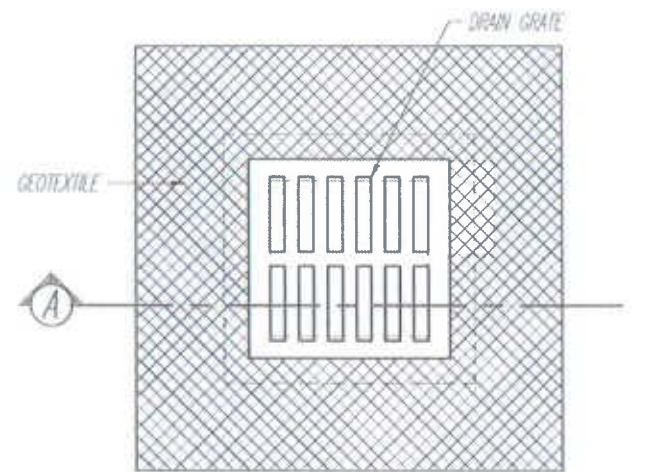
SLOPE SECTION A

PLASTIC COVERING - BMP C123

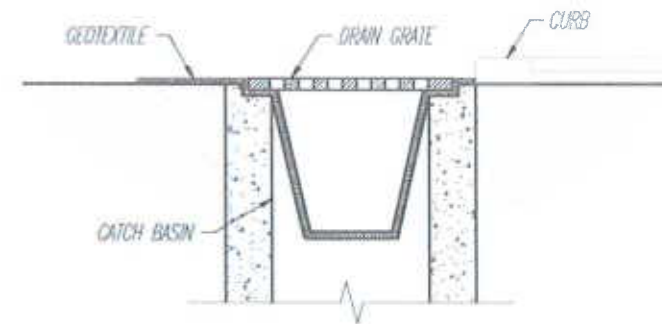
N.T.S.

NOTE:

1. POLYETHYLENE SHEETING WITH A MINIMUM THICKNESS OF 6mil TO BE USED.
2. SHEETING TO BE PLACED PARALLEL TO THE SLOPE WITH A MINIMUM 200mm OVERLAP BETWEEN SHEETS.
3. TRENCH TO BE EXCAVATED AT THE HEAD OF THE SLOPE TO ALLOW SHEETING TO BE SECURED UNDER COMPACTED SOIL.
4. TRENCH TO BE EXCAVATED AT THE TOE OF THE SLOPE, TO A DEPTH OF 300mm, WHICH WILL ACT AS A SWALE.
5. BURLAP OR GEOTEXTILE BAGS FILLED WITH SAND TO BE PLACED AT 1.0m TO 2.0m INTERVALS ALONG SEAMS. BAGS TO BE TIED TOGETHER WITH TWINE TO HOLD IN PLACE.
6. REGULAR INSPECTION OF THE SHEETING IS REQUIRED. TORN SHEETS MUST BE REPLACED AND OPEN SEAMS MUST BE SEALED.



PLAN VIEW

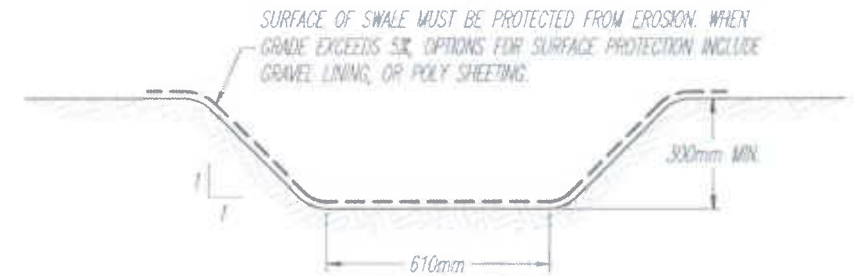


SECTION A

CATCH BASIN SEDIMENT SACK DETAIL - BMP C220

N.T.S.

