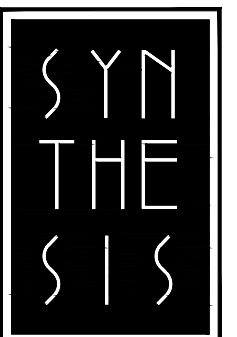




SYKES/LESLIE RESIDENCES

5616 Westport Pl, West Vancouver, BC

OCTOBER, 2015 (RE-PRINTED APRIL 2016)



synthesis design inc.
258 east 1st street
north vancouver, bc,
canada v7l 1b3
tel. (604) 980-2087
www.synthesisdesign.ca

LETTER OF RATIONALE
DAVID + CHRISTY'S LETTER TO COUNCIL
DRC LIST OF DESIGN CHANGES
SYNTHESIS DESIGN REVISED DEVELOPMENT PACKAGE
DRC DESIGN CHANGES C/W GHOST OUTLINE
NEIGHBORHOOD CONTEXT
URBAN NICHE LANDSCAPE PLAN
DIAMOND HEAD ARBORIST REPORT
GVH CONSULTING GEOTECHNICAL REPORT



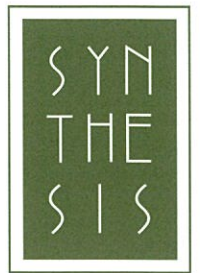
TABLE OF CONTENTS



synthesis design inc.
258 east 1st street
north vanouver, bc,
canada v7l 1b3
tel. (604) 980-2307
www.synthesdesign.ca

Sykes / Leslie Residence
December 22, 2014

258 east first street, north vancouver, bc, v7l 1b3
p·604.980.2087 f·604.980.3008 w·synthesisdesign.ca



Letter of Rationale:
5616 Westport place
West Vancouver, B.C.

The intention of this application is to satisfy all requirements of the Heritage Revitalization Agreement so that the existing Sykes Residence may be listed on the Community Heritage Registry as a legally designated heritage building. Subsequently, an application will be made for an infill subdivision, allowing for the construction of a new residence that although different in form, takes its design cues from the Sykes Residence's modern spirit.

The Sykes Residence is sited at the top of the property, while the proposed dwelling will be seamlessly sited on the lower portion, below the natural rock bank, which will separate the two dwellings both visually and geographically.

The success of the proposed dwelling lies in its response to the Sykes Residence, and how it is seamlessly sited within the lower portion of the property. The proposed dwelling has been designed to have minimal impact on the natural attributes of the site, as well as respecting the views, privacy, and architecture of the Sykes Residence.

Both dwellings will be a distinct entity unto themselves.

The proposed residence is of a linear nature, following the natural slope of the property. It is simple in form, modern in its aesthetic, and complimentary to the Sykes residence by not competing in form or its command of its siting. As the roof of the proposed dwelling is over 30 feet below the foundation of the Sykes Residence, the views of the Sykes residence will not be affected.



Nestled into its site in the rock bank, the proposed residence is a study in the play of mass and void, as an open but protected volume of space forms an “entry cube” offering welcome and shelter while drawing one into the home. This feature allows the natural rock face to be exposed as one surveys the front façade of the house, reinforcing to concept of the house being integrated with the site.

The proposed residence will tread lightly on its site, with the surrounding landscape naturally flowing in, around, and through the various levels of the structure. As a means to further integrate with the landscape, the roofs will feature a combination of green roofs and decorative rock features at different levels. The driveway has been located underneath the house, rather than off to the side, which minimizes its length and impact on the natural landscape, which should appear unaffected by the introduction of the proposed structure.



Sustainability will be integrated through the use of energy efficient materials and building practices, incorporating natural ventilation and screening wherever possible, maximizing natural, local materials. The incorporation of rooftop green gardens will reduce pollutants and reflectivity, while moderating the temperature of the house, and providing a backdrop for the local ecology.

Working in conjunction with Donald Luxton & Associates to ensure the Sykes Residence receives the respect it deserves through the conservation plan was a key starting point for the owners, David and Christy Leslie. We then worked closely with and relied upon a team of engineers and designers to ensure all aspects of tree retention, slope stability, and landscape design were fully integrated.

The result is the proposed residence that will be in keeping with the context of the surrounding lots, respecting the scale and character of the neighbourhood, while complimenting the exceptional example of West Coast style Architecture that is The Sykes Residence.

Thank you for your consideration.

Sincerely,



Curtis D. Krahn
B.E.S., M. Architecture

24 November, 2014

To Council,

The moment we entered the Sykes House in 2007, we knew it was a piece of West Vancouver worth saving. Despite the fallen branches, overflowing eaves, pots stuffed with Woodward's bags and obvious disrepair, it spoke to us. It told a story of the West Vancouver that we, and our parents, grew up in and cherished. It reminded us of the artist community we walked to school in, the yards we played in with their magical paths, bed rock and rope swings, and the warm, modest post and beam style homes we shared with our families. That is the West Vancouver we wish to preserve and those are the memories we wish to recreate with our young son.

As third generation West Vancouverites and high school sweethearts, we have always been passionate about our community. We have watched it change throughout the years and we have seen its character threatened as the house prices soar out of reach. Our family homes, growing up, are essentially cottages when compared to the new monster houses being built. We had been looking for a more typical home in which to start a family and had accepted that a project-house was all we could afford. But when we saw the Sykes house in all its West Coast splendour, we were spellbound and could not accept that its story was about to end. Sadly, when we purchased the property, it was marketed as a tear-down for land value only. Despite our thoughtful restoration, we have no doubt that if we sold, a developer wouldn't hesitate to build a mega home on the stunning cliff with the views to Passage Island.

After getting to know our unique, Kaffka designed home, it is hard to imagine someone tearing it down. Perched delicately on bed rock, surrounded by trees, with its spiral helix roof and floor to ceiling glass, it invites the outdoors in, like a mid-century modern tree house. As we carefully updated it, we found ourselves wondering about the original owner, the architect and their vision for creating a design that so beautifully harmonized land and nature, yet would have been so challenging to build in 1964. Our passion for the house led us to the District of West Vancouver, where we worked together with Donald Luxton and Associates, to prepare a Statement of Significance and have it added to the West Vancouver Heritage Registry. As far as protecting the house, this was a good first step, but still not enough. Over the next five years we continued to explore ways to make the house and lot more viable within the changing community and demographics of West Vancouver.

This journey led us to our current project proposal of subdividing the property into two unique lots. The Sykes house was constructed at the very top of its lot in order to capture the best possible views. There is a cliff that creates a natural division which could allow for two lots of equal size, one with frontage on Westport Place and one with frontage on Westport Road below. Currently, from the Sykes home, the lower portion is inaccessible and overgrown. By subdividing the property through the HRA process, we would be able to utilize this land and preserve the neighbourhood feel, while simultaneously protecting our Sykes home with a Heritage Designation. For us, and for the community as a whole, this seems like the perfect solution.

The new home that we are proposing will reflect the needs of our current family and we plan to move into the Sykes home as our needs evolve. This project will allow us to raise our son in West Vancouver, provide intergenerational space for Christy's recently widowed mother, and protect an important piece

of West Vancouver's heritage. It is important to us that this new home treads lightly on the landscape, complements the Sykes home and blends with the current structure of the streetscape. It is our passion for West Vancouver's character preservation that led us to this design and we believe we can achieve it through this project. We understand the serious implications of designating our home as Heritage and accept the responsibility with enthusiasm. We feel strongly that it is the right thing to do for our family, and for the future of the community.

In closing, we would like to say thank you to Stephen and the District for all of their hard work with regard to Heritage initiatives. We would also like to thank Council for getting to know the Sykes House and taking the time to review our proposal. Some believe a house has a life that eventually ends to make way for new life. However, we believe that with the right timing, the right vision and the right people, at least for this little house, its' story and life are just beginning.

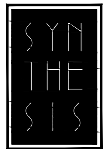
Kind Regards,
David and Christy Leslie

1. Reduce floor to ceiling heights

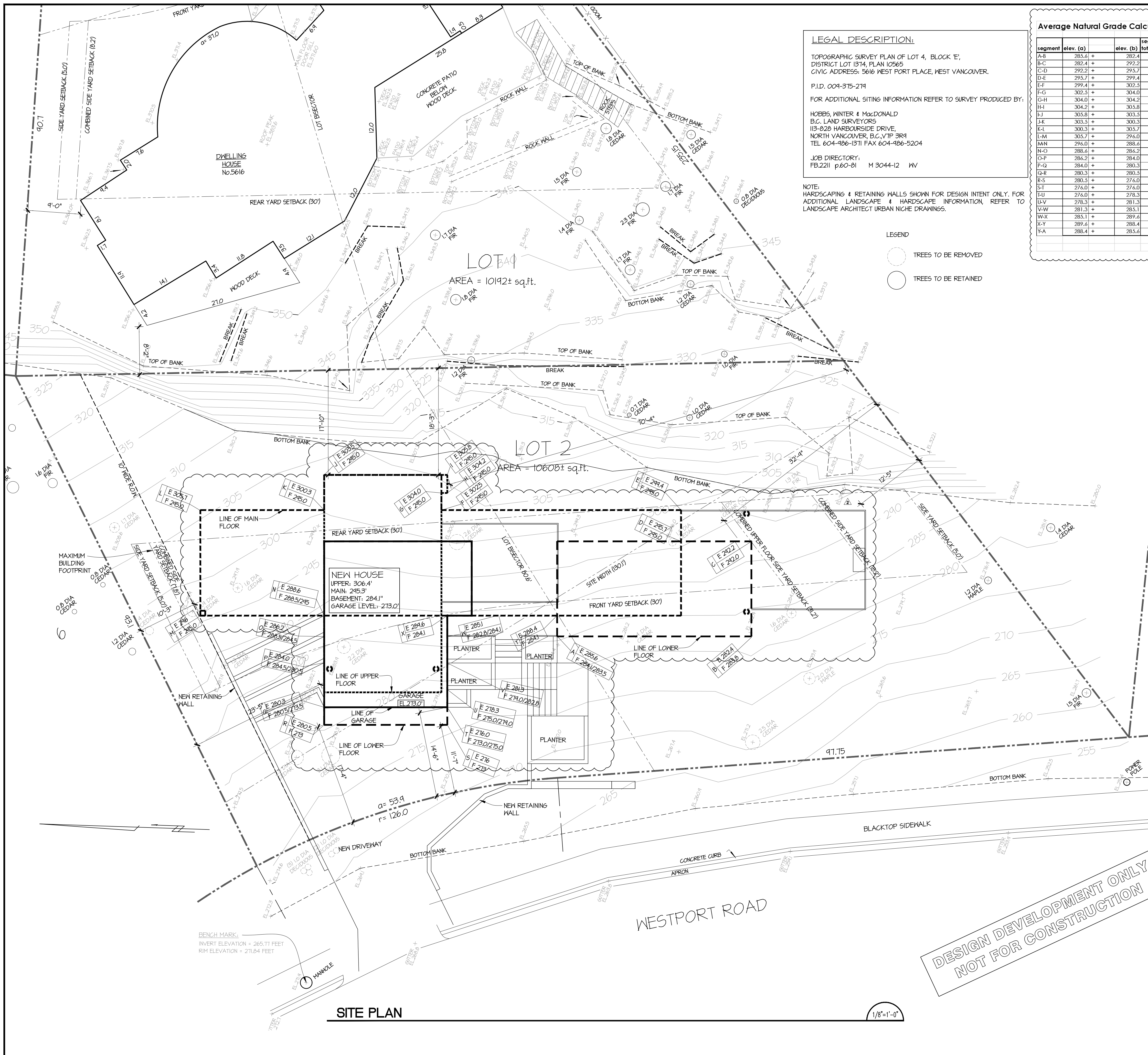
a. Garage	14'-2" to 10'-0"	4'-2" reduction
b. Lower	13'-0" to 10'-0"	3'-0" reduction
c. Main	10'-0" to 10'-0"	no reduction
d. Up	10'-0" to 9'-0"	1'-0" reduction
e. Total Reduction:		8'-2" reduction
2. Garage Floor:
 - a. Eliminate 6 or 7 risers at west side of elevator
 - b. Move garage back 3'-0" +/- . Garage setback from 11'-6" to 14'-6" (4.42m)
3. Lower Floor:
 - a. Eliminate 6 or 7 risers at west side of elevator
 - b. Reduce depth of relax space by 6'-0" +/- (maintain 3'-0" overhang on garage and increases setback from 6'-0" to 11'-7" (3.5m)
4. Living Floor:
 - a. Reduce length of side deck by 6'-6"
 - b. Side setback to be increased to 12'-5"
5. Upper Floor: No changes
6. Landscape:
 - a. Propose keeping 1 tree at the side of the deck and 2 trees behind the deck - Arborist report does show they are in very poor condition.
 - b. Graphically show a more natural and less regimented landscape pattern



DESIGN REVIEW COMMITTEE DESIGN CHANGES



synthesis design inc.
 258 east 1st street
 north vanouver, bc,
 canada v7l 1b3
 tel: (604) 980-2107
 www.synthesisthesign.ca



LEGAL DESCRIPTION:
 TOPOGRAPHIC SURVEY PLAN OF LOT 4, BLOCK 'E',
 DISTRICT LOT 1314, PLAN 10565
 CIVIC ADDRESS: 5616 WESTPORT PLACE, WEST VANCOUVER.
 P.L.D. 004-315-214
 FOR ADDITIONAL SITING INFORMATION REFER TO SURVEY PRODUCED BY:
 HOBBS, WINTER & MACDONALD
 B.C. LAND SURVEYORS
 115-829 HARBOURSIDE DRIVE,
 NORTH VANCOUVER, B.C. V7P 3R4
 TEL 604-486-1371 FAX 604-486-5204
 JOB DIRECTORY:
 FB.2211 p.60-81 M 3044-12 MV

NOTE:
 HARDSCAPING & RETAINING WALLS SHOWN FOR DESIGN INTENT ONLY. FOR
 ADDITIONAL LANDSCAPE & HARDSCAPE INFORMATION, REFER TO
 LANDSCAPE ARCHITECT URBAN NICHE DRAWINGS.

