

Hardship Letter for City of Burnaby Board of Variance

Applicant Name: **Marius Serban**

Date: January 11th, 2016

Project address: 4042 Marine Drive, Burnaby, BC

To whom it may concern,

This letter is to describe the reasons for which a request was submitted for the relaxation of the Burnaby Zoning Bylaw #4742 in regards to the following two sections:

- A. Section 102.6(1)(a) in regards to the principal building height: the principal building height measured from the rear average will be 34.10 ft. whereas a maximum of 29.5 ft. is permitted. To note that the principal building height measured from the front average (north) elevation will be 28.18 ft. (61.16ft. - 32.98ft.)

The proposed building is located on a property which is zoned R2 Residential District and is located on south side of Marine Drive in the Big Bend neighborhood. The shape of the site is a parallelogram which is approximately 70 ft. wide and 176 ft. deep.

To the east and west of the subject site there are single family dwellings. The vehicular access is provided to the site from the south via a back lane. Further south to the back lane there is light commercial property which is zoned M5 and permits building heights of maximum of 39.37 ft.

The site slopes significantly from north to south with a difference of 22.68ft in elevation from the highest to the lowest elevation point of the site (44.03 ft. - 21.35 ft.). Because of the steep terrain the building height calculation is therefore directly affected. When viewed from Marine Drive, the height of the building is 28.18 ft. which is within the permitted height of 29.5 ft.

I consider that it is unlikely that the additional massing created by the excess height would affect the views from the neighboring properties or would affect the commercial activities from the south property zoned M5.

In the same time, due to steep slope of the site, in order to meet the bylaw height restrictions, it would create a considerable architectural and structural challenge which translates into a direct hardship to myself in building a 2 ½ story family dwelling on this property.

- B. Section 102.8(1) in regards to the front yard setback

In calculating the average yard depth required to be aligned with the above mentioned section the following measurements were taken into consideration:

Adjacent house	Depth of front yard
4028 Marine Dr.	58.64 ft
4032 Marine Dr.	74.59 ft
4052 Marine Dr.	78.02 ft
4062 Marine Dr.	77.06 ft
Average	72.08 ft

Given the parallelogram shape of all the above lots taken into consideration in calculating the average, it is worth noting that for such shapes there are two methods in calculating the front yard depth:

- a. Distance to the property line at the north side of the lot measured as perpendicular to the property line from the closest distance of any of the foundation corners of the house.
- b. Distance to the property line at the north side of the lot measured as a straight line parallel to the east and west property lines.

For the above measurements the second method was taken into consideration. In my case the average depth of the front yard of 72.08 ft calculated with the second method outlined in point b. translates in actual 61.10 ft. if using the first method outlined in point a.

The requested front yard setback for the proposed building is therefore 45.00 ft using method a. which is aligned with the minimum front yard of 24.6 ft if the average front yard of the neighboring properties are not taken into consideration.

The reasons for which an exception to the bylaw is requested are:

- During the site investigation for the geotechnical report (see Appendix B – last 2 pages) it was identified that there is a water table at the depth of 1.8m just few meters south from the current proposed location of the new building. Locating the proposed building 16.10 ft more to the south would mean that the basement elevation of the proposed building will have to be at the same level as the water table and therefore creating a considerable structural challenge which translates into a direct hardship to myself in building a 2 ½ story family dwelling in this property.
- Also, locating the proposed building 16.10 ft to the south would mean that several of the mature trees located on the south-east side of the property would have to be cut in order to allow the construction of the building. By having the building at the current proposed location all of the trees will be preserved.

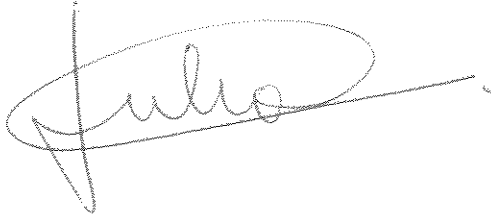
I already contacted my east neighbors located at 4052 Marine Dr. and informed about my intentions to build a new family dwelling with the above mentioned variances for which they did not have any objection – see Appendix A of this letter.