- STORE SPARE CATCH BASIN PROTECTION ONSITE AT ALL TIMES.
- INSPECT CATCH BASIN PROTECTION WEEKLY, AND DAILY DURING STORM EVENTS. CLEAN OR REPLACE WHEN 1/3 FULL, CLOGGED, OR SIGNS OF WEAR OCCUR.
- CATCH BASIN PROTECTION TO BE USED ON ALL CATCH BASINS WITHIN 150m OF SITE EXIT ALONG HAUL ROUTE.



INTERCEPTOR SWALE DETAIL - BMP C200

1:20

SPACING OF CHECK DAMS BASED ON SLOPE OF SWALES

SLOPE	SPACING OF CHECK DAMS
0.5%	EVERY 50m
1.0%	EVERY 35m
1.5%	EVERY 20m
2.0%	EVERY 15m
2.5%	EVERY 12m
3.0%	EVERY 10m

NOTES:

- DRAINAGE SWALE TO BE CONSTRUCTED WITH MIN. SLOPE TO FACILITATE FLOW.
- SMALL SWALES SHALL DIRECT WATER INTO DRAINAGE SWALE.

- DURING ARID PERIODS OR DURING TIMES OF HIGH TRAFFIC OVER EXPOSED SOILS USE NATURAL OR ARTIFICIAL WIND BREAKS OR SCREEN.
- SPRINKLE WATER ON SITE UNTIL SURFACE SOILS ARE WETTED.
- SPRAY EXPOSED SOIL WITH DUST PALLIATIVE FOLLOWING MANUFACTURER'S INSTRUCTION.

DUST CONTROL - BMP C140

LEGEND:

NO.	DATE	BY	REVISION



DESIGNED BY:
K.D.S.
DRAWN BY:
N.S.K.
APPROVED BY:
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REVIEWED BY:
A.Ge.
SCALE:
AS SHOWN

RESIDENTIAL DEVELOPMENT
1441-1465 VIDAL STREET & 14937 THRIFT AVENUE, WHITE ROCK, B.C.
EROSION & SEDIMENT CONTROL DETAILS (2 OF 2)

FILE NO:
15514
DRAWING NO:
G-ESC2B
DATE:
DECEMBER 7, 2023



Permit to Practice
EGBC
1000782

ORIGINAL PAPER SIZE: 11"X17"

GENERAL NOTES

1. UNDER THIS PLAN, ALL PERSONS INCLUDING BUT NOT LIMITED TO THE DEVELOPER, OWNER OF THE LAND, THE ENGINEER OF RECORD, ESC MONITOR, CIVIL CONTRACTOR, CIVIL SUBCONTRACTOR, BUILDER AND BUILDING SUB-TRADES, ENGAGED ONSITE SHALL COMPLY WITH THE REQUIREMENTS OF ALL REGULATORY AUTHORITIES, FEDERAL, PROVINCIAL AND MUNICIPAL GOVERNMENT DEPARTMENTS PERTAINING TO ONSITE MANAGEMENT AND DISCHARGE ASSOCIATED WITH EROSION AND SEDIMENT CONTROL REGULATIONS.
2. THE DEVELOPER/PERSONS RESPONSIBLE SHALL ENSURE THAT CONSTRUCTION ACTIVITIES ARE UNDERTAKEN IN A MANNER THAT ENSURES BEST MANAGEMENT PRACTICES ARE IMPLEMENTED TO CONTAIN ONSITE, SILT LADEN RUNOFF THAT EXCEEDS FEDERAL, PROVINCIAL, AND MUNICIPAL REQUIREMENTS, AND PREVENT ITS ENTERING DOWNSTREAM DRAINAGE INFRASTRUCTURE AND AQUATIC SYSTEMS.
3. THE DEVELOPER/OWNER/PERSONS RESPONSIBLE MUST COMPLY WITH THE ESC PLAN WITHIN THE SPECIFIED TIMEFRAME, AND COMPLY WITH ALL INSTRUCTIONS ISSUED BY THE ESC MONITOR TO RECTIFY DEFICIENCIES THAT RESULT IN NON-COMPLIANCE.
4. NO PERSON SHALL OBSTRUCT OR IMPEDE THE FLOW OF THE DRAINAGE SYSTEM. NO PERSON SHALL STORE, TRANSPORT OR DISPOSE OF ANY WASTE OR DELETERIOUS SUBSTANCES IN SUCH A MANNER SO AS TO PERMIT THE LIKELY ESCAPE OF THE MATERIALS INTO THE DRAINAGE SYSTEM, OR RELEASE DIRECTLY OR INDIRECTLY DELETERIOUS SUBSTANCES INTO THE DRAINAGE SYSTEM.
5. NO PERSON SHALL CAUSE OR PERMIT TO BE RELEASED INTO THE DRAINAGE SYSTEM, DIRECTLY OR INDIRECTLY, ANY SEDIMENT, EARTH, CONSTRUCTION OR EXCAVATION WASTES, GEMENT, CONCRETE OR OTHER SUBSTANCES WHICH WHEN MIXED WITH WATER WILL RESULT IN A PH AND/OR TURBIDITY VALUE OUTSIDE OF FEDERAL, PROVINCIAL, AND MUNICIPAL DISCHARGE REQUIREMENTS.
6. THE EROSION AND SEDIMENT CONTROL WORKS SHALL REMAIN IN PLACE AND SHALL BE MAINTAINED UNTIL THE SITE NO LONGER POSES A THREAT TO THE DRAINAGE SYSTEM AND APPROVAL TO REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL FACILITIES HAS BEEN OBTAINED FROM THE ESC MONITOR.