LEGEND
 ○ TREES TO BE REMOVED
 ● TREES TO BE RETAINED

Average Natural Grade Calculation - District of West Vancouver					Average Finished Grade Calculation - District of West Vancouver										
segment	elev. (a)	elev. (b)	segment total	average elevation	segment length	total	segment	elev. (a)	elev. (b)	segment total	average elevation	segment length	total		
A-B	285.6	282.4	568	0.5	284.00	33.10	9400.40	A-B	283.5	283.45	567.3	0.5	283.5	33.10	9388.82
B-C	282.4	292.2	574.6	0.5	287.30	14.20	4654.24	B-C	283.8	292.0	575.8	0.5	287.90	14.20	4443.98
C-D	292.2	295.7	587.9	0.5	293.95	12.20	3586.19	C-D	292.0	295.0	587.0	0.5	293.50	12.20	3580.70
D-E	295.7	299.4	595.1	0.5	297.55	5.30	1577.02	D-E	295.0	295.0	590.0	0.5	295.00	5.30	1563.50
E-F	299.4	302.3	601.9	0.5	300.95	40.80	12278.74	E-F	295.0	295.0	590.0	0.5	295.00	40.80	12036.00
F-G	302.3	304.0	606.5	0.5	303.25	2.90	877.43	F-G	295.0	295.0	590.0	0.5	295.00	2.90	855.90
G-H	304.0	304.2	608.2	0.5	304.10	1.00	304.10	G-H	295.0	295.0	590.0	0.5	295.00	1.00	295.00
H-I	304.2	305.8	610	0.5	305.00	3.10	945.50	H-I	295.0	295.0	590.0	0.5	295.00	3.10	914.50
I-J	305.8	303.3	609.3	0.5	304.65	21.00	4397.65	I-J	295.0	295.0	590.0	0.5	295.00	21.00	4195.00
J-K	303.3	300.3	603.8	0.5	301.90	6.00	1811.40	J-K	295.0	295.0	590.0	0.5	295.00	6.00	1770.00
K-L	300.3	303.7	606	0.5	303.00	21.10	4393.30	K-L	295.0	295.0	590.0	0.5	295.00	21.10	4224.50
L-M	303.7	296.0	601.7	0.5	300.85	18.00	5415.30	L-M	295.0	295.0	590.0	0.5	295.00	18.00	5310.00
M-N	296.0	288.4	584.6	0.5	292.30	21.10	4167.53	M-N	295.0	295.0	590.0	0.5	295.00	21.10	4224.50
N-O	288.4	286.2	574.8	0.5	287.40	3.40	1034.44	N-O	288.5	288.5	577.0	0.5	288.50	3.40	1038.40
O-P	286.2	284.0	570.2	0.5	285.10	4.60	1259.10	O-P	284.5	284.5	569.0	0.5	284.50	4.40	1251.80
P-Q	284.0	280.3	564.3	0.5	282.15	7.60	2144.34	P-Q	280.5	280.5	561.0	0.5	280.50	7.40	2131.80
Q-R	280.3	280.3	560.8	0.5	280.40	3.00	841.20	Q-R	275.5	275.5	546.5	0.5	273.25	3.00	619.75
R-S	280.3	274.0	554.5	0.5	277.25	3.46	5843.26	R-S	275.0	275.0	546.0	0.5	273.00	21.00	5733.00
S-T	274.0	274.0	552	0.5	274.00	3.00	828.00	S-T	275.0	275.0	544.0	0.5	273.00	3.00	619.00
T-U	274.0	278.3	554.3	0.5	277.15	3.00	831.45	T-U	275.0	275.0	550.0	0.5	275.00	3.00	825.00
U-V	278.3	281.3	559.6	0.5	279.80	4.50	1259.10	U-V	279.0	279.0	558.0	0.5	279.00	4.50	1255.50
V-W	281.3	285.1	566.4	0.5	283.20	4.50	1274.40	V-W	282.8	282.8	565.6	0.5	282.80	4.50	1272.40
W-X	285.1	289.6	574.7	0.5	287.35	3.50	1005.78	W-X	284.1	284.1	568.2	0.5	284.10	3.50	994.35
X-Y	289.6	288.4	578	0.5	289.00	18.80	5433.20	X-Y	284.1	284.1	568.2	0.5	284.10	18.80	5341.08
Y-A	288.4	285.6	574	0.5	287.00	3.50	1004.50	Y-A	284.1	284.1	568.2	0.5	284.10	3.50	994.35
total							82565.08	total						81498.83	
average grade =							292.38	average grade =						288.8	

SHAPING AND SITING ANALYSIS - RS-10 ZONING				
LOT ADDRESS: 5616 WESTPORT PL. WEST VANCOUVER				
	ALLOWED	EXISTING	PROPOSED	CONFORMS
Min. lot area (sq.ft.)	12,000 (1,115 m ²)		10,608 (985.5 m ²)	N
Min. lot width (feet)	80' (24.4m)		130.1' (39.7m)	Y
Min. flanking lot width (feet)	100' (30.4m)			N/A
Lot depth should not exceed 3.5 times the site width			80.6' (24.6 m)	Y
SITE COVERAGE				
Site area ≥ 885 m ²	Lot Area x 0.30	3182 (295.7m ²)	2655 (246.7m ²)	Y
664 m ² ≤ Site area < 885 m ²	266 m ²			N/A
Site area ≤ 664 m ²	Lot Area x 0.40			N/A
PRINCIPAL BUILDING SETBACK				
Front Yard	30' (9.1m)		11.6' (3.5m)	N
Rear Yard	30' (9.1m)		17.8' (5.4m)	N
Left Side Yard*	5' (1.52m)		10.3' (3.1m)	Y
Right Side Yard*	5' (1.52m)		12.3' (3.7m)	Y
Combined Side Yard*	26' (7.9m)		22.6' (6.9m)	N
Upper floor combined side Yard	39' (11.9m)			Y
HEIGHT OF BUILDING				
Principal Building (2 Storey or 25')			28.1' (8.56m)	N
ACCESSORY BUILDING SETBACK				
Rear Yard	4'			N/A
From Principal dwelling	4'			N/A
Left Side Yard**				N/A
Right Side Yard**				N/A
Combined Side Yard**				N/A
ACCESSORY BUILDING HEIGHT :				
Accessory Building	12'			N/A
OFF-STREET PARKING				
Min. car parking space	1		3	Y
HIGHEST BUILDING FACE ENVELOPE***				
	22' (6.7m)			Y
FLOOR AREA RATIO				
Lot Area 10608 sq. ft. x 0.35***	3712 (344.9m ²)		3166 (294m ²)	Y
Basement	1247 sq.ft. total. 825 sq.ft. added to FSR after 422 sq.ft. deduction			
Main floor	1596			
Upper floor	745			
Attic	N/A			
Crawlspce	N/A			
Garage Level	647 sq.ft. total. 0.0 sq.ft. added to FSR after 647 sq.ft. deduction			
Assessory building				
Assessory building	N/A			
Others	N/A			

* The minimum side yard shall be no less than 5' (1.52m); and the minimum combined side yard shall be 16' (4.9m) if site width is equal to or less than 80' (24.3m) or if the site width is greater than 80' (24.3m) then the side yard shall be 20% of site width. If the principal building consists of 2 storeys plus a basement, the uppermost storey shall maintain a combined uppermost storey side yard setback along its whole depth equal to 1.5 times its minimum combined side yard requirement. Notwithstanding above, where an entrance is provided from a side street, a 14.8' (4.5m) min side yard shall be provided at the entrance side yard only. Notwithstanding above, a building on a corner flanking site shall maintain the front yard requirements of both streets.

** An accessory building or structure that is located within the building envelope may abut the house but if not, a 4' separation is required. If the accessory building is located wholly or partially within the rear yard setback area, a min. separation of 15' from the principal dwelling is required. Where access is required from the lane, this separation need not be provided for one garage of less than 22' depth. The accessory building may be connected to the principal dwelling with a covered or uncovered walkway, less than 6' in width, but it may not be heated. The same side yard setback as the principal dwelling is required of the accessory building. On a corner lot, where access to a garage is from the side street and the door faces the side street, a min. of 12.5' or 15' from the side street property line is required. If the accessory building is separated from the dwelling by more than 15', the combined side yard setback is measured independently to each individual building. If the buildings are separated by less than 15' the combined side yard setback is equal to the sum of the min. distances from the side lot line to the closest building.

*** Notwithstanding, the Floor Space Ratio need not be less than 2,551 sq. ft. or 50% of the Lot Area, whichever is less.

REVISIONS	BY
R.O.W. 5.01.2015	KWL
DRG MEETING 9.28.2015	JPS

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All dimensions shall be verified on site prior to commencement of work.

SYNTHESIS
 synthesis design inc.
 258 east 1st street
 north vanancouver, bc
 canada v7L 1B3
 tel. (604) 985-2087
 www.synthesisthesign.ca

Leslie Residence
 5616 West Port Place
 West Vancouver BC

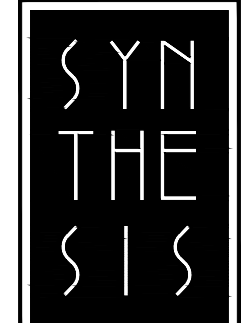
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SITE PLAN

Date 12.24.2014
 Scale 1/8"=1'-0"
 Drawn DMP/KWL
 Job No. 14098
 Sheet DD-1
 Cf 10 Sheets

REVISIONS	BY
R.O.W.	KWL
5.01.2015	KWL
DRC Meeting	JPS
9.28.2015	JPS

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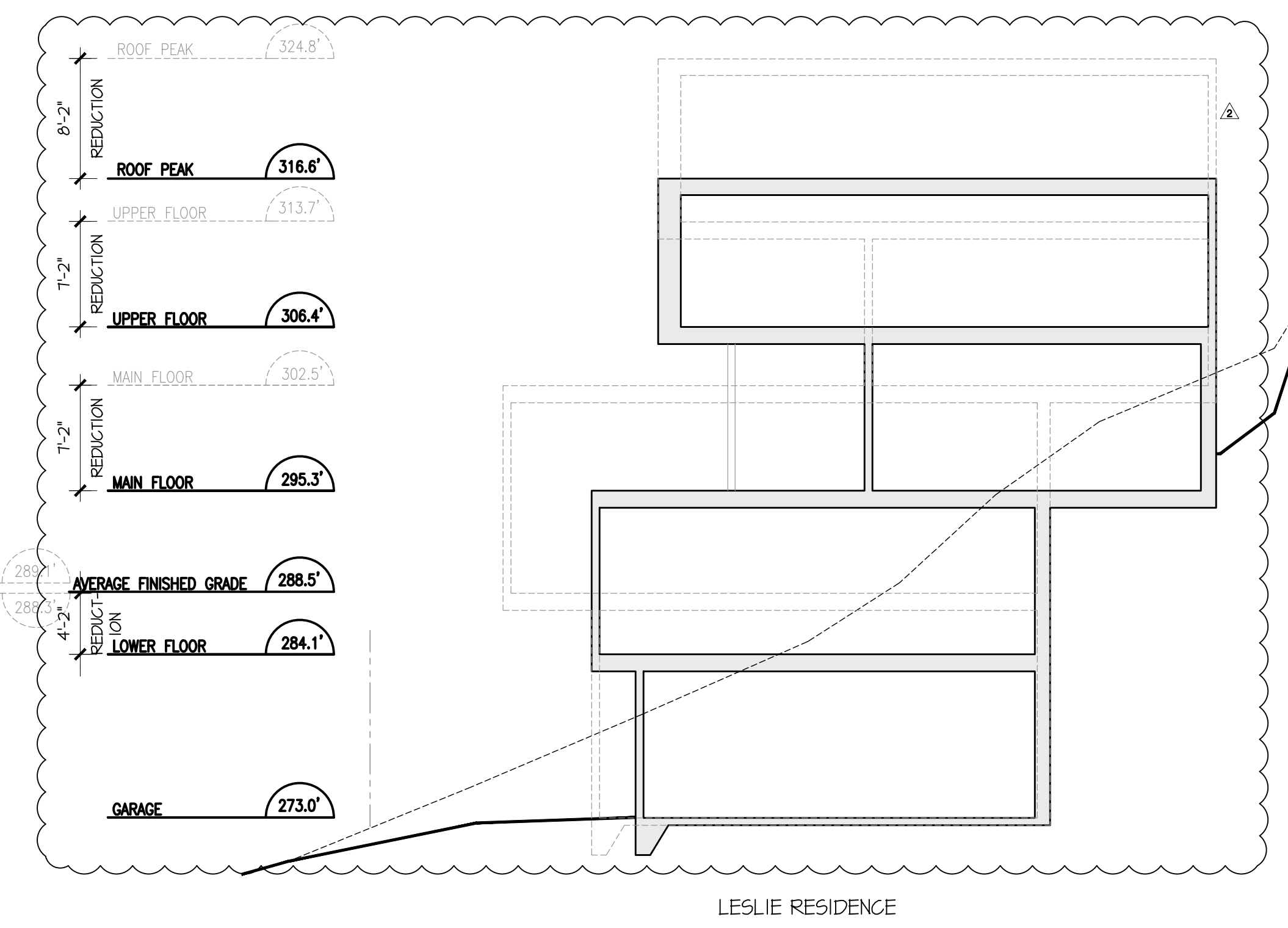
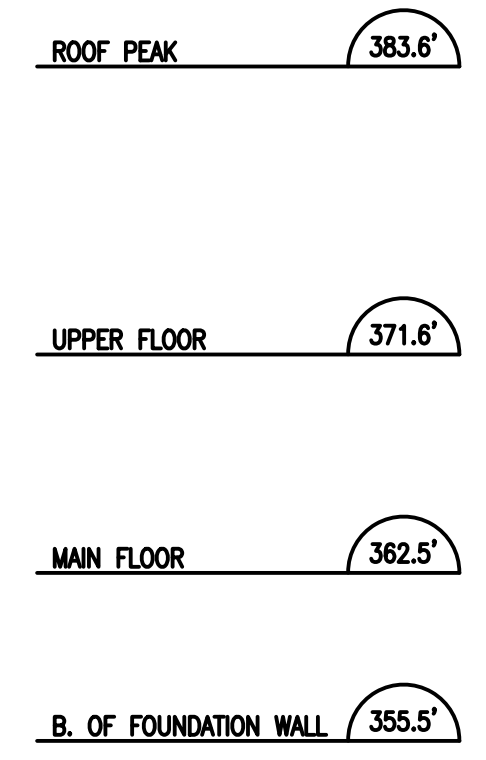
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synthesis design inc.
250 east 1st street
north vancouver, bc
canada v7l 1b3
tel. (604) 985-2287
www.synthesdesign.ca

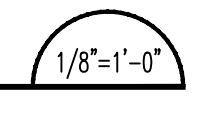
Leslie Residence
5616 West Port Place
West Vancouver BC

Drawing Title	LOT SECTION
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Scale	1/8"=1'-0"
Drawn	DMP/KWL
Job No.	14098
Sheet	DD-2
Ct	10 Sheets



DESIGN DEVELOPMENT ONLY
NOT FOR CONSTRUCTION

LOT SECTION



REVISIONS	BY
DRC Meeting 9.28.2015	JPS

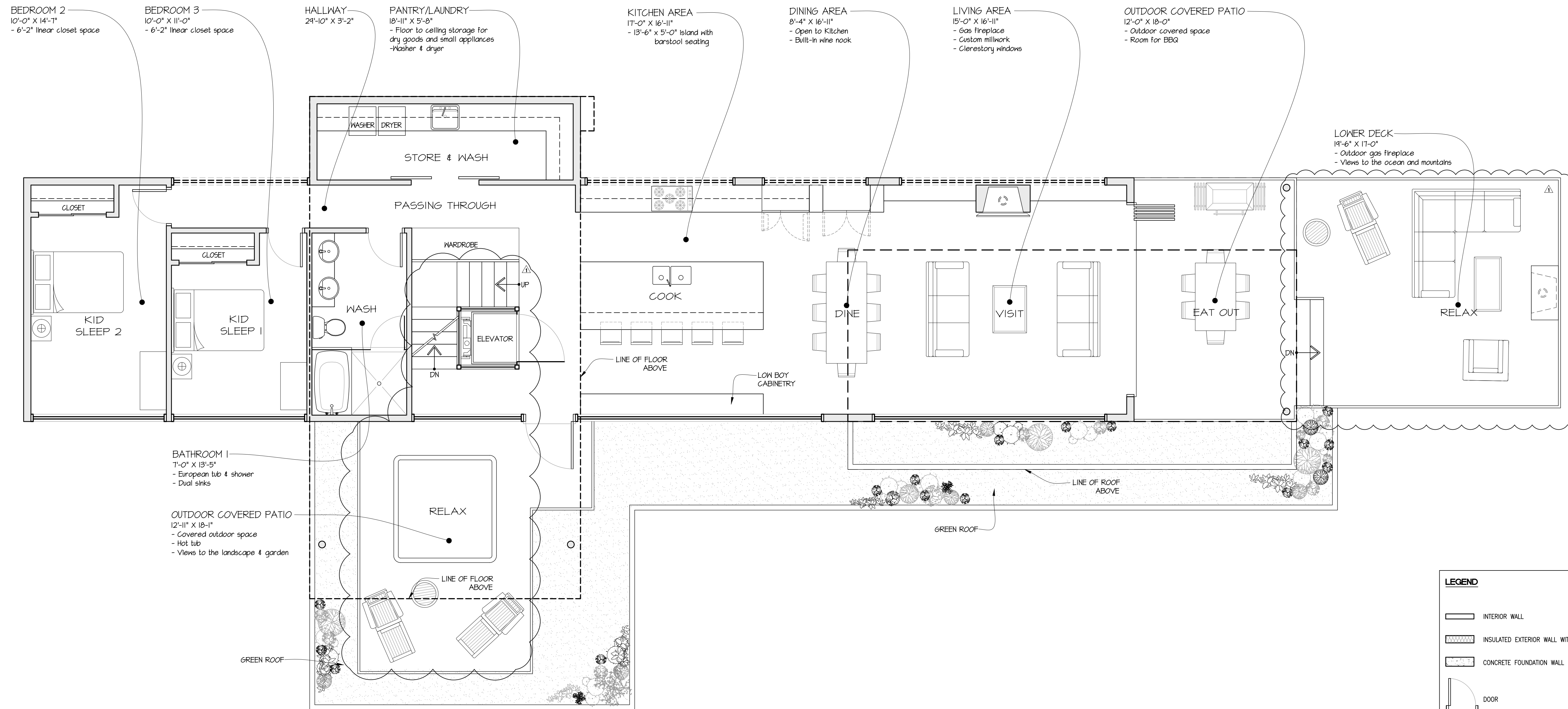
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synthesis design inc.
256 east 1st street
north vancouver, bc
canada v7l 1b3
tel. (604) 985-2287
www.synthesisthesign.ca