Apparently, the property located at 4032 Marine Dr. (west neighbor) has been sitting vacant for few years and I have not seen any of the owners in the last year since I bought my current property.

Therefore I have not had any chance to contact them.

Sincerely,

Marius Serban

A handwritten signature in black ink, appearing to read 'Marius Serban', with a large, sweeping loop at the end.

Appendix A.

TO: City of Burnaby Board of Variance

The undersigned here within, Keren Alterman and Max Alterman, the owners of the property located at 4052 Marine Dr. in Burnaby and neighbours of Marius Serban and Monica Serban at 4042 Marine Dr. would like to state that we were made aware of the construction plans submitted to City of Burnaby and the appeal submitted to the Board of Variance for the relaxation of the building bylaws related to:

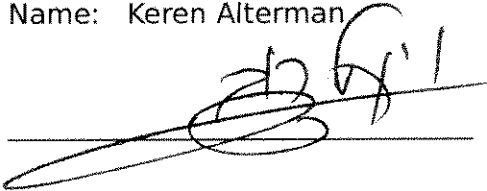
- a. Height of the Property
- b. Distance from the street (Marine Dr.)

For the above relaxation requests we do not have any objection.

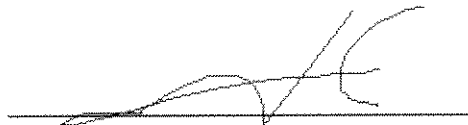
For any questions we can be reached at 604-999-7219.

Signed:

Name: Keren Alterman

A handwritten signature in black ink, appearing to be 'Keren Alterman', written over a horizontal line.

Max Alterman

A handwritten signature in black ink, appearing to be 'Max Alterman', written over a horizontal line.

Date: Jan 11, 2016



#15 – 20279-97 Avenue
Langley, BC V1M 4B9
Telephone: 604 882-8475
Fax: 604 882-8476
Email: general@valleygeo.ca

October 15, 2015

Attention: Marius Serban

Regarding: Geotechnical Investigation Report
Proposed Single Residence 4042 Marine Drive, Burnaby, BC
Project #: 44215-01

EXECUTIVE SUMMARY

A geotechnical investigation has been conducted at a site located at 4042 Marine Drive, Burnaby, BC. A single house was proposed to be constructed at the site. A total of four test pits were excavated to log and evaluate the subsoil conditions and provide geotechnical recommendations for the design of the proposed building. Recommendations in this report are based on subsurface conditions logged on site, as well as on the results of laboratory testing conducted on selected soil samples.

Spread and/or strip footings may be used to support the proposed buildings. Both interior and exterior footings shall be constructed on approved native soil or compacted and approved new structural fill. A factored ultimate limit state bearing resistance of 115 kPa and a serviceability limit state bearing pressure of 75 kPa may be used for the design. These design pressures can be increased by 33% when accounting for transient loads, live and snow loads. Strip footings are to be a minimum of 600mm wide with two 15M bars.

Unsuitable fill soils were logged at all test pits and extended to depths in excess of 2.4 metres below grade. The fill thickness increased to the south east. This fill needs to be removed from within the zone of influence of the building and must be replaced with adequately compacted structural fill. The fill is underlain by a medium dense olive brown silt sand deposit.

Prior to construction or preferably during house demolition, a series of deeper test pits is recommended to confirm that the medium dense sand extends beyond the zone of influence of the proposed structure. Peat is known to be present at lower elevations. The additional test pits are to confirm the absence of compressible soils from beneath the proposed structure.

1.0 INTRODUCTION

Valley Geotechnical Engineering Service Ltd. (VALLEY GEO) is pleased to presents this result of a geotechnical investigation conducted at a residential site located at 4042 Marine Drive, Burnaby, BC. The purpose of this investigation was to evaluate subsurface soil and groundwater conditions and to provide geotechnical recommendations for the construction of a single family residence.

Recommendations within this report are based on subsurface conditions logged at the test pits as well as the results of laboratory testing conducted on soil samples collected from the site.

2.0 PROJECT SITE INFORMATION

Based on our review of the information provided to us, the proposed site is rectangular in shape and is located on Marine Drive, Burnaby, BC with an overall site dimension approximately 58m x 24m.