MAINTENANCE

1. UPON INSTRUCTION/NOTIFICATION BY ENGINEER OF RECORD OR ESC MONITOR, PERSONS RESPONSIBLE ARE REQUIRED TO UNDERTAKE MAINTENANCE ACTIVITIES TO MODIFY OR MAINTAIN ESC FACILITIES.
2. SHOULD ANY PART OF THE SEDIMENT CONTROL FACILITIES BECOME DAMAGED, BLOCKED OR IN ANY WAY NOT FUNCTION PROPERLY, THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO REPAIR AND/OR REMOVE SUCH DAMAGE, BLOCKAGE OR CAUSE OF MALFUNCTION.
3. ACCUMULATED SEDIMENT REMOVED DURING MAINTENANCE OF THE SEDIMENT CONTROL FACILITIES SHALL BE DISPOSED OF IN SUCH A MANNER AS TO PREVENT ITS ENTRY INTO THE SITE DRAINAGE SYSTEM, AND/OR INTO ANY STORM SEWER OR WATERCOURSE.
4. STREETS ARE TO BE INSPECTED DAILY AT MINIMUM AND SWEEPED TO ENSURE THAT NO SEDIMENT OR DEBRIS ENTERS THE STORM SYSTEM. FLUSHING IS NOT PERMITTED.
5. PAVED ROAD SURFACES ARE TO BE CLEANED OF ANY ACCUMULATED SEDIMENT AT THE END OF EACH DAY AS REQUIRED. NO MATERIAL WITH HIGH SEDIMENT CONTENT IS TO BE DEPOSITED OR PILED NEAR CATCH BASINS, LAWN BASINS OR OUTSIDE OF PROPERTY BOUNDARIES.