Leslie Residence
5616 Westport Place
West Vancouver BC



LEGEND

	INTERIOR WALL
	INSULATED EXTERIOR WALL WITH 2x6 STUDS
	CONCRETE FOUNDATION WALL
	DOOR
	WINDOW
	POST

**DESIGN DEVELOPMENT ONLY
NOT FOR CONSTRUCTION**

1/4"=1'-0"

MAIN FLOOR
1596 SF

Drawing Title
MAIN FLOOR PLAN

Date 12.24.2014

Scale 1/4"=1'-0"

Drawn DMP

Job No. 14098

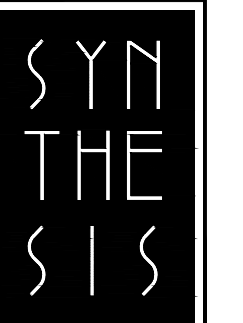
Sheet **DD-3**

Ct 10 Sheets

REVISIONS	BY

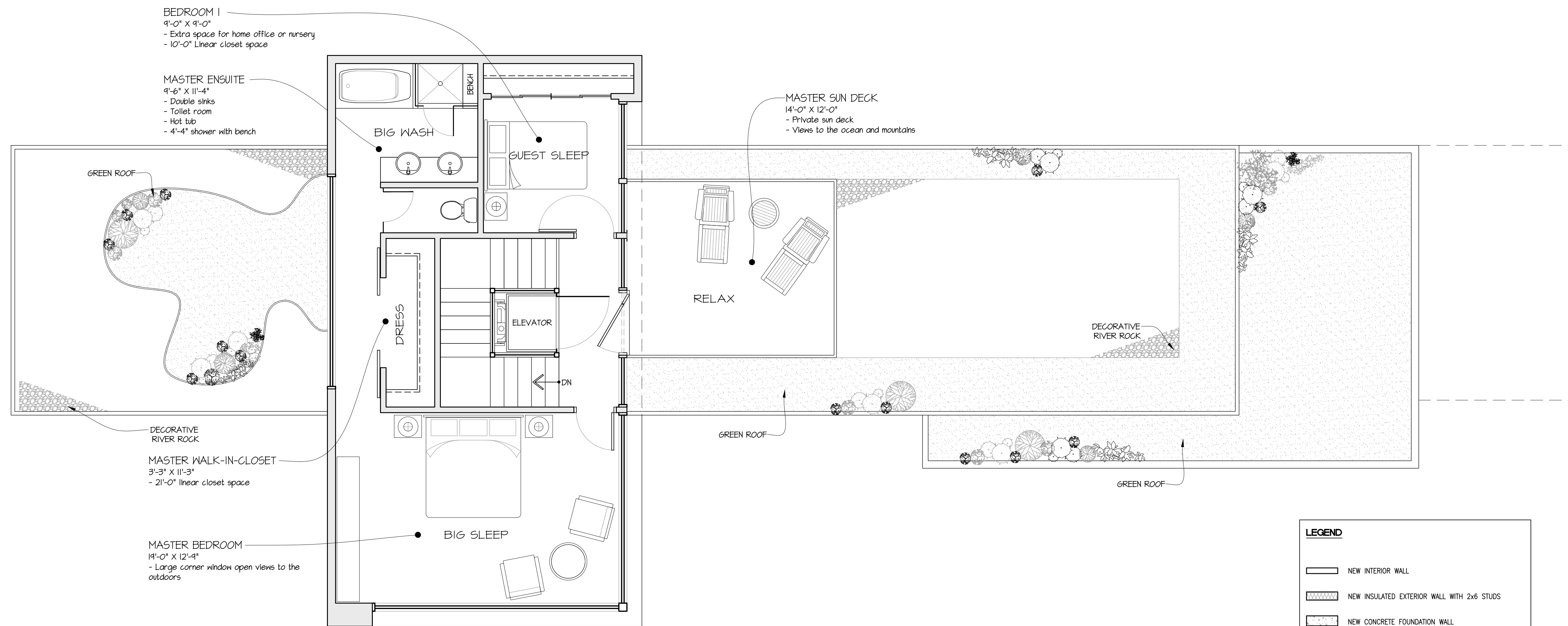
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north vancouver, bc
canada v7l 1b3
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Leslie Residence
5616 Westport Place
West Vancouver BC



UPPER FLOOR
745 SQ.FT

1/4"=1'-0"

LEGEND

	NEW INTERIOR WALL
	NEW INSULATED EXTERIOR WALL WITH 2x6 STUDS
	NEW CONCRETE FOUNDATION WALL
	NEW DOOR
	NEW WINDOW
	NEW POST

DESIGN DEVELOPMENT ONLY
NOT FOR CONSTRUCTION

Drawing Title
UPPER FLOOR PLAN

Date 12.24.2014

Scale 1/4"=1'-0"

Drawn DMP/KWL

Job No. 14098

Sheet DD-4

Cf 10 Sheets

REVISIONS	BY
DRC Meeting 9.28.2015	JPS

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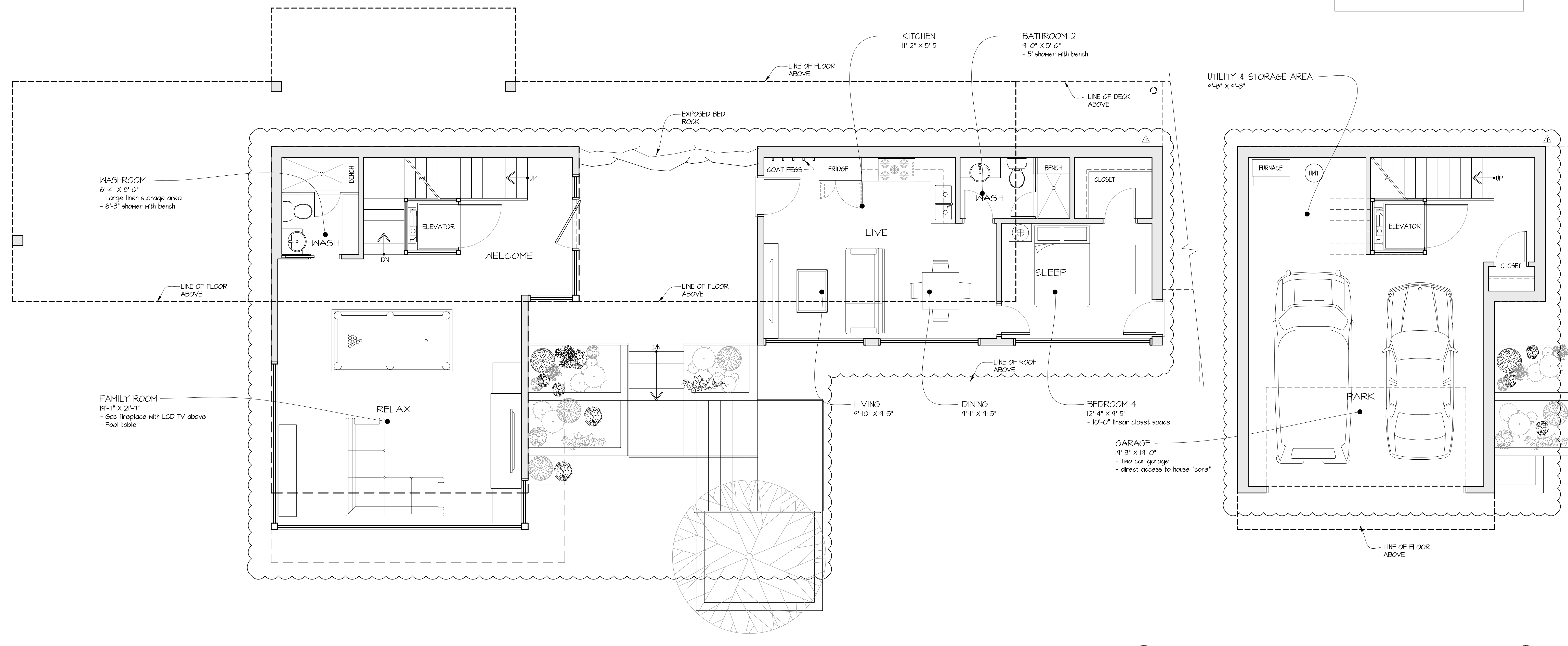
SYNTHESIS

synthesis design inc.
256 east 1st street
north vancouver, bc
canada v7l 1b3
tel. (604) 985-2287
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Leslie Residence
5616 Westport Place
West Vancouver BC

LEGEND

- NEW INTERIOR WALL
- ▨ NEW INSULATED EXTERIOR WALL WITH 2x6 STUDS
- ▩ NEW CONCRETE FOUNDATION WALL
- NEW DOOR
- NEW WINDOW
- NEW POST



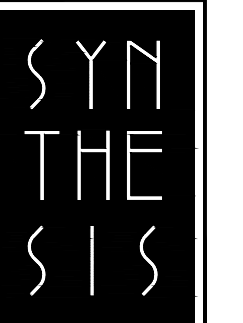
DESIGN DEVELOPMENT ONLY
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Drawing Title	LOWER FLOOR+ GARAGE PLAN
Date	12.24.2014
Scale	1/4"=1'-0"
Drawn	DMP/KWL
Job No.	14098
Sheet	DD-5
Ct	10 Sheets

REVISIONS	BY
01	JPS

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tel. (604) 985-2087
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Leslie Residence
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West Vancouver BC

Drawing Title
ELEVATIONS

Date 12.24.2014

Scale 1/4"=1'-0"

Drawn DMP / MSR

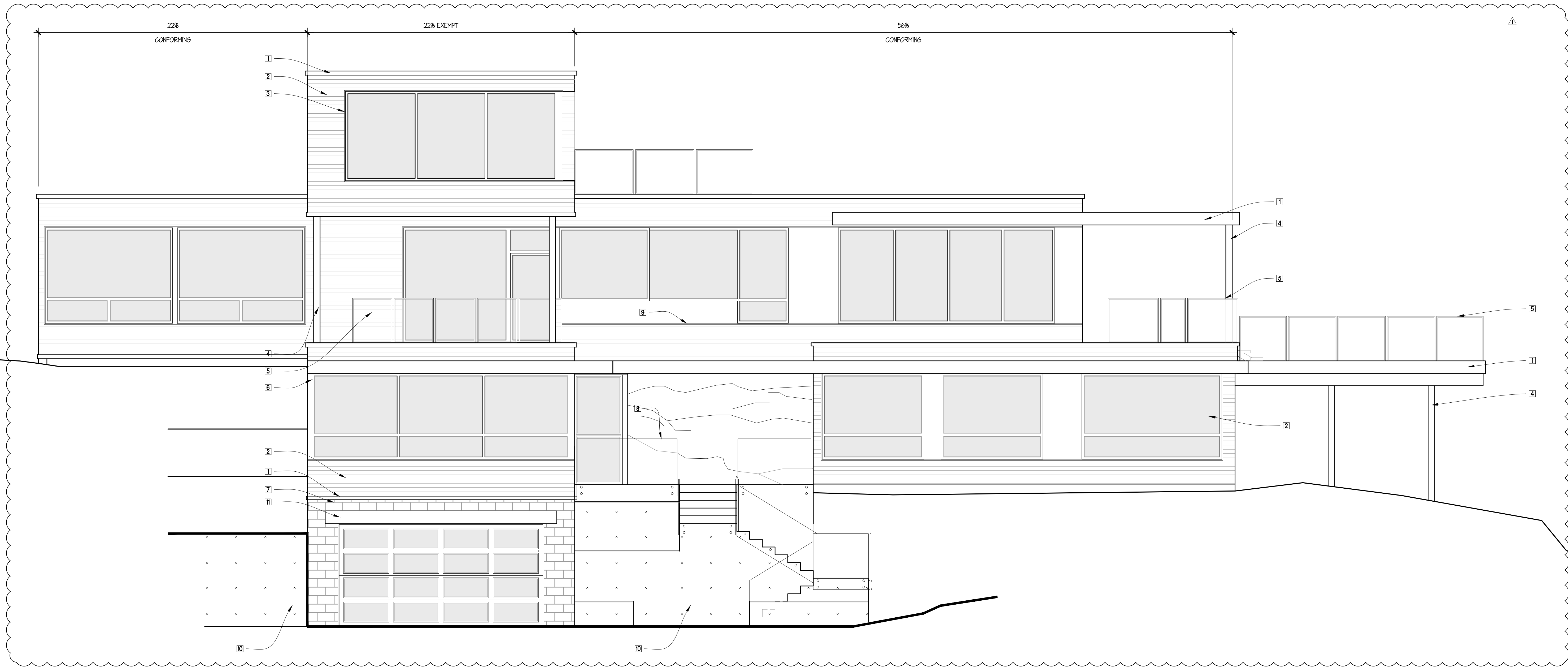
Job No. 14098

Sheet DD-6

Cf 10 Sheets

MATERIALS LEGEND

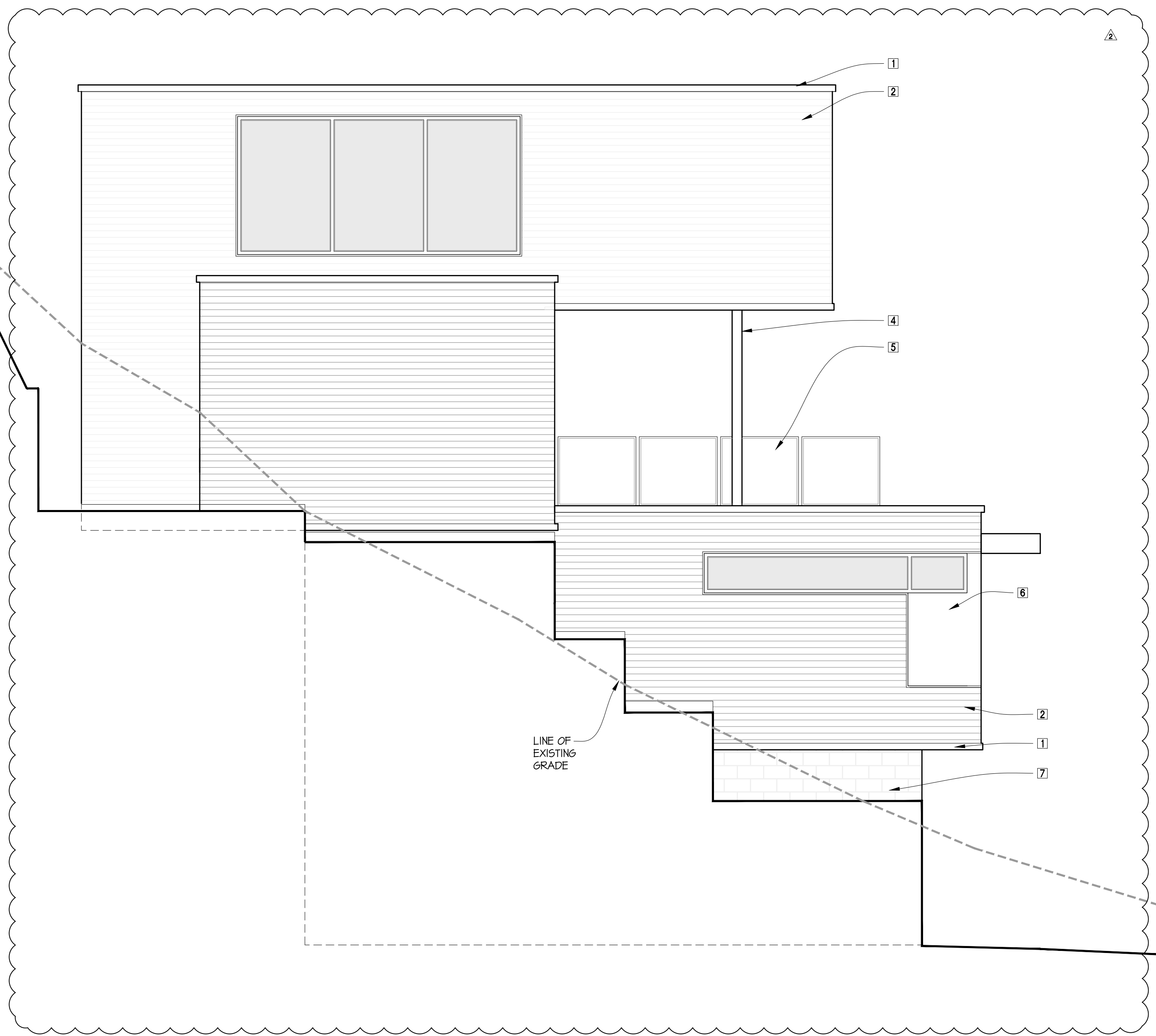
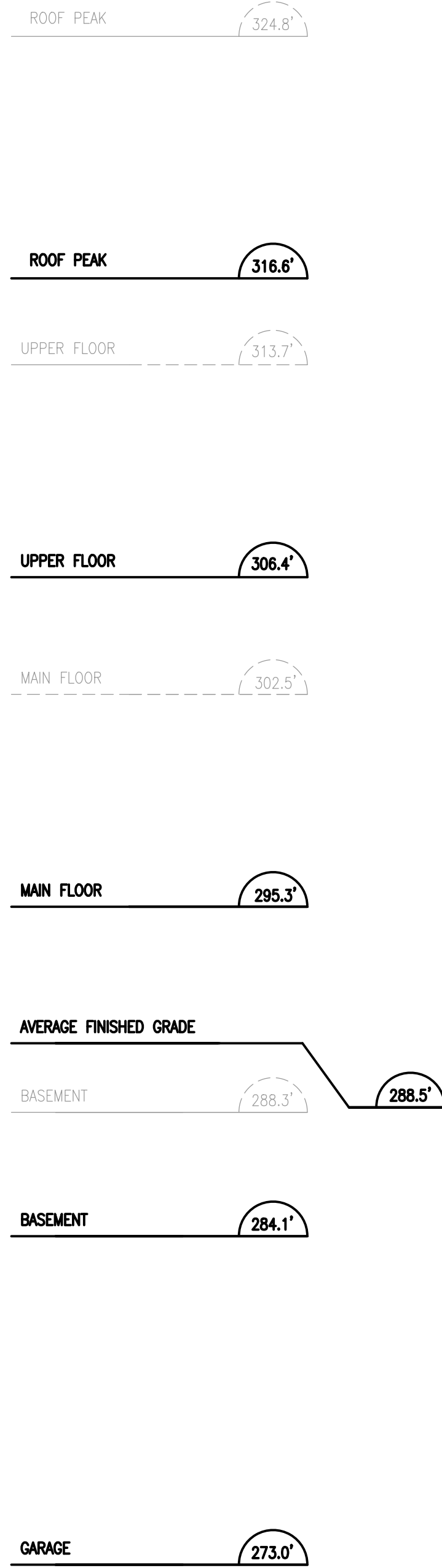
- [1] HEAVY GAUGE ANODIZED ALUMINUM FLASHING
- [2] 1x4 T&G TIGHT JOINT TRESPA CEMENTITIOUS HORIZONTAL SIDING C/W 4" EXPOSURE
- [3] 1" ANODIZED ALUMINUM TRIM AROUND ALL OPENINGS AS PER DOOR AND WINDOW MANUFACTURER AND SUPPLIER
- [4] ROUND STEEL POST PAINTED AS PER SPECIFICATIONS
- [5] FRAMELESS GLASS RAILING C/W ALUMINUM SHOE WEDGE
- [6] HEAVY GAUGE ANODIZED ALUMINUM PANEL, FINISH TO MATCH WINDOWS
- [7] FINISH (BRICK / CONCRETE / CMU / OTHER) T.B.D.
- [8] FRAME LESS TEMPERED GLASS RAILING C/W METAL BUTTON CONNECTORS
- [9] 1" ANODIZED ALUMINUM TRIM (BETWEEN CHANGE IN CLADDING MATERIALS)
- [10] CONC. PLANTER & RETAINING WALL (SNAP TIE CONE IMPRESSIONS TO REMAIN)
- [11] CONCRETE LINTEL