The legal address of the subject site is LOT 184 DISTRICT LOT 175, GROUP 1, New Westminster DISTRICT, PLAN 41124, PID: 002-932-989

After the removal of the existing residential building, a new roughly 5500sq.ft, two storey residential house with a full basement to the north and walkout to the south is proposed to be constructed at the site.

Four test pits were exavated at the site. The site plan and test pit locations are shown on the Vicinity Map and Site Plan, Dwgs. A1 and A2, in Appendix A.

3.0 SUBSURFACE EXPLORATION

The fieldwork consisted of:

-
- locating/identifying underground utilities
 - locating the test pits
 - sampling and logging the soil profile
 - measuring the depth to groundwater

On September 22, 2015, four exploratory test pits (TP1-TP4) were opened at the subject site using a rubberized excavator. Logging and sampling was performed by Mr. Raul Valverde, EIT. The test pits were advanced to a depth of upto 3.3 metres. The ground surface elevations were not taken at the location of the test pits, therefore, depths indicated on the test pit logs are only related to the ground surface at the time of the surface exploration.

Soil samples were obtained from each layer strata where soil changes and visually assessed, logged, and bagged for further evaluation and testing at our in-house soil laboratory.

At selected depths, the in-situ strength of the soil was obtained by pocket penetrometer on clayey soil chunks.

4.0 GROUNDWATER

The ground water table was found at a depth of 1.8m at test pits 1 and 2 only. No free water was noted at test pits 3 and 4. The water table is perched on the medium dense silty sand layer.

5.0 LABORATORY TESTING

The following testing was conducted at our in-house soil testing laboratory:

- Samples of soil retrieved during excavation were inspected and classified.
- Samples were weighed to determine their field moisture contents.

6.0 SOIL PROFILE

Based on the soil conditions logged, the soil layers at the site consisted of fill, silty sand, gravelly sand and sand.

FILL: the fill consists of silty sand or sandy silt, gravelly sand or clayey silt even random fill such as tree trunks and wood pieces. Silty sand mixed with some gravel, organic and trace concrete as fill was logged at most pits.

The fill thickness ranged from 0.6m to >2.4m below ground surface with moisture around 12 percent.

SILTY SAND: a native olive colored medium dense silty sand deposit with trace amount of gravel was logged below 1.8m depth in TP2.

For a more detailed soil profile refer to the test Pits log attached.

7.0 DISCUSSION AND RECOMMENDATION

Spread and strip footings may be used to support the proposed new residence.

The fill found is not suitable and needs to be removed from within the zone of influence of the building and driveways to bring future settlements to within allowable limits. The zone of influence is defined as the area which includes 1m beyond the building or driveway plus the depth of excavation.

Bacfill to achieve design grades should consist of granular fill approved by Valley Geo, placed in lifts and compacted to a minimum of 95 percent of the standard proctor dry density for the material.

7.1 Foundation Systems

Spread and strip footings may be used to support the proposed new residence. Both interior and exterior footings shall be constructed on approved competent soil. These footings should have minimum width of 900mm and 600mm, respectively. For strip footings a minimum of two 15M bars is recommended. A minimum soil cover of 450mm should be provided for frost protection.

For design, a general factored ultimate soil bearing pressure of 120 kPa and a serviceability limit state bearing pressure of 75 kPa may be used. These can be increased by 33% when accounting for live and snow loads.

The soil at and below the footing shall be inspected by the retained Valley Geo, as the excavations are opened and prior to placing footing forms. A letter attesting/confirming the allowable soil pressure will be issued on site.

7.1.1 Site Preparation and Excavation

Where unsuitable soils (fills) is encountered at the footing level; the unsuitable soil shall be removed. The upper portion of the excavation (topsoil and brown sandy silt) should be sloped/benched to 1(H) horizontal : 1(V) vertical in order to remain stable, while cut slope below (very dense grey sandy silt) should be sloped/benched at no steeper than 1H:2V, depending on ground water conditions. Excavation of the north/front foundation wall will be maximum 3.5m in depth. No heavy equipment or soil stockpiles should be placed near the top of the slope. Inspections of the excavation of slopes and/or shoring should be conducted during and after excavation by qualified personnel, and a letter issued confirming the inspection.