6. CATCH BASINS ARE TO BE INSPECTED DAILY AND FOLLOWING STORM EVENTS. SEDIMENT SACKS ARE TO BE REMOVED AND CLEANED WHEN THEY REACH APPROXIMATELY ONE THIRD CAPACITY.
7. SOIL DISTURBING CONSTRUCTION TO BE AVOIDED DURING PERIODS OF HEAVY OR PERSISTENT RAINFALL WHERE POSSIBLE.
8. STOCKPILED MATERIAL AND ALL EXPOSED SLOPES TO BE COVERED WITH 6 MIL THICK POLYETHYLENE SHEETING ANCHORED WITH WEIGHTS.
9. SILT FENCES AND BARRIERS ARE TO BE INSPECTED AND REPAIRED PRIOR TO FORECASTED RAIN EVENTS, AND FOLLOWING SIGNIFICANT RAINFALL EVENTS OR PERIODS OF EXTENDED RAIN. SEDIMENT TO BE REMOVED WHEN IT HAS REACHED APPROXIMATELY ONE THIRD THE HEIGHT OF THE FENCE.
10. SITE ACCESS PADS TO BE INSPECTED DAILY TO ENSURE FUNCTIONALITY AND ADDITIONAL ROCK IS TO BE ADDED AS REQUIRED.
11. NO CONCRETE WASH WATER IS TO BE DIRECTED INTO THE SEDIMENT CONTROL SYSTEM OR THE STORM SEWERS. ALL CONCRETE TRUCKS ARE TO BE EQUIPPED WITH A RECIRCULATORY WASH SYSTEM. NO DISCHARGE FROM CONCRETE TRUCKS IS PERMITTED ON THE STREET OR TO ENTER THE ONSITE DRAINAGE SYSTEM.
12. AN ADDITIONAL SUPPLY OF MATERIALS SHALL BE STORED ONSITE TO ENABLE A SUITABLE RESPONSE TO ANY MAINTENANCE ACTIONS REQUIRED.
13. WET WEATHER SHUT DOWN PROCEDURES TO INCLUDE SUSPENDING ANY HAULING OR MAJOR EARTHWORK ACTIVITIES USING UNPAVED ROAD SURFACES PRIOR TO FORECASTED RAIN EVENTS EXCEEDING 25mm IN 24 HOURS. ALL ERODIBLE SURFACES MUST BE STABILIZED, OR COVERED WITH POLY SHEETING, PRIOR TO SIGNIFICANT RAINFALL EVENT. ANY WATER POOLING ONSITE MUST BE DIRECTED TO SUMP AND TREATED BY WATER TREATMENT SYSTEM PRIOR TO DISCHARGE. NO UNTREATED WATER IS TO ENTER THE STORM SYSTEM.
14. IF DISCHARGE EXCEEDING THE MUNICIPAL REQUIREMENTS IS OBSERVED, THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO CEASE DISCHARGE AND CORRECT THE WATER QUALITY.

MONITORING, SAMPLING AND TESTING PROGRAM

1. ALL DISCHARGE TO MUST MEET THE PH RANGE REQUIREMENT OF 6.0-9.0.
 2. THE TOTAL SUSPENDED SOLIDS OF ALL DISCHARGE MUST NOT EXCEED 75 mg/L.
 3. WHERE ANY WASTE, DELETERIOUS SUBSTANCE, OR WATER RELEASED DIRECTLY OR INDIRECTLY INTO THE DRAINAGE SYSTEM EXCEEDS THE ALLOWABLE PH, TURBIDITY AND/OR TOTAL SUSPENDED SOLIDS LEVELS, ALL DISCHARGE IS TO BE CEASED AND CORRECTIVE MEASURES ARE TO BE IMPLEMENTED IMMEDIATELY.
 4. A LOGBOOK OF ALL INSPECTIONS SHALL BE MAINTAINED ONSITE AND BE MADE AVAILABLE TO THE CITY UPON REQUEST.
 5. WATER QUALITY MONITORING AND ESC FACILITIES INSPECTIONS BY THE ESC MONITOR SHOULD BE CONDUCTED AT THE MIN. FREQUENCY NOTED BELOW.
- | | MIN. MONITORING FREQUENCY | MIN. REPORTING FREQUENCY |
|------------|---------------------------|-----------------------------|
| YEAR ROUND | MONTHLY | WITHIN 7 DAYS OF INSPECTION |
6. INSPECTION REPORTS SHALL BE SUBMITTED TO THE DEVELOPER AND CONTRACTORS AND THE CITY OF WHITE ROCK AT operations@whiterockcity.ca.