FRONT ELEVATION

1/4"=1'-0"

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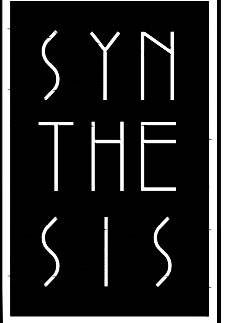


- MATERIALS LEGEND**
- 1 HEAVY GAUGE ANODIZED ALUMINUM FLASHING
 - 2 1x4 T&G TIGHT JOINT TRESPA CEMENTITIOUS HORIZONTAL SIDING C/W 4" EXPOSURE
 - 3 1" ANODIZED ALUMINUM TRIM AROUND ALL OPENINGS AS PER DOOR AND WINDOW MANUFACTURER AND SUPPLIER
 - 4 ROUND STEEL POST PAINTED AS PER SPECIFICATIONS
 - 5 FRAMELESS GLASS RAILING C/W ALUMINUM SHOE WEDGE
 - 6 HEAVY GAUGE ANODIZED ALUMINUM PANEL, FINISH TO MATCH WINDOWS
 - 7 FINISH (BRICK / CONCRETE / CMU / OTHER) T.B.D.
 - 8 FRAME LESS TEMPERED GLASS RAILING C/W METAL BUTTON CONNECTORS
 - 9 1" ANODIZED ALUMINUM TRIM (BETWEEN CHANGE IN CLADDING MATERIALS)
 - 10 CONC. PLANTER & RETAINING WALL (SNAP TIE CONE IMPRESSIONS TO REMAIN)
 - 11 CONCRETE LINTEL

REVISIONS	BY
R.O.W 5.01.2015	KWL
DRG Meeting 9.28.2015	JPS

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synthesis design inc.
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canada v7l 1b3
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LEFT ELEVATION

1/4"=1'-0"

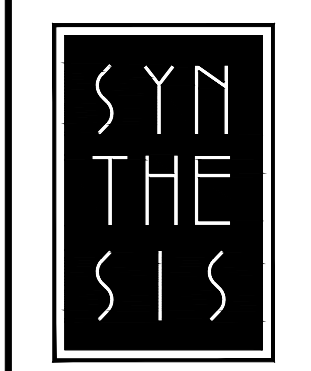
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ELEVATIONS

Date	12.24.2014
Scale	1/4"=1'-0"
Drawn	DMP / MSR
Job No.	14098
Sheet	DD-7
Ct	10 Sheets

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DRC Meeting 9.28.2015	JPS

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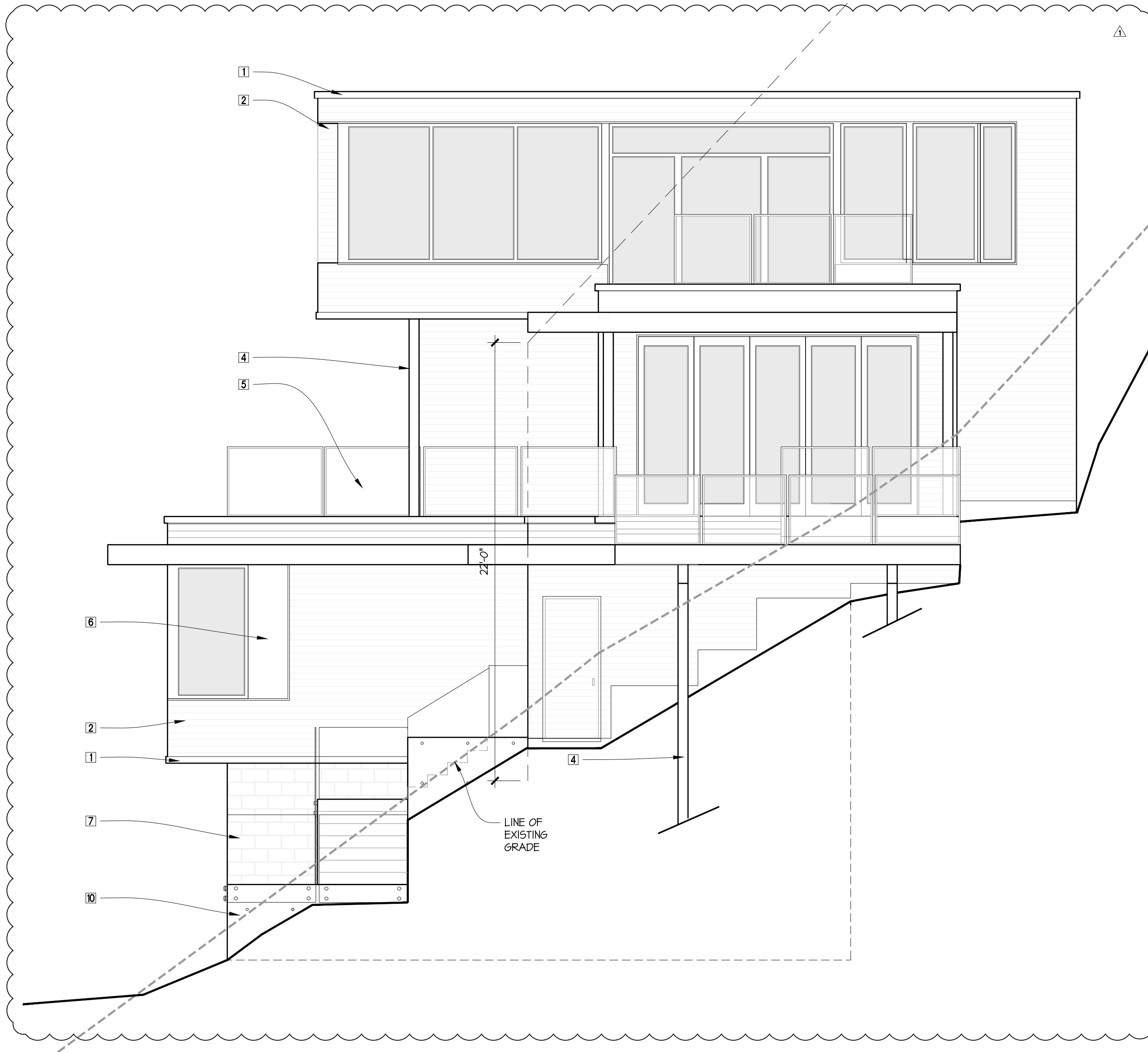
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Drawing Title
ELEVATIONS

Date	12.24.2014
Scale	1/4"=1'-0"
Drawn	DMP / MSR
Job No.	14098
Sheet	DD-8
Ct	10 Sheets

ROOF PEAK	324.8'
ROOF PEAK	316.6'
UPPER FLOOR	313.7'
UPPER FLOOR	306.4'
MAIN FLOOR	302.5'
MAIN FLOOR	295.3'
AVERAGE FINISHED GRADE	288.5'
BASEMENT	288.3'
BASEMENT	284.1'
GARAGE	273.0'

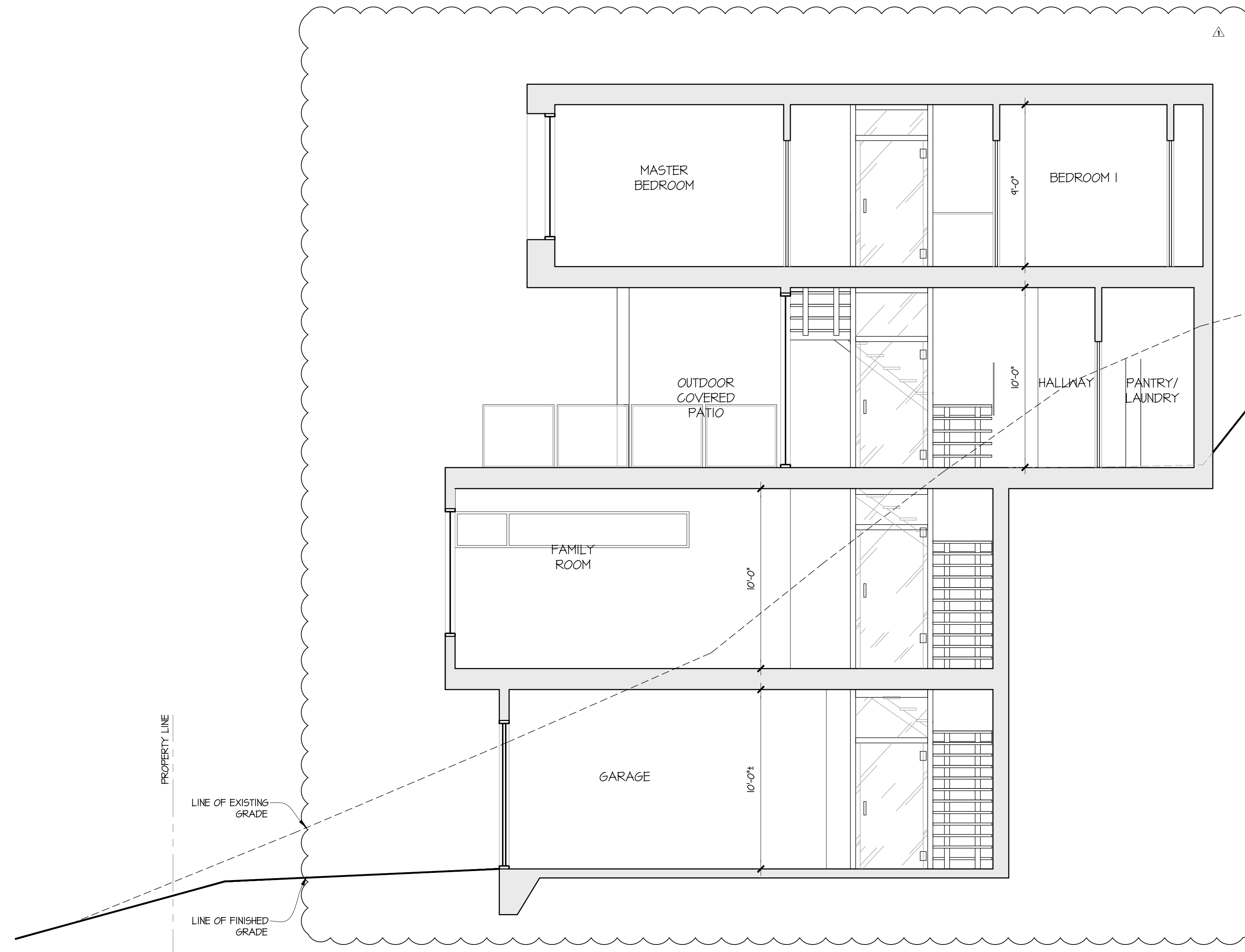
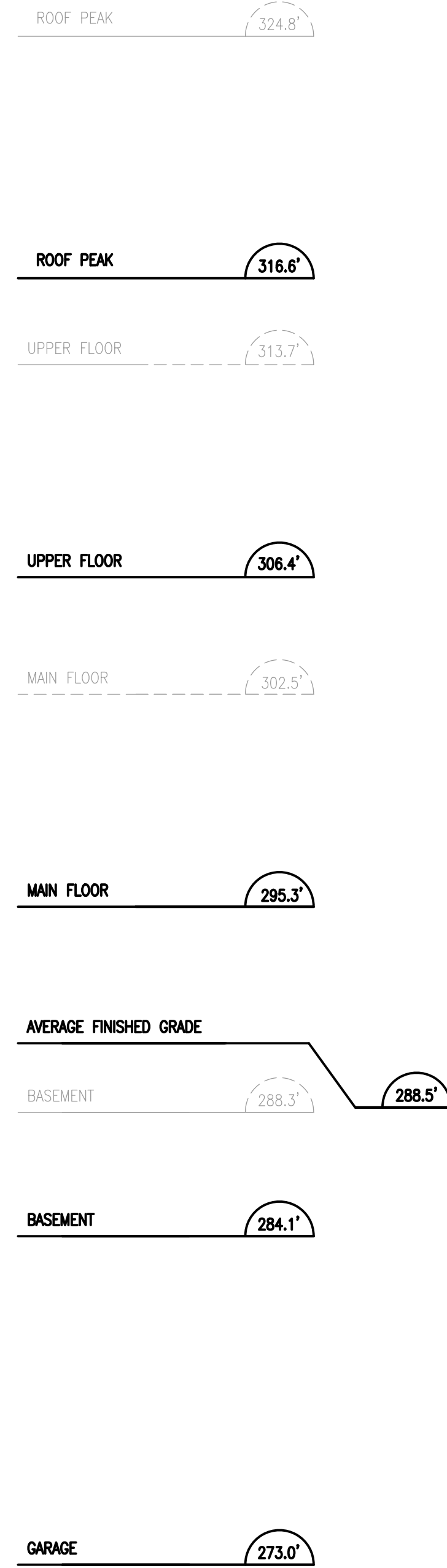


- MATERIALS LEGEND**
- 1) HEAVY GAUGE ANODIZED ALUMINUM FLASHING
 - 2) 1x4 T&G TIGHT JOINT TRESPA CEMENTITIOUS HORIZONTAL SIDING C/W 4" EXPOSURE
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 - 10) CONG. PLANTER & RETAINING WALL (SNAP TIE CONE IMPRESSIONS TO REMAIN)
 - 11) CONCRETE LINTEL