All excavations must conform to Worksafe BC excavation regulations which can be found in Part 20 from Section 20.78 to 20.95 of the Occupational Health and Safety Regulation posted on the website of Worksafe BC.

Excavations deeper than 1.2m should be carried out in accordance with the written recommendations of a Geotechnical Professional Engineer prior to workers entering excavations. Any large cobbles that may be dislodged should be removed from slope. To protect the cut slopes from moisture, poly sheeting should be placed over the exposed slopes.

Where structural fill is needed, this general fill should consist of an approved, well-graded granular soil or an inorganic, low to medium plastic cohesive soil. The compaction shall conform to standards of good practice with soils generally compacted to no less than 95 percent of the (SPMDD), and verified by nuclear density testing during the placement.

7.1.2 Perimeter Drain and Site Drainage

Perimeter drains should be provided at or below footing grade. The drains should consist of a perforated pipe surrounded with drain-rock, encapsulated in a non-woven, needle punched filter fabric and backfilled with relatively free-draining granular soil.

Roof run-off must not be tied to the perimeter drainage system but, should be directed to a sump. The sump should separately collect the runoff water from the roof and water from the perimeter drain and then directed in tight lines to the storm sewer. If grades allow, the roof water should be directed to the municipal system via gravity through a sump.

Exterior building grade should be sloped at a minimum gradient of 1.5% to shed water away from the building.

7.2 Pavement

The driveway is to be designed for residential standards. The following minimum pavement section is recommended over approved prepared sub-grade:

- 200mm of compacted 75mm minus sand or sand & gravel base
- 100mm of compacted 19mm minus crushed gravel (road mulch) base

- 75mm asphalt (50mm first lift, 25mm second lift)

We recommend that all materials placed are tested to ensure that compaction meets the minimum 95% of the Modified Proctor Maximum Dry Density (MPMDD).

7.3 Site Soil Classification for Seismic Site Response

In accordance with the British Columbia Building Code (2012) and based upon the soils conditions found at the site, the Site Class is D.

Data provided by Earthquakes Canada indicates this site could be subject to a Peak Ground Acceleration of 0.499g and seismic hazard values of $S_a(0.2)=1.007g$ $S_a(0.5)=0.672g$, $S_a(1.0)=0.335g$ and $S_a(2.0)=0.176g$ during a 1 in 2475 design earthquake.

The medium dense to dense silty sand encountered at the site is not likely liquefiable. Should the 2012 design earthquake occur, some damage to the building is to be expected, however residents will be able to safely egress the building.

7.4 Slope Stability

The site has an overall slope gradient of about 14% with soil condition consists of dense sandy silt, silty clay and sand at shallow depth underlying the site and in the general area. Slope stability is not a concern. A Landslide Assurance Statement is attached as Appendix E.

7.5 Temporary Site Dewatering

Groundwater was logged at the subject site at a depth of 1.8 metres below the existing ground surface. As excavations of upto 3.5m depth are anticipated, temporary dewatering with sump and pump methods will be required. Additional testing/investigation including a pump test would be required to assess the volume of water and the pumping rate needed for the excavations.

8.0 CLOSURE

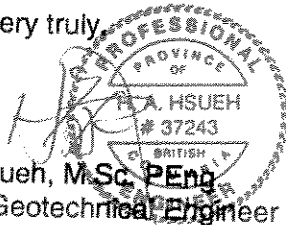
Valley Geo has prepared this report based on the plans provided by Mr Marius Seban. Any changes to the plans should be reviewed by Valley Geo to confirm consistency with our recommendations.


Valley Geo will provide the following services during demolitions and construction to:

- Conduct additional test pits following demolition
- excavation site reviews
- Provide density testing of all fills
- Review bearing surfaces
- Confirm compliance with Worksafe BC regulations
- Confirm compliance with our recommendations as required for Schedule B and C-B.

We trust that this report provides you with information required. If you have any questions, please do not hesitate to call.