DECOMMISSIONING

1. BUILDING CONSTRUCTION MUST BE AT STREET LEVEL OR HIGHER WITH ALL EXPOSED SURFACES STABILIZED PRIOR TO BEGINNING THE PROCESS OF DECOMMISSIONING ANY ESC FACILITIES.
2. APPROVAL TO ALTER AND/OR REMOVE ANY COMPONENT OF THE WATER TREATMENT SYSTEM MUST BE OBTAINED FROM THE ESC MONITOR.
3. PRIOR TO RECEIVING FOR APPROVAL TO REMOVE COMPONENTS OF THE WATER TREATMENT SYSTEM, WATER QUALITY TESTING OF THE UNTREATED WATER IN THE BUILDING SUMP WILL BE CONDUCTED TO ENSURE ALLOWABLE TURBIDITY AND/OR PH LEVELS CAN BE MAINTAINED WITHOUT ADDITIONAL TREATMENT. THE PH TREATMENT COMPONENT OF THE SYSTEM MUST REMAIN ONSITE UNTIL ALL MAJOR CONCRETE POURS HAVE BEEN COMPLETED AT MINIMUM.
4. THE DECOMMISSIONING OF ANY ESC FACILITIES WITHOUT PRIOR APPROVAL MAY RESULT IN FINES AND/OR A STOP WORK ORDER.

ENFORCEMENT

1. FAILURE TO IMPLEMENT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR TO COMPLY WITH MUNICIPAL REGULATIONS MAY RESULT IN FINES AND/OR A STOP WORK ORDER.
2. FEDERAL ENVIRONMENTAL OFFENCES ARE STRICT LIABILITY OFFENCES AND CAN RESULT IN FINES AND/OR INCARCERATION.

LEGEND:

NO.	DATE	BY	REVISION



DESIGNED BY:
K.D.S.
DRAWN BY:
N.S.K.
APPROVED BY:
A.Ge.
REVIEWED BY:
A.Ge.
SCALE:
AS SHOWN

RESIDENTIAL DEVELOPMENT
1441-1465 VIDAL STREET & 14937 THRIFT AVENUE, WHITE ROCK, B.C.
EROSION & SEDIMENT CONTROL SPECIFICATIONS

FILE NO:
15514
DRAWING NO:
G-ESC3
DATE:
DECEMBER 7, 2023

Permit to Practice
EGBC
SEAL:

DEC 08 2023

ORIGINAL PAPER SET 11/1/23

WHITE ROCK

City by the Sea!

Existing Zoning:

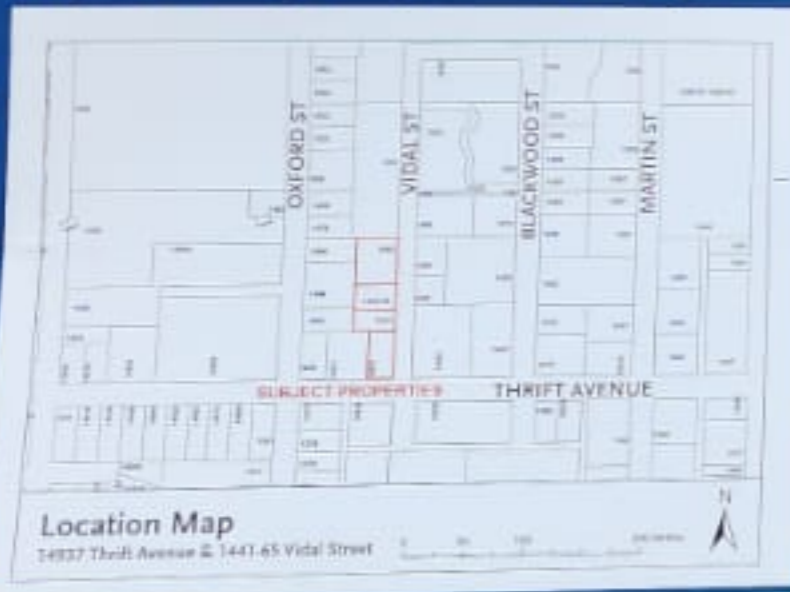
1465 Vidal Street: CD-32

1443/45 Vidal: RT-1 Two-Unit (Duplex) Residential

1441 Vidal: RS-1 One-Unit Residential

14937 Thrift Ave: RS-1 One-Unit Residential

Proposed Zoning: Comprehensive Development



DEVELOPMENT PROPOSAL 19-011

A Zoning Amendment and Major Development permit application have been submitted that would require the consolidation of four properties to enable the development of a 6-storey rental building with 136 residential units. A Development Permit is also required.