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RIGHT ELEVATION

1/4"=1'-0"



SECTION A-A

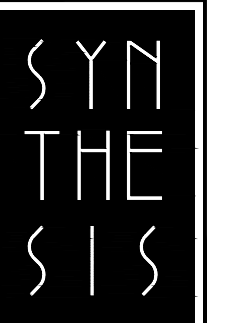
1/4"=1'-0"

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Drawing Title
SECTION

Date 12.24.2014

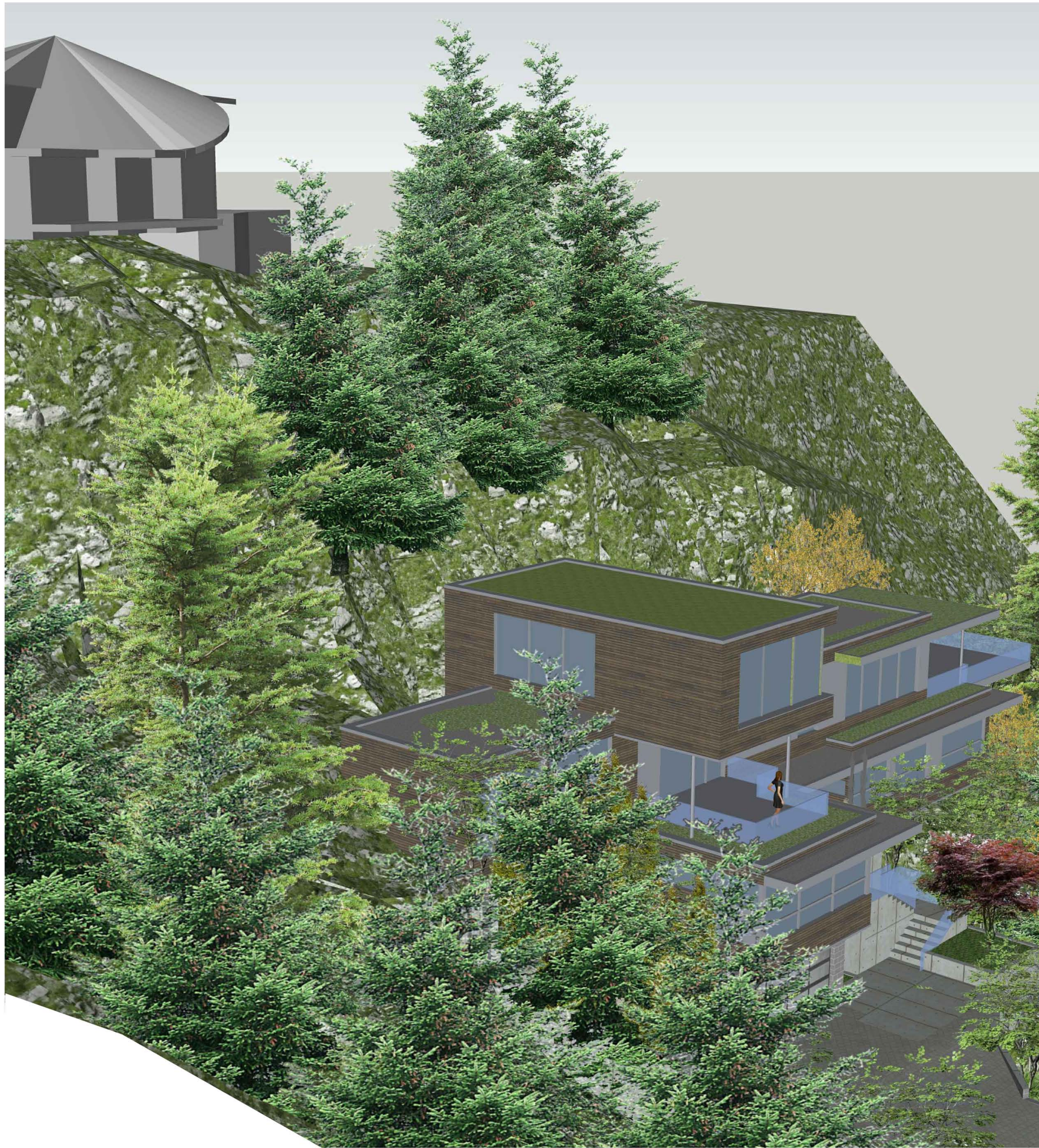
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Drawn DMP / MSR

Job No. 14098

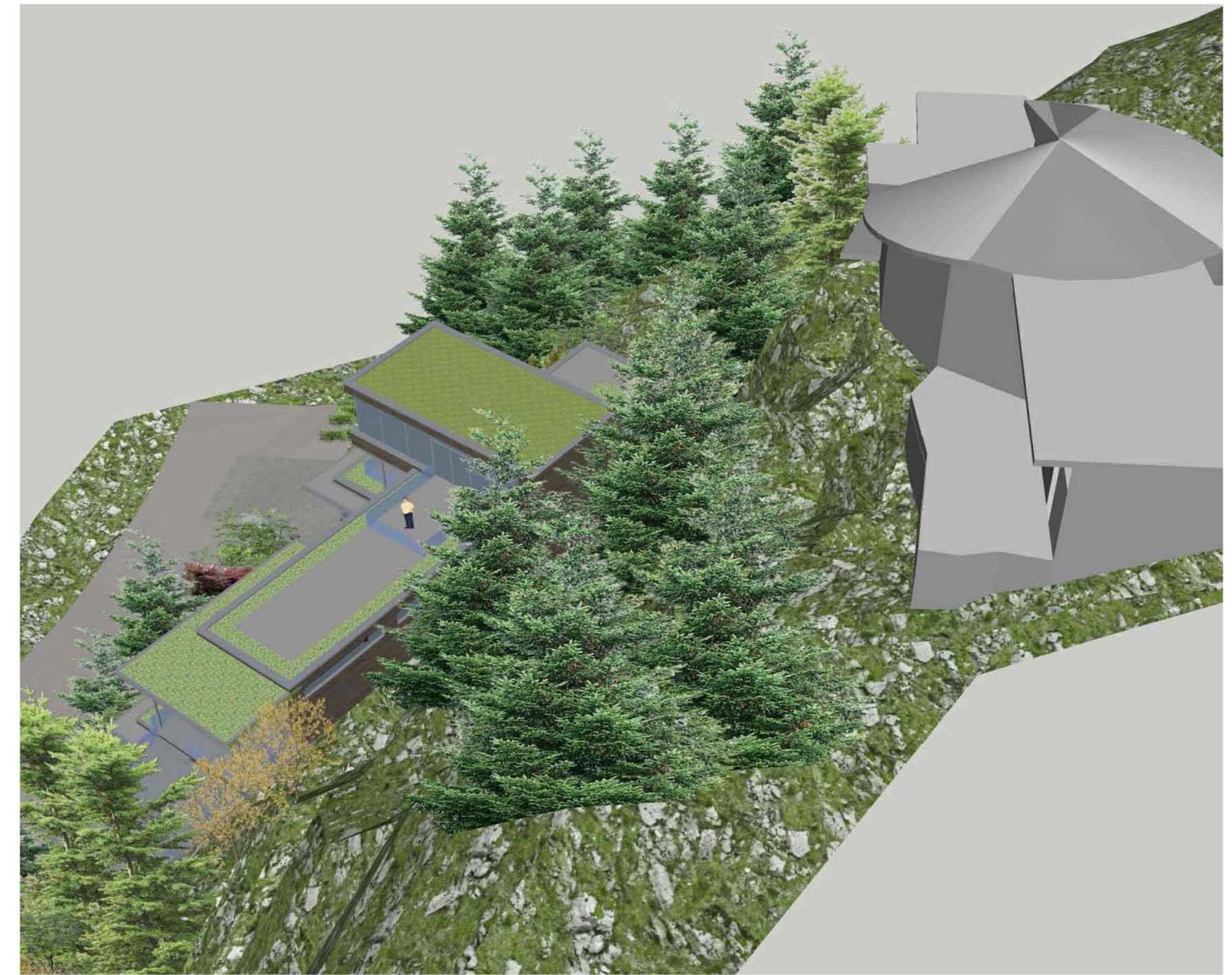
Sheet DD-9

Cf 10 Sheets



NORTH ELEVATION

N/A



AERIAL VIEW OF SOUTH ELEVATION

N/A



WEST ELEVATION

N/A

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West Vancouver, BC

Drawing Title
3D MODEL
CONTEXT
VIEWS

Date 12.24.2014

Scale N/A

Drawn DMP / MSR

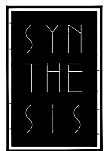
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Sheet DD-10

Cf 10 Sheets



DESIGN REVIEW COMMITTEE DESIGN CHANGES C/W GHOST OUTLINE



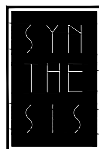
synthesis design inc.
258 east 1st street
north vanouver, bc,
canada v7l 1b3
tel: (604) 980-2107
www.synthesdesign.ca



SCALE
0 FEET 100

NEIGHBOURHOOD PLAN

FOR FURTHER SITE INFORMATION, SEE DD-1 IN DESIGN DEVELOPMENT DRAWINGS



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258 east 1st street
north vanouver, bc,
canada v7l 1b3
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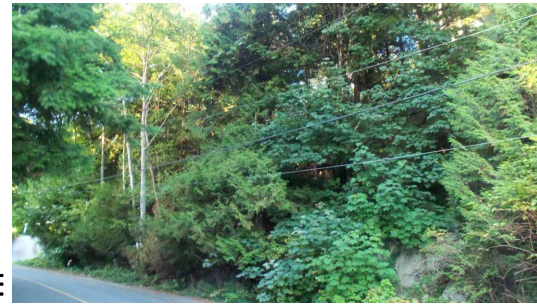
A VIEW FROM WESTPORT ROAD LOOKING AT THE FRONT OF THE NEW PROPERTY



D VIEW FROM WESTPORT ROAD LOOKING AT THE FRONT OF 5650



B VIEW OF NEIGHBOURING PROPERTY 5641 FROM WESTPORT ROAD



E LOOKING NORTH ALONG WESTPORT ROAD



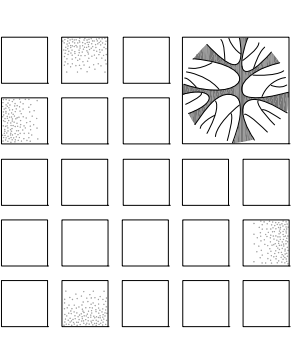
C VIEW OF NEIGHBOURING PROPERTY 5645 FROM WESTPORT ROAD



F VIEW FROM SKYES CARPORT OVERLOOKING LOCATION OF LESLIE'S PROPERTY



CONTEXT INFORMATION



**URBAN NICHE
LANDSCAPE DESIGN**
509 - 318 Homer Street,
Vancouver, BC, V6B 2V2
T: 604-699-3804
F: 604-699-3804
E: info@urbanniche.net

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LANDSCAPE LAYOUT BASED ON SITE PLAN PREPARED BY SYNTHESIS DESIGN AND RECEIVED ON DEC. 9, 2014

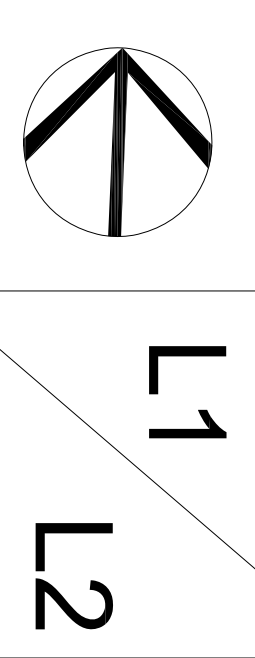
Revisions:
APRIL 22, 2015: ADDITION OF 10' SANITARY RISER AND STAIRS TO PROPERTY SLAB (SEE NOTE ON PLAN); ADJUSTED ALL HARD LANDSCAPE TO REFLECT SHIFT IN HOUSE LOCATION.
APRIL 23, 2015: RESUBMIT TO DISTRICT OF VANCOUVER FOR REMOVAL OF ALL WALLS + DISTRIBUTIONS FROM 10' R.O.W.
MAY 29, 2015: REMOVED ALL WALLS + DISTRIBUTIONS FROM 10' R.O.W.
OCT. 7, 2015 UPDATED: FRONT BUILDING BARRIERS, STAIRS, TREADS, FLANK ENTRY STAIRS AND LANDINGS, OTHER RELEVANT HARD LANDSCAPE, AND UPDATED TREE LOCATIONS.

Project:
5616 WESTPORT RD
WEST VANCOUVER, BC

Drawing Name:
HARD LANDSCAPE
LAYOUT

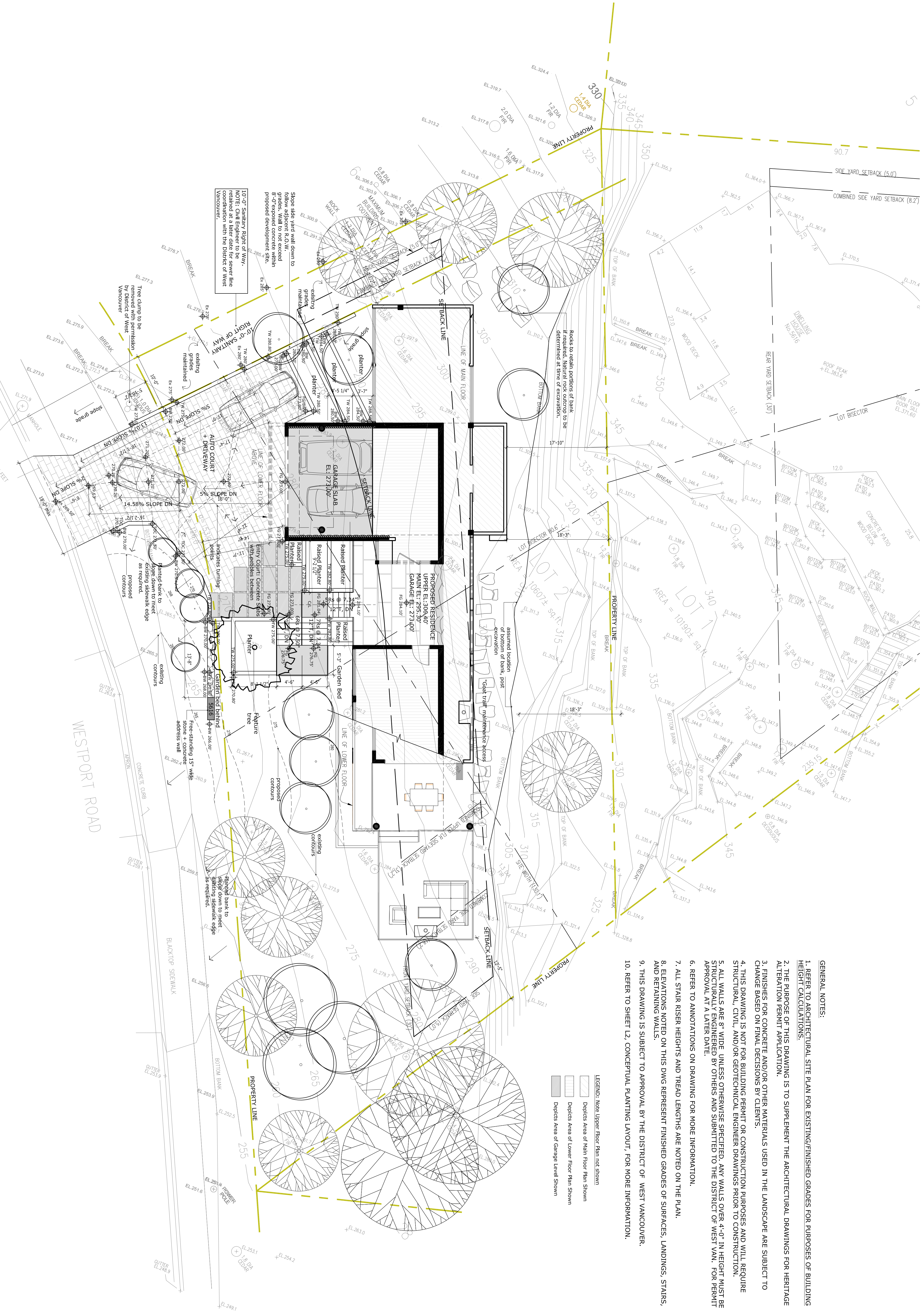
1st Plot Date: 2014-22-12
Scale: 1/8"=1'-0"
Drawn By: L.Volgysisl
Checked By:
Drawing Purpose: Heritage Alteration Permit submission + DRC approval

North
Drawing No.