Yours very truly,


Hain Hsueh, M.Sc., P.Eng.
Senior Geotechnical Engineer

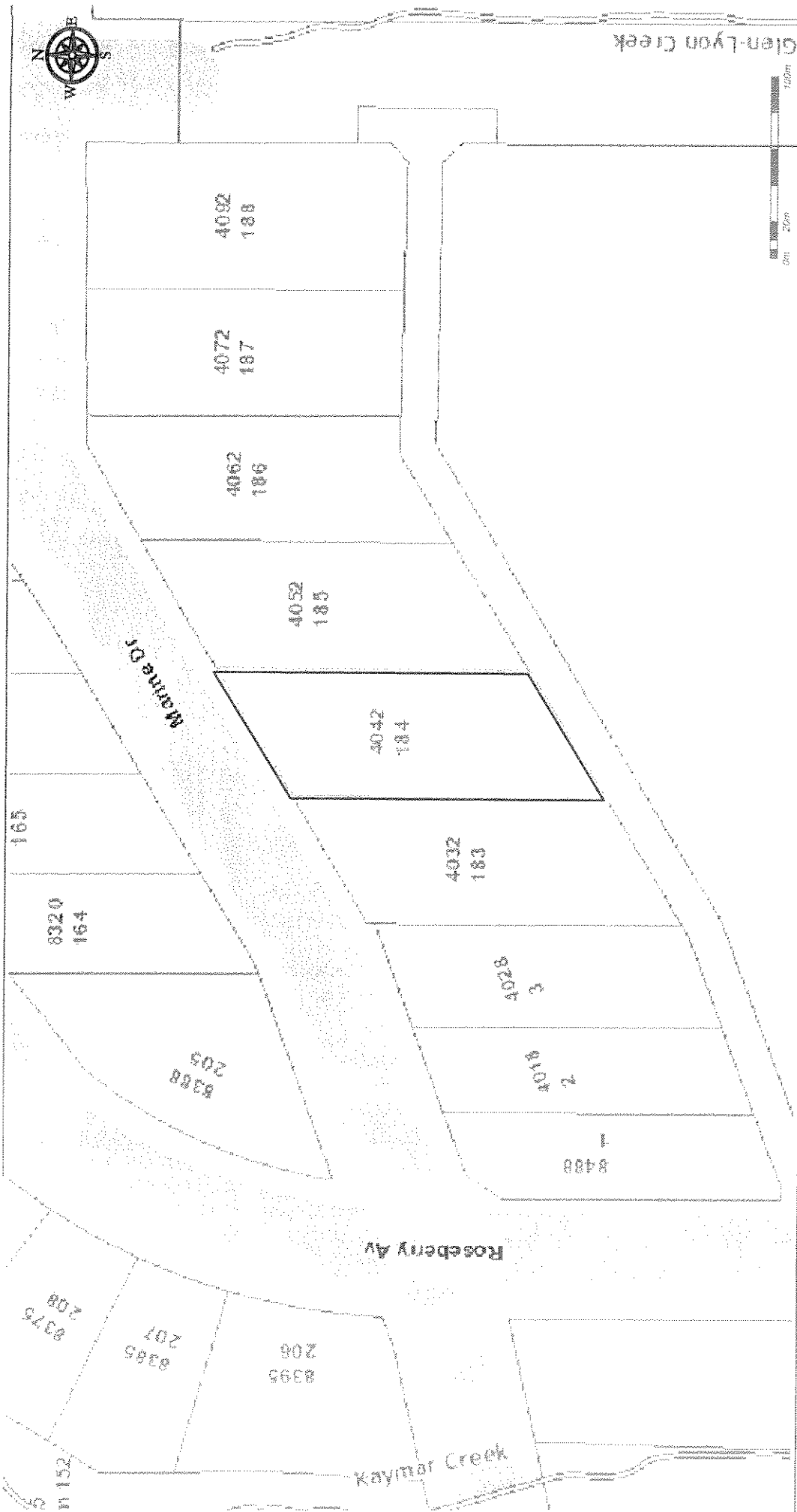

Narayan Abhyankar, FEC, P.Eng.
Principal Engineer

Attachments

- | | |
|------------|---|
| Appendix A | Vicinity Map Dwg A1, Site Plan Dwg with test Pit Locations A2 |
| Appendix B | Test Pits Log Dwg B1 and inferred soil stratigraphy |
| Appendix C | Architectural Drawings |
| Appendix D | APEGBC Landslide Assurance Statement |
| Appendix E | Earth Pressure diagram |