	14937 Thrift Avenue	1441 Vidal Street	1443-45 Vidal Street	1465 Vidal Street	Proposed Zoning (Consolidated Lots)
Zoning	RS-1	RS-1	RT-1	CD-32	CD-##
Dwelling Units	one-residential unit + accessory unit	one or two-residential unit(s)	townhouse (max 8 units)	townhouse (max 8 units)	rental apartment (136 units)
Parking Spaces	2 per unit + 1 per accessory unit	2 per unit	16 resident + 2 visitor	16 resident + 2 visitor	116 tenant + 41 visitor
Max. Height	7.7m	7.7m	11.5m (B1) 10.8m (B2)	11.5m (B1) 10.8m (B2)	26.42 m
Existing Lot Area (m²)	933.9	687.9	793.73	1,500	3,875.4
Max. Density (floor area) (m²)	466.9	343.9	396.8	NA	9478
Max. Density (rate)	0.5	0.5	0.5	NA	2.45

(These numbers are approximate only and the design may change before final approval)

APPLICANT: WS VIDAL PROPERTIES HOLDINGS LTD:
PLANNING & DEVELOPMENT SERVICES:

604-498-1958
604-541-2159

s.22

s.22

WHITE ROCK
City by the Sea!

DEVELOPMENT PROPOSAL 19-011
A Zoning Amendment and Major Development permit application have been submitted that would require the consolidation of four properties to enable the development of a 6-storey apartment building with 129 residential units. A Development Permit is also required.

	3457 West Street	3455 West Street	3453 West Street	3451 West Street	Proposed Property (Consolidated Lot)
Zone	RS-1	RS-1	RS-1	RS-1	CD-12
Use	residential - accessory unit	residential - accessory unit	residential - accessory unit	residential - accessory unit	residential - multi-unit (122 units)
Parking Spaces	2 per unit + 1 per accessory unit	2 per unit	2 per unit	2 per unit	100 minimum + 20 visitor
Max. Height	7.3m	7.3m	7.3m	7.3m	11.5m (38')
Building Lot Area (sq ft)	651.0	651.0	708.0	1,500	3,578.4
Area Density (per acre)	46.8	46.8	50.0	na	6.16
Area Density (per lot)	0.1	0.1	0.1	na	1.1