- GENERAL NOTES:**
1. REFER TO ARCHITECTURAL SITE PLAN FOR EXISTING/FINISHED GRADES FOR PURPOSES OF BUILDING HEIGHT CALCULATIONS.
 2. THE PURPOSE OF THIS DRAWING IS TO SUPPLEMENT THE ARCHITECTURAL DRAWINGS FOR HERITAGE ALTERATION PERMIT APPLICATION.
 3. FINISHES FOR CONCRETE AND/OR OTHER MATERIALS USED IN THE LANDSCAPE ARE SUBJECT TO CHANGE BASED ON FINAL DECISIONS BY CLIENTS.
 4. THIS DRAWING IS NOT FOR BUILDING PERMIT OR CONSTRUCTION PURPOSES AND WILL REQUIRE STRUCTURAL, CIVIL, AND/OR GEOTECHNICAL ENGINEER DRAWINGS PRIOR TO CONSTRUCTION.
 5. ALL WALLS ARE 8" WIDE UNLESS OTHERWISE SPECIFIED. ANY WALLS OVER 4'-0" IN HEIGHT MUST BE STRUCTURALLY ENGINEERED BY OTHERS AND SUBMITTED TO THE DISTRICT OF WEST VAN. FOR PERMIT APPROVAL AT A LATER DATE.
 6. REFER TO ANNOTATIONS ON DRAWING FOR MORE INFORMATION.
 7. ALL STAIR RISER HEIGHTS AND TREAD LENGTHS ARE NOTED ON THE PLAN.
 8. ELEVATIONS NOTED ON THIS DWG REPRESENT FINISHED GRADES OF SURFACES, LANDINGS, STAIRS, AND RETAINING WALLS.
 9. THIS DRAWING IS SUBJECT TO APPROVAL BY THE DISTRICT OF WEST VANCOUVER.
 10. REFER TO SHEET L2, CONCEPTUAL PLANTING LAYOUT, FOR MORE INFORMATION.

- LEGEND:**
- █ Note Upper Floor Plan not shown
 - █ Depicts Area of Main Floor Plan Shown
 - █ Depicts Area of Lower Floor Plan Shown
 - █ Depicts Area of Garage Level Shown



10'-0" Sanitary Riser of Wall. Riser to be retained at a later date for sewer line coordination with the District of West Vancouver.

Tree stump to be removed with permission by District of West Vancouver.

WESTPORT ROAD

Diamond Head Consulting Ltd. Arborist Report

For:

5616 Westport Place
West Vancouver, BC

December 3, 2014

To be submitted with Tree Protection Plan
Dated: December 3, 2014

Submitted to:

Synthesis Design
258 East 1st Street
North Vancouver, BC
V7L 1B3

Submitted by:



**DIAMOND HEAD
CONSULTING LTD.**

342 West 8th Avenue
Vancouver, BC
V5Y 3X2



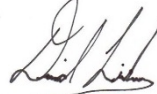
The following Diamond Head Consulting staff performed the site visit and prepared the report. All general and professional liability insurance and individual accreditations have been provided below for reference.

Supervisor:



Trevor Cox, MCIP
ISA Certified Arborist (PN1920A)
Certified Tree Risk Assessor (43)
BC Parks Wildlife and Danger Tree Assessor

Project Staff:



David Lishman BNRS, P.Ag, FIT
ISA Certified Arborist (PN7535A)
Certified Tree Risk Assessor (1867)

This report summarizes the planned management of trees on the site. If there are any questions or concerns as to the contents of this report, please contact us at any time.

Contact Information

Phone: 604-733-4886
Fax: 604-733-4879
Email: trevor@diamondheadconsulting.com or david@diamondheadconsulting.com
Website: www.diamondheadconsulting.com

Insurance Information

WCB: # 657906 AQ (003)
General Liability: Northbridge General Insurance Corporation - Policy #CBC1935506, \$5,000,000 (Mar 2014 to Mar 2015)
Errors & Omissions: Lloyds Underwriters – Policy #1010346D, \$1,000,000 (June 2011 to June 2015)



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1.0 Introduction

Diamond Head Consulting Ltd. (DHC) was asked to complete an assessment of the trees on and adjacent to the following proposed development:

Civic address:	5616 Westport Place, West Vancouver BC
Project No.:	unknown
Client name:	Synthesis Design
Date of site visit:	November 27, 2014
Weather during visit:	Overcast and rain

The objective of this report is to ensure the proposed development is in compliance with the District of West Vancouver Development Procedures Bylaw No. 3984, 1996. The trees at the site were assessed, including: species, diameter at breast height (dbh) measured to the nearest 1 cm at 1.4 m above tree base, estimated height and general health and defects. Critical root zones were calculated for each of the trees with the potential for development impacts. Tree hazards were assessed according to International Society of Arboriculture and WCB standards. Suitability for tree retention was evaluated based on the health of the trees and their location in relation to the proposed building envelopes and infrastructure. This report outlines the existing condition of the trees on and adjacent to the property, summarizes the proposed tree removals and retention trees as well as suggested guidelines for protecting the remaining trees during the construction process.

1.1 Limits of Assignment

- Our investigation is based solely on our visual inspection of the trees on November 27, 2014. Our inspection was conducted from ground level. We did not conduct soil tests or root examination to assess the condition of the root system of the trees.
- Only the trees specified in the scope of work were assessed and assessments were performed within the limitations specified.
- This report does not provide any estimates to implement the proposed recommendations provided in this report.
- This report is valid for six months from the date of submission. Additional site visits and report revisions are required after this point to ensure accuracy of the report for the District's development permit application process.

1.2 Purpose and Use of Report

- Provide documentation pertaining to on and off site trees to supplement the proposed development permit application.



Figure 1. Location of site – 5616 Westport Place, West Vancouver

2.0 Observations

2.1 Site Overview

The site consists of one lot with a single residence located at the north east section of the property. There is a steep cliff located on the property. The proposed development area is located west of the cliff and access is from Westport road. This area is currently a forested stand that has been managed for views. Many of the trees have been previously topped. The total lot size is approximately 1800 m². The proposed minimum lot area is 985 m². The site is mostly composed of mature native conifer and deciduous species along with native and non native ground cover, there is one landscaped and maintained yard within the site. The by-law sized tree species within the lot consist primarily of Bigleaf Maple (*Acer macrophyllum*), Red Alder (*Alnus rubra*), Western Redcedar (*Thuja plicata*) and Douglas-fir (*Pseudotsuga menziesii*) which are located throughout the site. Tree attributes, critical root zones and recommendations for the trees are listed below in **Table 1**.



2.2 Tree Inventory

The following is an inventory of assessed trees, each of which was marked with a numbered tag as is required by the District Tree Bylaw. Tree species, characteristics, comments, recommendations and required root protection zones have been suggested (Table 1). Their locations are illustrated on the accompanying map.

Overall Health and Structure Rating

Excellent = Tree of possible specimen quality, unique species or size with no discernible defects. Or a heritage tree.

Normal = These trees are in fair to good condition, considering its growing environment and species.

Poor = These trees have low vigour, with noted health and/or structural defects. This tree is starting to decline from its typical species growth habits.

Very poor = These trees are in serious decline from its typical growth habits, with multiple very definable health and/or structural defects.

Dead/Dying = These trees were found to be dead, and/or have severe defects and are in severe decline.

High Risk = These trees have been deemed hazardous by a Certified Tree Risk Assessor utilizing CTRA methods. They have a probability of failure of 3 or higher with a total overall risk rating of 8 (Moderate 3) or above.

Tree Retention Suitability Ratings

Unsuitable = Not suitable for retention in context of the proposed project design and land use changes. These trees have pre-existing health and structural defects. There is a significant chance that these trees will not survive or may become a hazard given the proposed future land use.

Moderate = These trees have moderate structural defects or health issues. The retention of this class of trees is not always successful or viable due to their pre-existing structural defects or health issues; however these trees may be viable for retention with the use of special measures.

Suitable = These trees have no obvious structural defects or health issues, and are worthy of consideration for retention in the proposed development.

Suitable as group = These trees have grown up in groups (groves) of other trees, and have not developed the type of trunk and root structure that will allow them to be safely retained on their own. These trees should only be retained in groups.

Tree Risk Assessment

Using the *Tree Risk Assessment in Urban Areas and the Urban/Rural Interface Release 1.4* manual, published by the International Society of Arboriculture, a Risk Rating out of 12 maximum points was given to the tree as shown in Table 2. The formula used was: **Probability of Failure + Size of Part + Target Area = Tree Risk Assessment (Rating)**.

In the Tree Risk Assessment, the tree was rated as follows:



Probability of Failure = (1 low to 5 Extreme). This is the likelihood of branch or whole tree failure. One is the lowest possible score; five is the highest likelihood of tree part failure.

Size of Defective Part = (1 small to 3 large). This section identifies the largest part, which could fail. A part greater than 50 cm is given a rating of 3, a part between 10 and 50 cm is given a rating of 2 and all parts less than 10 cm are given a rating of 1.

Target Area = (1 low to 4 high). The target that the tree could strike is designated a value from 1 to 4 based on the potential to cause personal injury or damage structures and infrastructure.

A value for each of the three categories is assessed and added together in the Risk Rating calculation shown in Table 2. A score of 3-5 indicates a low risk, 6-8 is a moderate risk, 9-11 is a high risk and 12 indicates an extreme risk; this level warrants immediate tree removal. A risk category assigning ranges to the three levels of risk is also provided. Please refer to the table in Appendix 1 for detailed information on interpretation and implications of risk ratings and categories.



2.3 Photographs



Photo 1. The majority of trees located within the proposed development area have been previously topped for views..



Photo 2. View from within the development area.



Photo 3. The majority of trees located within the proposed development area have been previously topped for views.



Photo 4. The majority of trees located within the proposed development area have been previously topped for views.

Tree Inventory Table

Table 1. Tree Inventory.

Tag #	Common Name	Botanical Name	DBH (cm)	Ht (m)	Overall Condition	Retention Suitability	Comments	Retain/Remove	Tree Retention Comments	Root Protection Zone (m)
1168	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	8	Poor	Suitable as group	Previously topped for view. Growing on top of slope.	Retain	Future replacement leader management required to mitigate future hazards from previous topping.	1.4
1169	Western Redcedar	<i>Thuja plicata</i>	32	8	Poor	Suitable as group	Previously topped for view. Growing on top of slope.	Retain	Future replacement leader management required to mitigate future hazards from previous topping.	1.9
1172	Western Redcedar	<i>Thuja plicata</i>	66	28	Normal	Suitable as group	Intermediate stem in stand. Phototrophic lean. Growing at bottom of slope	Remove	Tree within building envelope of garage.	4
1173	Western Redcedar	<i>Thuja plicata</i>	39	26	Normal	Suitable as group	Intermediate stem in stand. Growing on rocky slope	Remove	Tree within building envelope of garage.	2.3
1174	Western Redcedar	<i>Thuja plicata</i>	34	28	Poor	Moderate	Intermediate stem in stand. Growing on rocky slope and stem against rock. Multiple tops at 25m	Remove	Not suitable for individual retention.	2
1175	Western Redcedar	<i>Thuja plicata</i>	51	28	Poor	Moderate	Intermediate stem in stand. Growing on rocky slope. Scar and decay in base. Previously topped for view. Multiple tops at 25m	Remove	Tree within building envelope of proposed residence.	3.1
1176	Western Redcedar	<i>Thuja plicata</i>	57	28	Poor	Moderate	Intermediate stem in stand. Growing on rocky slope. 2 stems at 2m with included bark.	Remove	Tree within building envelope of garage.	3.4
1177	Western Redcedar	<i>Thuja plicata</i>	86	28	Normal	Suitable as group	Intermediate stem in stand. Minor decay pocket approximately 20m up the stem. Growing at bottom of slope.	Remove	Tree within building envelope of garage.	5.2
1192	Western Redcedar	<i>Thuja plicata</i>	44	28	Poor	Moderate	Intermediate stem in stand. Growing on rocky slope. Previously topped for view. Multiple tops at 25m.	Remove	Tree within building envelope of proposed residence.	2.6

Tag #	Common Name	Botanical Name	DBH (cm)	Ht (m)	Overall Condition	Retention Suitability	Comments	Retain/Remove	Tree Retention Comments	Root Protection Zone (m)
1193	Western Redcedar	<i>Thuja plicata</i>	49	28	Poor	Moderate	Intermediate stem in stand. Growing on rocky slope. Previously topped for view. Multiple tops at 25m. Not on survey.	Remove	Tree within building envelope of proposed residence.	2.9
1194	Western Redcedar	<i>Thuja plicata</i>	46	26	Poor	Moderate	Intermediate stem in stand. Growing on rocky slope. Previously topped for view. Multiple tops at 22m.	Remove		2.8
1195	Western Redcedar	<i>Thuja plicata</i>	34	26	Poor	Moderate	Intermediate stem in stand. Growing on rocky slope. Previously topped for view. Multiple tops at 22m. Not on survey.	Remove		2
1196	Western Redcedar	<i>Thuja plicata</i>	42	24	Poor	Moderate	Intermediate stem in stand. Growing on rocky slope. Previously topped for view. Multiple tops at 20m. Not on survey.	Remove		2.5
1197	Western Redcedar	<i>Thuja plicata</i>	42	24	Poor	Moderate	Intermediate stem in stand. Growing on rocky slope. Not on survey. Codominant stems at 12m. Previously topped for view. Multiple tops at 20m. Not on survey.	Remove		2.5
1198	Western Redcedar	<i>Thuja plicata</i>	65	16	Poor	Moderate	Intermediate stem in stand. Maintain topping if retained. Growing on rocky slope. Previously topped for view. Multiple tops at 16m.	Remove	Tree within building envelope of proposed residence.	3.9
1199	Western Redcedar	<i>Thuja plicata</i>	35	16	Poor	Moderate	Intermediate stem in stand. Maintain topping if retained. Growing on rocky slope. Previously topped for view. Multiple tops at 16m. Not on survey.	Remove	Tree within building envelope of proposed residence.	2.1
1200	Western Redcedar	<i>Thuja plicata</i>	34	16	Poor	Moderate	Intermediate stem in stand. Maintain topping if retained. Growing on rocky slope. Previously topped for view. Multiple tops at 16m. Not on survey.	Remove	Tree within building envelope of proposed residence.	2

Tag #	Common Name	Botanical Name	DBH (cm)	Ht (m)	Overall Condition	Retention Suitability	Comments	Retain/Remove	Tree Retention Comments	Root Protection Zone (m)
1201	Western Redcedar	<i>Thuja plicata</i>	35	16	Poor	Moderate	Intermediate stem in stand. Maintain topping if retained. Growing on rocky slope. Previously topped for view. Multiple tops at 16m. Not on survey.	Remove	Tree within building envelope of proposed residence.	2.1
1202	Western Redcedar	<i>Thuja plicata</i>	38	24	Poor	Moderate	Intermediate stem in stand. Maintain topping if retained. Growing on rocky slope. Previously topped for view. Multiple tops at 22m.	Remove	Tree within building envelope of proposed residence.	2.3
1203	Western Redcedar	<i>Thuja plicata</i>	45	16	Dead/dying	Moderate	Wildlife stem. Decay in stem. Retain if there is no target. Not on survey.	Remove	Tree within building envelope of proposed residence.	2.7
1204	Western Redcedar	<i>Thuja plicata</i>	42	24	Poor	Moderate	Intermediate stem in stand. Maintain topping if retained. Growing on rocky slope. Previously topped for view. Multiple tops at 22m.	Remove	Tree within building envelope of proposed residence.	2.5
1205	Douglas-fir	<i>Pseudotsuga menziesii</i>	38	24	Poor	Moderate	Intermediate stem in stand. Maintain topping if retained. Growing on rocky slope. Previously topped for view. Multiple tops at 22m.	Remove	Tree within building envelope of proposed residence.	2.3
1206	Western Redcedar	<i>Thuja plicata</i>	117	24	Normal	Suitable as group	3 stems at base; 46cm, 30cm, 40cm. Growing on rocky slope. Good unions at base	Remove	Tree within building envelope of proposed residence.	7
1207	Western Redcedar	<i>Thuja plicata</i>	37	24	Normal	Suitable as group	Intermediate stem in stand. Growing on rocky slope. Not on survey.	Remove		2.2
1208	Western Redcedar	<i>Thuja plicata</i>	39	24	Normal	Suitable as group	Intermediate stem in stand. Growing on rocky slope. Not on survey.	Remove		2.3
1209	Western Redcedar	<i>Thuja plicata</i>	62	24	Normal	Suitable as group	Intermediate stem in stand. Growing on rocky slope. 2 stems at 1m; 42cm, 20cm. Not on survey.	Retain		3.7
1210	Bigleaf Maple	<i>Acer macrophyllum</i>	30	24	Normal	Suitable as group	Intermediate stem in stand. Growing on rocky slope	Retain		1.8