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Appendix A Vicinity Map Dwg A1, Site Plan Dwg with test Pit Locations A2



VALLEY GEOTECHNICAL ENGINEERING SERVICES LTD. Unit 15 20279 97th Avenue Langley BC, V3M 4B9 Phone: (604) 882-8475 Fax: (604) 882-8476 <small>Typeset by: 02/09/2015 10:42:15 AM (4215-01) 2015-10-14 Site Plans.Dwg</small>	Client:	Marius Serban	SEAL DESCRIPTION REF. DATE 1:2000
	Location:	4042 Marine Drive Burnaby BC	
DATE October 14, 2015 FILE NO. 44215-01			
DWG No. A1			



Unit 15 28279 97th Avenue
Langley BC V1M 4B9
Phone: (604) 882-8475
Fax: (604) 882-8476

FILE No.
44215-01

DATE
October 14, 2015

Location: 4042 Marine Drive
Burnaby BC

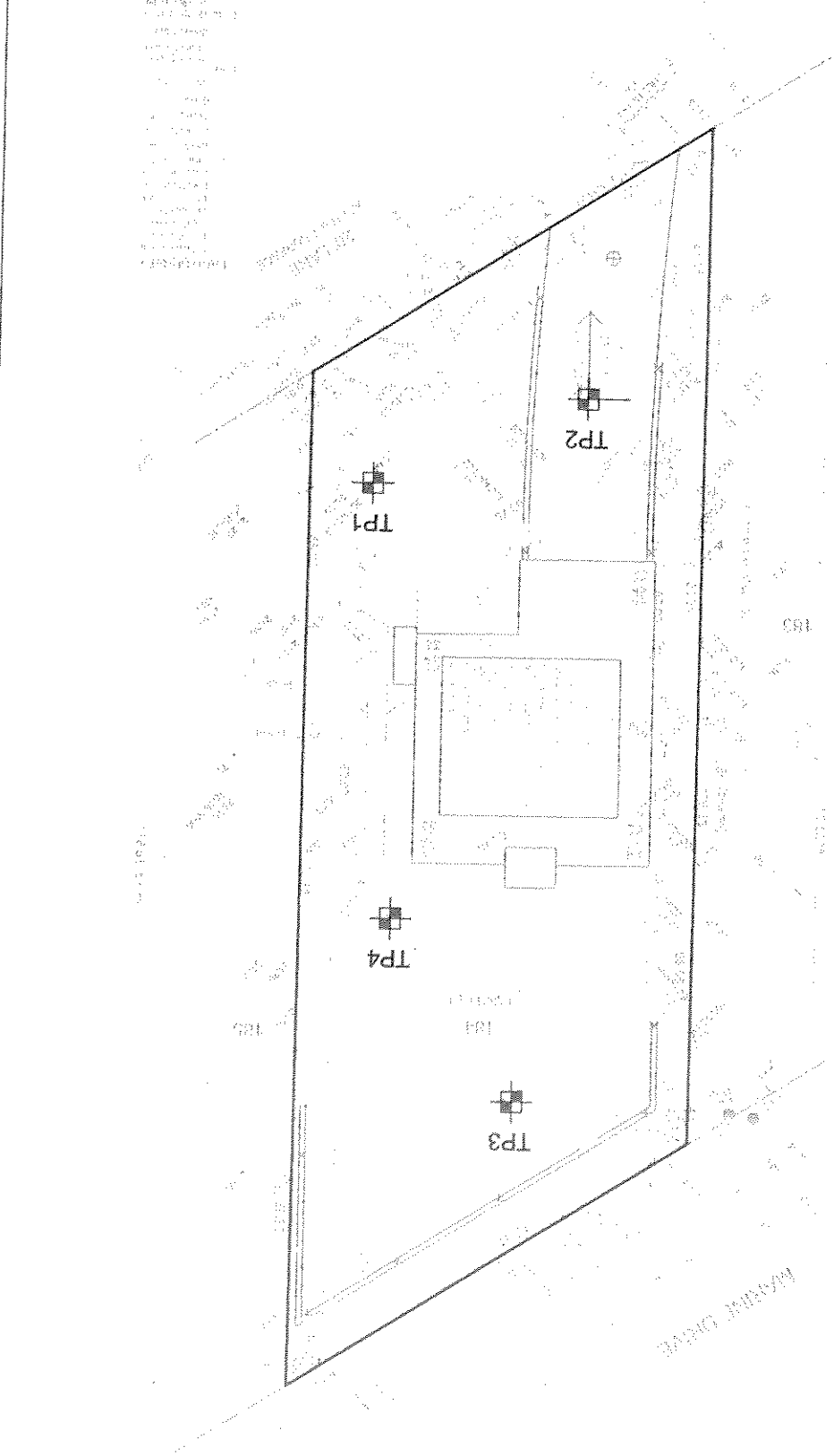
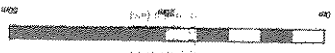
Client: Marhus Serban