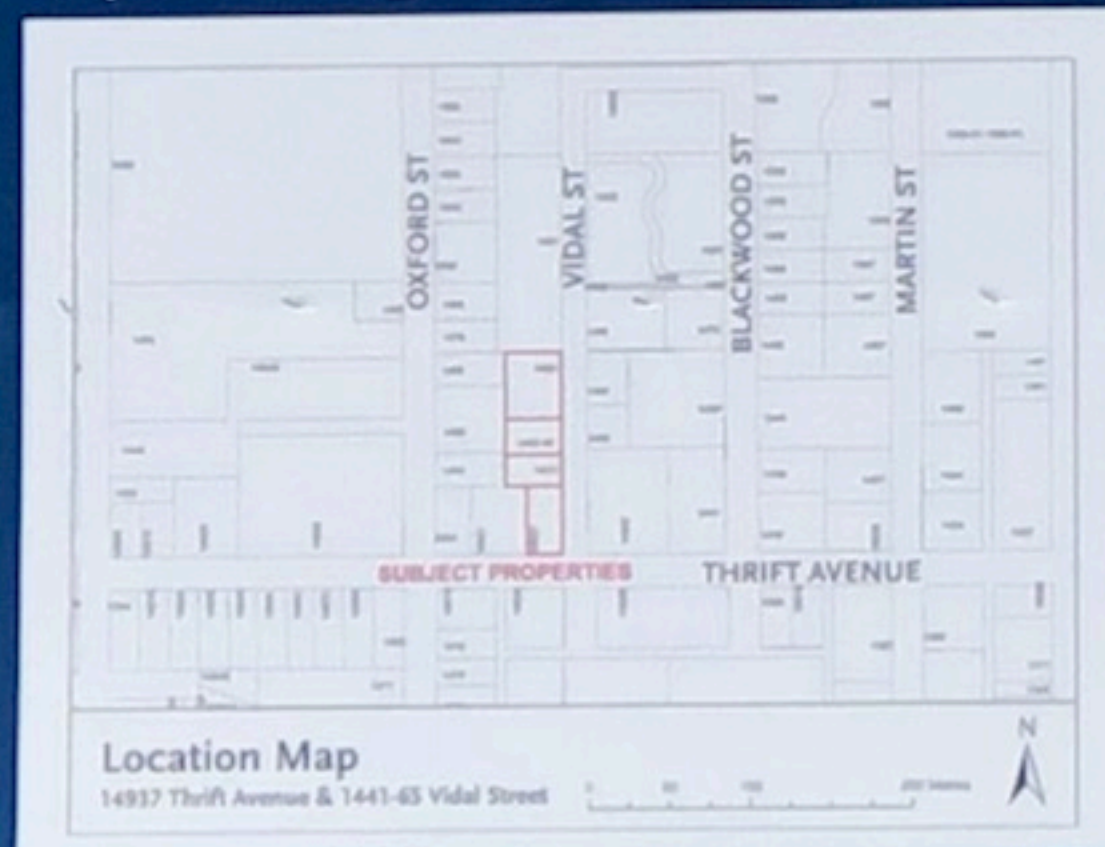
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APPLICANT: WS VIDAL PROPERTY HOLDINGS LTD: 604-498-1958



WHITE ROCK
City by the Sea!

Existing Zoning:
 1465 Vidal Street: CD-32
 1443/45 Vidal: RT-1 Two-Unit (Duplex) Residential
 1441 Vidal: RS-1 One-Unit Residential
 14937 Thrift Ave: RS-1 One-Unit Residential
Proposed Zoning: Comprehensive Development



DEVELOPMENT PROPOSAL 19-011

A Zoning Amendment and Major Development permit application have been submitted that would require the consolidation of four properties to enable the development of a 6-storey apartment building with 129 residential units. A Development Permit is also required.

	14937 Thrift Avenue	1441 Vidal Street	1443-45 Vidal Street	1465 Vidal Street	Proposed Zoning (Consolidated Lots)
Zoning	RS-1	RS-1	RT-1	CD-32	CD-##
Dwelling Units	one-residential unit + accessory unit		one or two-residential unit(s)	townhouse (max 8 units)	rental apartment (129 units)
Parking Spaces	2 per unit + 1 per accessory unit		2 per unit	16 resident + 2 visitor	141 tenant + 39 visitor
Max. Height	7.7m		7.7m	11.5m (B1) 10.8m (B2)	25.66m
Existing Lot Area (m²)	933.9	687.9	793.73	1,500	3,875.4
Max. Density (floor area) (m²)	466.9	343.9	396.8	NA	8,136
Max. Density (rate)	0.5		0.5	NA	2.1

(These numbers are approximate only and the design may change before final approval)

APPLICANT: WS VIDAL PROPERTIES HOLDINGS LTD.
 PLANNING & DEVELOPMENT SERVICES: 604-541-2159

[1:29 PM] Alex Narayan (IT Search Greg Newman's Email)

ok i drop one file in there for Alex Wallace

like 1

[1:30 PM] Alex Narayan

I couldnt find any thing for Greg Newman

[1:31 PM] Alex Narayan

There was no emails to krista@wsgroup.ca in between April to May

[1:32 PM] Alex Narayan

the only ones in the year 2020 were outside of those dates

like 1