Tag #	Common Name	Botanical Name	DBH (cm)	Ht (m)	Overall Condition	Retention Suitability	Comments	Retain/Remove	Tree Retention Comments	Root Protection Zone (m)
1211	Western Redcedar	<i>Thuja plicata</i>	40	24	Poor	Suitable as group	Intermediate stem in stand. Growing on rocky slope. previously topped for view	Retain	Future replacement leader management required to mitigate future hazards from previous topping.	2.4
1212	Western Redcedar	<i>Thuja plicata</i>	35	24	Normal	Suitable as group	Intermediate stem in stand. Growing on rocky slope. Not on survey.	Retain		2.1
1213	Western Redcedar	<i>Thuja plicata</i>	70	24	Poor	Suitable as group	Intermediate stem in stand. Growing on rocky slope, Dbh estimate. 2 stems at 2m with moderate inclusion	Remove		4.2
1214	Bigleaf Maple	<i>Acer macrophyllum</i>	57	20	Poor	Suitable as group	Intermediate stem in stand. Growing on rocky slope. Phototrophic lean	Remove		3.4
1215	Western Redcedar	<i>Thuja plicata</i>	72	24	Poor	Suitable as group	Intermediate stem in stand. Growing on rocky slope. 2 stems at base. 32cm, 40cm. Phototrophic lean	Remove	Tree within building envelope of proposed residence.	4.3
1216	Western Redcedar	<i>Thuja plicata</i>	37	18	Poor	Moderate	Intermediate stem in stand. Growing on rocky slope. Previously topped for view. New tops at 10m. Not on survey.	Remove	Tree within building envelope of proposed deck.	2.2
1217	Western Redcedar	<i>Thuja plicata</i>	34	24	Poor	Moderate	Intermediate stem in stand. Growing on rocky slope. growing at base of slope. Not on survey.	Remove	Proposed driveway within root protection zone of tree.	2
1218	Western Redcedar	<i>Thuja plicata</i>	34	24	Poor	Moderate	Intermediate stem in stand. 2 stems at base; 24cm, 10cm. Poor rooting. Growing at base of slope. Not on survey.	Remove	Proposed driveway within root protection zone of tree.	2
Un-tagged 01	Western Redcedar	<i>Thuja plicata</i>	43				Tree was thought to be offsite, no data recorded. DBH from surveyor.	Remove	Proposed house within root protection zone.	2.6
dr30	Red Alder	<i>Alnus rubra</i>	30		Poor	Unsuitable	May be district owned. Not on survey.	Remove	Not suitable for long term retention. District's approval required for removal.	
dr45	Red Alder	<i>Alnus rubra</i>	45		Poor	Unsuitable	May be district owned. Not on survey. Leaning over road. Monitor.	Remove	Not suitable for long term retention. District's approval required for removal.	

Tag #	Common Name	Botanical Name	DBH (cm)	Ht (m)	Overall Condition	Retention Suitability	Comments	Retain/Remove	Tree Retention Comments	Root Protection Zone (m)
OS dr70	Red Alder	<i>Alnus rubra</i>	70		Poor	Unsuitable	2 stems at base. District owned tree.	Remove	Root protection zone within proposed driveway. Not suitable for long term retention. District's approval required for removal.	
OS dr30	Red Alder	<i>Alnus rubra</i>	30		Poor	Unsuitable	May be district owned. District owned tree.	Remove	Root protection zone within proposed driveway. Not suitable for long term retention. District's approval required for removal.	
os01	Western Redcedar	<i>Thuja plicata</i>	50	24	Normal	Suitable as group	Intermediate stem in stand. Growing on rocky slope. Not on survey.	Retain		3
os02	Douglas-fir	<i>Pseudotsuga menziesii</i>	50	24	Normal	Suitable as group	Intermediate stem in stand. Growing on rocky slope. Previously topped with new stems. Not on survey.	Retain		3
os03	Western Redcedar	<i>Thuja plicata</i>	45	12	Very poor	Suitable as group	Intermediate stem in stand. Pruned for power lines. 2 stems at base. 25cm, 20cm. Not on survey.	Retain		2.7
os04	Western Redcedar	<i>Thuja plicata</i>	37				No data recorded. DBH from surveyor.	Retain		2.2
os05	Western Redcedar	<i>Thuja plicata</i>	24				No data recorded. DBH from surveyor.	Retain		1.4
os06	Western Redcedar	<i>Thuja plicata</i>	24				No data recorded. DBH from surveyor.	Retain		1.4
os07	Douglas-fir	<i>Pseudotsuga menziesii</i>	49				No data recorded. DBH from surveyor.	Retain		2.9
os08	Douglas-fir	<i>Pseudotsuga menziesii</i>	61				No data recorded. DBH from surveyor.	Retain		3.7
os09	Douglas-fir		37				No data recorded. DBH from surveyor.	Retain		2.2
os10	Western Redcedar	<i>Thuja plicata</i>	43				No data recorded. DBH from surveyor.	Retain		2.6

Tag #	Common Name	Botanical Name	DBH (cm)	Ht (m)	Overall Condition	Retention Suitability	Comments	Retain/Remove	Tree Retention Comments	Root Protection Zone (m)
OS 1178	Douglas-fir	<i>Pseudotsuga menziesii</i>	53	33	Normal	Suitable as group	Intermediate stem growing in grove on rocky area. High crown. Must retain with grove. Exposed roots due to rocky ground.	Retain		3.2
OS 1179	Douglas-fir	<i>Pseudotsuga menziesii</i>	71	33	Normal	Suitable as group	Intermediate stem growing in grove on rocky area. High crown. Must retain with grove. Exposed roots due to rocky ground.	Retain		4.3
OS 1180	Western Redcedar	<i>Thuja plicata</i>	35	20	Normal	Suitable as group	Suppressed stem growing in grove on rocky area. High crown. Must retain with grove. Growing at top of slope	Retain		2.1
OS 1181	Douglas-fir	<i>Pseudotsuga menziesii</i>	53	30	Normal	Suitable as group	Intermediate stem growing in grove on rocky area. High crown. Must retain with grove. Growing at top of slope	Retain		3.2
OS 1182	Douglas-fir	<i>Pseudotsuga menziesii</i>	45	30	Normal	Suitable as group	Intermediate stem growing in grove on rocky area. High crown. Must retain with grove. Growing at top of slope	Retain		2.7
OS 1183	Douglas-fir	<i>Pseudotsuga menziesii</i>	43	30	Normal	Suitable as group	Intermediate stem growing in grove on rocky area. High crown. Must retain with grove. Growing at top of slope	Retain		2.6
OS 1184	Western Redcedar	<i>Thuja plicata</i>	50	30	Normal	Suitable as group	Intermediate stem growing in grove on rocky area. Growing 0.1m from rock wall. Must retain with grove	Retain		3
OS 1185	Douglas-fir	<i>Pseudotsuga menziesii</i>	48	30	Normal	Suitable as group	Intermediate stem growing in row. 1.8m from house. Branches overhanging roof.	Retain		2.9
OS 1164	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	25	Normal	Suitable as group	Intermediate stem growing in grove on rocky area. High crown. Must retain with grove. Growing on top of slope. Poor stem form	Retain	Future replacement leader management required to mitigate future hazards from previous topping.	2.2

Tag #	Common Name	Botanical Name	DBH (cm)	Ht (m)	Overall Condition	Retention Suitability	Comments	Retain/Remove	Tree Retention Comments	Root Protection Zone (m)
OS 1165	Douglas-fir	<i>Pseudotsuga menziesii</i>	35	10	Poor	Suitable as group	Previously topped for view. Growing on top of slope.	Retain	Future replacement leader management required to mitigate future hazards from previous topping.	2.1
OS 1170	Douglas-fir	<i>Pseudotsuga menziesii</i>	58	30	Normal	Suitable as group	Intermediate stem growing in grove on rocky area. High crown. Must retain with grove. Growing on top of slope,	Retain	Future replacement leader management required to mitigate future hazards from previous topping.	3.5
OS 1171	Douglas-fir	<i>Pseudotsuga menziesii</i>	53	30	Poor	Moderate	Intermediate stem growing in grove on rocky area. High crown. Must retain with grove. 3 stems at 25m. Still small, but may be an issue in future.	Retain	Future replacement leader management required to mitigate future hazards from previous topping.	3.2

Tree Risk Assessment Table

Only trees that had an overall risk rating of 9 (High 1) or above are included in the following table. The remainder of the trees on the subject site are a moderate risk rating or lower and are suitable for retention in their current land use and condition.

Table 2. Tree Risk Assessment.

Tag #	Common Name	Probability of Failure (1-5)	Size of Part (1-3)	Target Area (1-4)	Tree Risk Rating (3-12)	Tree Risk Category (Low 1-3/Mod 1-3/High1-3/Extreme)	Action/Comments
1203	Western Redcedar	4	2	1	6	Moderate 1	No current target, but will be a hazard to construction. Within building footprint

3.0 Summary

The site inventory identified thirty-six (36) trees on the subject site that are protected under the bylaw. Thirty (30) of the trees are to be removed for the development. One of the trees was found to be at high risk of failing and will require removal. There were twenty-six trees identified on adjacent properties that require protection (discussed below). Four of the trees may be owned by the District and will require District's approval for removal. The location of protected trees, their root protection zones as well as those trees to be removed have been illustrated on the accompanying map.

3.1 Tree Retention and Removal by Species

Table 3. Tree species on site summary.

Tree Species	Total Number of Trees	Total Retained	Total Removed
Bigleaf Maple	2	1	1
Douglas-fir	2	1	1
Western Redcedar	32	4	28
Total	36	6	30

4.0 Trees on Adjacent Properties

Twenty-two trees and four District owned trees found growing on the adjacent properties are included in the inventory and retention plan. These trees require root protection where the root protection zone (RPZ) extends onto the development site. The majority of off-site trees on the adjacent lots are pioneer species trees including Maple, Douglas-fir and Western Redcedar. A risk assessment was not done for trees outside the subject property. Root protection zones for the trees have provided within Table 1. Tree Inventory.

5.0 Construction Guidelines

The following are recommendations for risk mitigation and proper tree protection during the construction phase of the project.

Tree Retention Zones

Six times the diameter was used to determine the optimal root protection zone (RPZ). The RPZ is the area around the tree in which no grading or construction activity may occur without project arborist approval, and is required for the tree to retain good health and vigor.

The following are tree preservation guidelines and standards for the RPZs:

- No soil disturbance or stripping;
- The natural grade shall be maintained within the protection zone;
- No storage, dumping of materials, parking, underground utilities or fires;
- Any plan affecting trees should be reviewed by a consultant including demolition, erosion control, improvement, utility, drainage, grading, landscape, and irrigation;
- Special foundations, footings and paving designs are required if within the tree protection zone;
- Utilities should be routed around the RPZ;
- Excavation within the tree protection zone should be supervised by a consulting arborist;
- Surface drainage should not be altered so as to direct water into or out of the RPZ; and
- Site drainage improvements should be designed to maintain the natural water table levels within the RPZ.

Respecting these guidelines will prevent changes to the soil and rooting conditions, wounding of the trees and contamination due to spills and waste. Any plans for work or activities within the RPZ that are contrary to these guidelines should be discussed with the project arborist so that mitigation measures can be implemented.

Tree Protection Fences

Prior to any construction activity on site, tree protection fences must be constructed at the specified distance from the tree trunks. The protection barrier or temporary fencing must be at least 1.2 m in height and constructed of 2 by 4 lumber with orange plastic mesh screening. This must be constructed prior to tree removal, excavation or construction and remain intact throughout the entire period of construction. Further standards for fencing construction can be found at:

<http://westvancouver.ca/government/bylaws.aspx>

Regulation of Soil Moisture and Drainage

The excavation and construction activities adjacent to the RPZs can influence the moisture availability to the subject trees. This is due to a reduction in the total rooting mass, changes in drainage conditions and changes in exposure including reflected heat from adjacent hard surfaces. To mitigate these concerns the following guidelines should be followed:

- Soil moisture conditions within the tree protection zones should be monitored during hot and dry weather. When soil moisture conditions are dry, supplemental irrigation should be provided. Irrigation should wet the soil to the depth of the root system (approximately 30 cm deep).
- Any planned changes to the surface grades within the RPZ, including the placement of mulch, should be designed so that the water will flow away from the tree trunks.
- Excavation adjacent to trees can alter the soils hydrological processes by draining the water faster than it had naturally. It is recommended that when excavating within 6 m of any tree, the site be irrigated more frequently to account for this.

Tree Pruning

All heavy machinery (excavators, cranes, dump trucks, etc.) working within five meters of tree crowns should be made aware of their proximity to the tree. If there is to be a sustained period of machinery working within five meters of the tree crowns, a line with colored flags should be suspended at the height of the crowns along the length of the protected tree area. If there are concerns regarding the clearance required for machinery and workers within the tree protection zone, or just outside of it, the project arborist should be consulted so that a pruning prescription can be developed or a zone surrounding the crowns can be established. Any wounds incurred to the subject trees during construction should be reported to the project arborist immediately.

Fertilization

Fertilization and root zone enhancements may be recommended by the project arborist in any phase of the project if they deem it necessary to provide the best chance of tree survival.

Paving Within and Adjacent to Tree Protection Zones

If the development plans propose the construction of paved areas and/or retaining walls close to the proposed tree protection zones measures should be taken to minimize impacts. Construction of these features would raise concerns regarding proper aeration, drainage, irrigation and opportunities for adequate root growth. The following design and construction guidelines are recommended be followed to minimize the long-term impacts to trees if any paving or retaining walls are necessary:

- Any excavation activities near the TPZ (tree protection zone) should be monitored by a Certified Arborist. Excavation should remove and disturb as little of the rooting zone as possible and all roots greater than 2 cm in diameter should be hand pruned.

- The natural grade of the rooting zone should be maintained. Any retaining walls should be designed at heights that will maintain the existing grade to within 20 cm of its current level. If the grade is altered, it should be raised not reduced in height.
- The long-term health of the tree is directly dependent on the volume of available, below ground growing space. If the RPZ must be compromised, the planned distance of structures from the trunks of the subject trees should not be closer than 50% of the RPZ on more than two sides of the tree.
- Compaction of sub grade materials can cause the trees to develop shallow rooting systems. This can contribute to long-term damage to pavement surfaces as the roots grow. Minimizing the compaction of sub grade materials using structural soils and increasing the strength of the pavement reduces the reliance on sub grade for strength.
- If it is not possible to minimize the compaction of sub grade materials, subsurface barriers should be considered to help direct roots downward into the soil and prevent them from growing directly under the paved surfaces.

Plantings Within the TPZs

If there are plans to landscape the ground within the TPZ, measures should be taken to minimize impacts. It is not recommended that the existing grass layer be stripped, as this will damage the surface roots. The grass layer should be covered with mulch at the start of the project, which will gradually kill the grass while moderating soil moisture and temperatures. Topsoil should be mixed with the mulch prior to planting of shrubs; however the depth of this new topsoil layer should not exceed 20 cm. Planting should take place within the newly placed topsoil mixture and should not disturb the original rooting zone of the trees. Two meters around the base of each tree should be left unplanted and covered in mulch.

Monitoring During Construction

Ongoing monitoring should be provided for the duration of the project. Site visits should be more frequent during activities that are higher risk, including the first stages of construction when excavation occurs adjacent to the trees. Site visits will ensure contractors are respecting the recommended tree protection measures and will allow the arborist to identify any new concerns that may arise.

During each site visit the following measures will be assessed and reported on:

- The integrity of the Tree Protection Zone and fencing;
- Changes to TPZ limits including: overall maintenance, parking on roots, and storing or dumping of materials within TPZ. If failure to maintain and respect TPZ is observed, suggestions will be made to ensure tree protection measures are upheld;
- Review and confirmation of recommended tree maintenance including root pruning, irrigation, mulching and branch pruning;
- Health and condition of each tree;

- Damage to trees that may have resulted from construction activities will be noted, as will the health of branches, trunks and roots of protected trees. Recommendations for remediation will follow;
- Changes to soil moisture levels and drainage patterns; and
- Factors that may be detrimentally impact the trees.