SEAL

REV	DATE	DESCRIPTION

Scale: 1"=75.0'
Checked: HH
Drawn: ML

SINGLE FAMILY RESIDENCE
TEST PIT LOCATION PLAN



Appendix B Test Pits Log Dwg B1 and inferred soil stratigraphy

SUMMARY OF TEST PITS LOG

Address: 4042 Marine Drive, Burnaby
Client: Marius Serban
Date of Investigation: September 22, 2015
Machine Type: Track mounted excavator
Project #: 44215-01

Test Hole No.	Depth (m)	Moisture %	Soil Conditions
1	0.00 – 0.60m	@0.3m – 12%	Silty SAND, mixed with gravel, organics and concrete, loose, dark brown, moist (FILL)
	0.60 – 1.5m	@1.2m – 8.7%	Sandy SILT, mixed with gravel and cobbles, loose, brown, moist (FILL)
	1.50 – 2.10m	@2.1m – 15.0%	Clayey SILT, trace of roots, compacted stiff, brown to gray, moist (FILL)
	2.10 – 2.4m	@2.4m – 22.5%	Random fill, wood, tree trunks, random fill, dark brown, wet (FILL) Native was not encountered on TP1. Water was encountered at 1.8m below grade. Test Pit discontinued at 2.40m
2	0.00 – 0.90m	@0.3m – 11.8%	Silty SAND, mixed with gravel, organics and concrete, loose, dark brown, moist (FILL)
	0.90 – 1.50m		Gravelly SAND, mixed with gravel and cobbles, medium dense, reddish brown, moist (FILL)
	1.50 – 1.80m		Tree trunks (FILL)
	1.80 – 2.4m	@1.8m – 34.5% @2.4m – 32.8%	Silty SAND, olive brown, medium dense, olive brown, wet (NATIVE) Water table was encountered at 1.8m below grade. Test Pit discontinued at 2.40m

Test Hole No.	Depth (m)	Moisture %	Soil Conditions
3	0.0 – 0.45m		Topsoil mixed with asphalt pieces
	0.45 – 1.20m	@0.6m – 6.4%	Gravelly SAND, mixed with gravel, cobbles and asphalt, medium dense, reddish brown, moist (FILL)
	1.20 – 1.80m	@1.5m – 8.2%	Gravelly SAND mixed with round gravel, cobbles and boulders up to 0.3m in diameter, dense, brown, moist (NATIVE)
	1.8 – 2.10m	@2.1m – 9.9%	SAND, with some gravel, dense, olive brown, moist Water table or water seepage were not encountered during the excavation Test Pit discontinued at 2.10m
4	0.0 – 0.90m		Silty SAND, mixed with gravel, organics and concrete, loose, dark brown, moist (FILL)
	0.90 – 3.30m	@1.5m – 6.2% @2.7m – 7.6% @3.3m – 10.5%	SAND, with some gravel, dense, olive brown, moist Water table or water seepage were not encountered during the excavation Test Pit discontinued at 2.10m

Note: See attached plans for test pit location

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