All findings and recommendations will be documented in a summary report. All concerns will be highlighted along with recommended mitigation measures.

6.0 Limitations

1. Except as expressly set out in this report and in these Assumptions and Limiting Conditions, Diamond Head Consulting Ltd. (“**Diamond Head**”) makes no guarantee, representation or warranty (express or implied) with regard to: this report; the findings, conclusions and recommendations contained herein; or the work referred to herein.
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3. The findings, conclusions and recommendations made in this report reflect Diamond Head’s best professional judgment in light of the information available at the time of preparation. This report has been prepared in a manner consistent with the level of care and skill normally exercised by arborists currently practicing under similar conditions in a similar geographic area and for specific application to the trees subject to this report as at the date of this report. Except as expressly stated in this report, the findings, conclusions and recommendations set out in this report are valid for the day on which the assessment leading to such findings, conclusions and recommendations was conducted. If generally accepted assessment techniques or prevailing professional standards and best practices change at a future date, modifications to the findings, conclusions, and recommendations in this report may

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4. Conditions affecting the trees subject to this report (the “**Conditions**”, including without limitation structural defects, scars, decay, fungal fruiting bodies, evidence of insect attack, discoloured foliage, condition of root structures, the degree and direction of lean, the general condition of the tree(s) and the surrounding site, and the proximity of property and people) other than those expressly addressed in this report may exist. Unless otherwise stated: information contained in this report covers only those Conditions and trees at the time of inspection; and the inspection is limited to visual examination of such Conditions and trees without dissection, excavation, probing or coring. While every effort has been made to ensure that the trees recommended for retention are both healthy and safe, no guarantees, representations or warranties are made (express or implied) that those trees will remain standing or will not fail. The Client acknowledges that it is both professionally and practically impossible to predict with absolute certainty the behaviour of any single tree, or groups of trees, in all given circumstances. Inevitably, a standing tree will always pose some risk. Most trees have the potential for failure and this risk can only be eliminated if the risk is removed. If Conditions change or if additional information becomes available at a future date, modifications to the findings, conclusions, and recommendations in this report may be necessary. Diamond Head expressly excludes any duty to provide any such modification of Conditions change or additional information becomes available.
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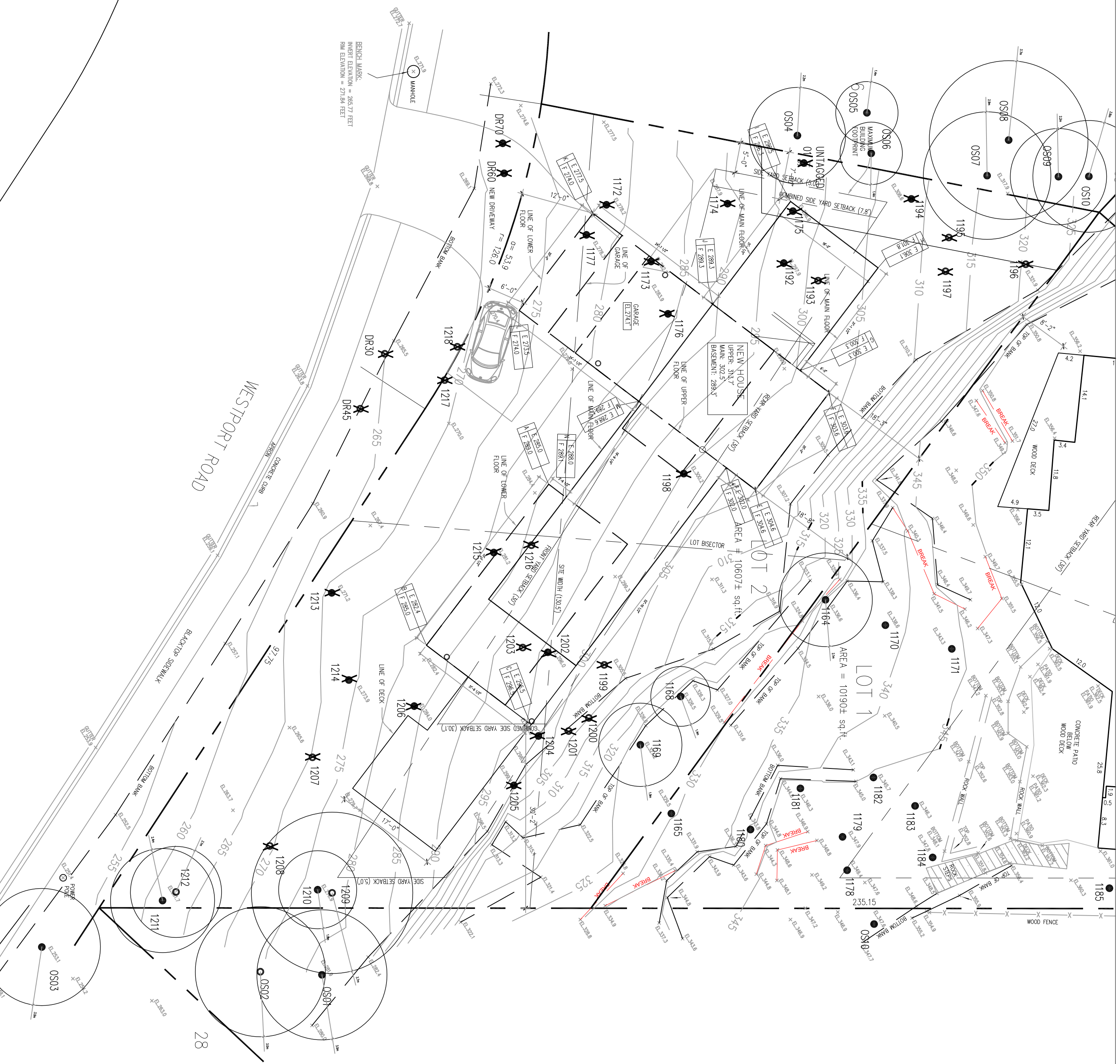
8. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
9. Loss or alteration of any part of this report invalidates the entire report.

7.0 Appendix 1 – Overall risk rating and action thresholds

The Overall Risk Rating and Action Thresholds

Risk Rating	Risk Category	Interpretation and Implications
3	Low 1	Insignificant - no concern at all.
4	Low 2	Insignificant - very minor issues.
5	Low 3	Insignificant - minor issues not of concern for many years yet.
6	Moderate 1	Some issues but nothing that is likely to cause any problems for another 10 years or more.
7	Moderate 2	Well defined issues - retain and monitor. Not expected to be a problem for at least another 5 - 10 years.
8	Moderate 3	Well defined issues - retain and monitor. Not expected to be a problem for at least another 1 - 5 years.
9	High 1	The assessed issues have now become very clear. The tree can still reasonably be retained as it is not likely to fall apart right away, but it must now be monitored annually. At this stage it may be reasonable for the risk manager/owner to hold public education sessions to inform people of the issues and prepare them for the reality that part or the entire tree has to be removed.
10	High 2	The assessed issues have now become very clear. The probability of failure is now getting serious, or the target rating and/or site context have changed such that mitigation measures should now be on a schedule with a clearly defined timeline for action. There may still be time to inform the public of the work being planned, but there is not enough time to protracted discussion about whether or not there are alternative options available.
11	High 3	The tree, or a part of it has reached a stage where it could fail at any time. Action to mitigate the risk is required within weeks rather than months. By this stage there is not time to hold public meetings to discuss the issue. Risk reduction is a clearly defined issue and although the owner may wish to inform the public of the planned work, he/she should get on with it to avoid clearly foreseeable liabilities.
12	Extreme	This tree, or a part of it, is in the process of failing. Immediate action is required. All other, less significant tree work should be suspended, and roads or work areas should be closed off, until the risk issues have been mitigated. This might be as simple as removing the critical part, drastically reducing overall tree height, or taking the tree down and cordoning off the area until final clean up, or complete removal can be accomplished. The immediate action required is to ensure that the clearly identified risk of harm is eliminated. For areas hit by severe storms, where many extreme risk trees can occur, drastic pruning and/or partial tree removals, followed by barriers to contain traffic, would be an acceptable first stage of risk reduction. There is no time to inform people or worry about public concerns. Clearly defined safety issues preclude further discussion.

The Table shown above outlines the interpretation and implications of the risk ratings and associated risk categories. This table is provided to inform the reader about these risk categories so that they can better understand any risk abatement recommendations made in the risk assessment report.



LEGEND

- TREE TO BE RETAINED
- ✕ TREE TO BE REMOVED
- UNSURVEYED TREE
- ROOT PROTECTION ZONE
- ROOT PROTECTION FENCING

DATE

December 03, 2014

CLIENT

Synthesis Design
 258 East 1st Street
 North Vancouver, BC
 V7L 1B3

TITLE

TREE PROTECTION AND REMOVAL PLAN
 5616 Westport Place, BC



342 WEST 8TH AVENUE
 VANCOUVER, BC V5Y 3X2
 PHONE 604.733.4886

GVH CONSULTING LTD.

#102 - 6388 Bay Street, West Vancouver, BC, V7W 2G9
Phone/ Fax (604) 925-9102 gv h9@shaw.ca

David Leslie
8593 Bedora Place
West Vancouver, BC
V7W 2W4

October 30, 2014
File 14-124

**Re: Proposed Subdivision and Residence
5616 Westport Place
LOT 4 BLOCK E DISTRICT LOT 1374 PLAN 10565
West Vancouver, BC
Preliminary Geotechnical Report for Subdivision Approval**

1.0 INTRODUCTION

As requested, GVH Consulting Ltd. has completed a geotechnical report for the above noted property. The purpose of this report is to assess natural hazards on the site, to provide preliminary recommendations pertaining to construction of a new residence on the proposed southern lot to be subdivided from the existing lot and residence. We have based the following report on review of available documents pertaining to the site including preliminary proposed subdivision and house location routing of the proposed driveway and on a field review of the site conducted on October 15th, 2014.

Reference documents for this review include:

1. Images from David Leslie of Synthesis Design Architectural Drawings showing the proposed house siting, October 10, 2014
2. Survey Drawing, Hobbs, Winter & MacDonald, November 19th 2009
3. Community Charter, Ministry of Community, Sport & Cultural Development- Government of British Columbia, May 2003
4. British Columbia Building Code, 2012
5. National Building Code of Canada, 2010
6. Guidelines for Legislated Landslide Assessments for Proposed Residential Developments in BC, APEG revised May 2010
7. DWV GIS Site
8. DWV Building Bylaws

This report presents our interpretation of geotechnical characteristics and natural hazards that may affect the proposed development and contains general recommendations for construction of the new residence. Post development landslide risk (rock fall) is based on procedures outlined in reference #6 above and on the assumption that mitigation of the risk will be accomplished in accordance to general recommendations contained in this report. It is concluded that the site is safe for the intended usage regarding natural hazards provided the recommendations contained herein are followed. Find attached “Appendix D: Landslide Assessment Assurance Statement”

2.0 SITE AND SUBSURFACE DESCRIPTION

The property adjoins Westport Place to the north, Westport Road to the south and private property to the east and west. Competent granitic bedrock outcrops over most of the site with some ground cover consisting of loose talus or jointed rock and debris at the south side of the property and proposed new building site. Shear cliffs bound the north side of the southern proposed lot just north of the new building site with an elevation difference of about 25 feet. The cliffs are close to the proposed new property of the subdivision for the lot. The south side of the new lot slopes at roughly 5 H : 3V down to Westport Road and is comprised of granitic talus over bedrock. The thickness of the talus is estimated at 3 to 5 feet. The proposed access for the lot is from Westport Road to south.

3.0 NATURAL HAZARD (ROCKFALL) ASSESSMENT

The natural hazards listed as per references #3 and #6 pertaining to this property with a probability of occurrence greater than 1 : 2475 years (ie 2% over 50 years) includes rock falls that fall under the APEG Guidelines for Legislated Landslide Assessments for Proposed Residential Developments in BC Revised May 2010 and adopted into the BCBC in 2010.

Rock fall considerations affect the area north of the proposed residence where shear cliffs up to about 25 feet high are found. Future rock cuts for the building foundation wall would be retained by the structure of the house. The rock cliffs were reviewed on site and it is concluded that any rock fall hazard can be mitigated by scaling or rock bolting in discrete areas thus removing the potential hazard to the proposed building site rendering the site safe for the intended usage as pertaining to natural hazards as described in reference #3.

4.0 RECOMMENDATIONS For DEVELOPMENT

It is recommended that foundations for the residence comprise conventional strip and pad foundations with structural fill supporting slab-on-grade. Structural fill can be used to raise the grades to the design grade using compacted shotrock fill (150 mm minus angular broken rock) or the foundation walls can bear directly onto bedrock.

Subgrade preparation should include removal of all vegetation, organic soils and soft disturbed soils down to the underlying bedrock. Footings placed on bedrock sloping steeper than 1V : 2H should

be dowelled into the bedrock with 15M dowels placed every 400 mm imbedded into the rock a minimum of 300 mm. The prepared footing areas should be reviewed and approved by the engineer prior to pouring or placing dowels.

The following values can be used for design of footings:

Foundation Soil	Factored Ultimate Bearing Capacity	Allowable Bearing Pressure
Bedrock	2000 kPa	1000 kPa
compacted structural fill	400 kPa	200 kPa

The above design bearing pressures assume the following:

- Footings have a minimum dimension of 400mm- foundation walls can be pinned directly to bedrock without a footing.
- Footings are founded at least 450 mm below the final finished exterior grades except where foundation walls are pinned or placed directly on bedrock (non frost susceptible)
- Site preparation is completed as indicated above and load-bearing surfaces are inspected and approved by the Geotechnical Engineer.
- For seismic design the site can be considered as Site Class B as defined in the current BCBC
- Foundations should be pinned onto sloping bedrock using minimum 15M dowels at 400 mm o/c grouted 300 mm into the underlying bedrock for strip footings or foundation walls and a minimum of 4 15M dowels for square pad footings.

Slab-on-grade can be supported on suitable prepared subgrades. The subgrade should be prepared by stripping all loosened, softened or otherwise unsuitable material. We recommend that a minimum 100 mm layer of clear crushed gravel or compacted shotrock fill should be placed beneath the crawl space skim coat or slab-on-grade in order to provide a drainage layer for potential seepage zones. The gravel drainage layer should have outlets via weep holes at the low sides of the foundation walls. A layer of 6mil poly vapour barrier should be placed over the clear crushed gravel to protect it from concrete contamination and to limit dampness of the skim coat.

Foundation walls and retaining walls can be designed assuming a minimum lateral load of an equivalent fluid pressure of $5 \text{ kPa} \times H$ where H is the depth below grade in metres for static load. For seismic load a reversed triangular loading of $4 \text{ kPa} \times H$ where H is the height above the bottom of the wall can be used. A uniform load 2 kPa should be additional to the above to account for surcharge loading. In giving the above loading it is assumed that the perimeter fill is comprised of freely draining backfill. Perimeter drains are required for foundation walls that retain fill with finished grades above that of the adjacent floor slab. The drain should consist of 100 mm diameter perforated PVC pipe surrounded with clear gravel with a suitable gravity outlet. Perimeter drains are not required in areas where the slab-on-grade is above the adjacent grades.

Backfill for support of exterior sidewalks, driveway, patios, etc. should consist of well-graded granular material (75 mm minus) with less than 5% passing the US Standard No. 200 (0.075mm) sieve by dry weight. The backfill should be placed in thin lifts (200 mm) and compacted to a minimum 90% Modified Proctor Maximum Dry Density. The placement of structural fill should be monitored by a representative from GVH Consulting Ltd. to confirm that the placed fill is suitable for the intended purpose.

All backfill should be placed in a manner that avoids damaging the foundation wall, drainage tile, and damp-proofing or waterproofing on the wall. Finished grades should slope away from the building to promote flow of surface water runoff away from the building. A 200 mm layer of 20 mm minus crushed sand and gravel (road base) should be placed immediately beneath pavements and sidewalks.

5.0 CLOSURE

GVH Consulting Ltd. has completed this preliminary report for the exclusive use of our client and designated consultant or agents specifically for the proposed residence and subdivision planned. Any other usage of the report is not authorized by GVH. We trust that this report meets your present requirements. Please call if you have any questions or require further assistance.

For:
GVH Consulting Ltd.

Greg Ven Huizen, M.Eng., P.Eng.
Geotechnical Engineer



Site Plan from DWV GIS showing Property Location of 5616 Westport Place