

SITE OBSERVATION FORM: DNV Landslide Risk Assessment
LOCATION: 1677 Layton Drive
INSPECTION DATE: (mm/dd/yy) 11/02/05
WEATHER: Raining, heavy rain for several days prior to visit.



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500 - 1045 Howe Street
 Vancouver, BC
 Canada V6Z 2A9

THICKNESS OF LOOSE MATERIALS	<1 m	1-2 m	2-3 m	>3 m
FENCE LINE		<input checked="" type="checkbox"/>		
15 m DOWNSLOPE FROM SLOPE CREST	<input checked="" type="checkbox"/>			

SLOPE BELOW FENCE/ RETAINING STRUCTURE	SLOPE = 33° on slide runout; 35-40° near crest of slope		
	CRACKS	SLIDES	EROSION
		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
OBSERVATIONS: Slump/slide observed on southwest corner of property below crest near property line with Swinburne Drive property. Slide is approximately 4 m wide with a 5-7 m runout. Root of fallen tree has exposed Glaciomarine sediments approximately 20 m downslope of crest.			

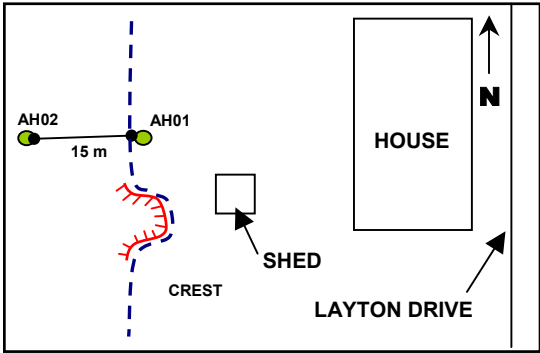
TREES BELOW FENCE/ RETAINING STRUCTURE	STRAIGHT	PISTOL-BUTT	LEANING
PERCENT CONIFER: 80%		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
OBSERVATIONS: Conifers generally leaning downslope, some are leaning in irregular directions. Average tree diameter is 30 cm. Large Maple tree pistol butt approximately 30 m downslope.			

RETAINING STRUCTURES	YES	NO <input checked="" type="checkbox"/>	HEIGHT= n/a	
TYPE	BLOCKS	CONCRETE	TIMBER CRIB	OTHER:
DEFORMATION	UNDEFORMED	CRACKED	SETTLED	BULGING
OBSERVATIONS: None observed.				

DEFORMATION IN BACKYARD	YES	NO <input checked="" type="checkbox"/>
LOCATION:		
DESCRIPTION:	None observed.	

POOLS	YES	NO <input checked="" type="checkbox"/>
DESCRIPTION:		

SEEPAGE/ SPRINGS IN OR BELOW FILL	YES	NO <input checked="" type="checkbox"/>
OBSERVATIONS: None observed below fill. Seepage observed between organic mat and glaciolacustrine deposit 30 m downslope.		



HOUSE DISTANCE TO CREST = 30 m +

RECEIVES SURFACE RUNOFF FROM	BACKYARD	½ ROOF	FULL ROOF	FRONT YARD	STREET
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
OBSERVATIONS: Unsure of where roof drainage is directed, may only be backyard if roof drainage is directed elsewhere.					

CONNECTED TO STORM SEWER	YES <input checked="" type="checkbox"/>	NO	UNSURE
OWNERS COMMENTS:			

GENERAL OBSERVATIONS

- House is a long distance from the crest of the slope; Fill extends over the slope
- Slope is steep below the crest and appears to be oversteepened by compost and mulch that have been placed over the edge.
- Evidence of slope movement activity observed along property line with adjacent property to the south. 30 cm settlement above headscarp.



Figure 1. 1677 Layton Drive – Front of the house



Figure 2. 1677 Layton Drive – View from backyard looking SW towards crest



Figure 3. 1677 Layton Drive – View looking NE towards house from crest



Figure 4. 1677 Layton Drive – Glaciomarine soil exposure

Project : DNV Landslide Risk Assessment

Project No. : 0404-002-01

Location : 1677 Layton
Drill Method : Dutch Hand Auger
Inspection Date : 01 Nov 05
Logged by : SF/JB
Reviewed by : MJP

Depth (m)	Lithologic Description	Depth To Water Table	Depth (m)	Lithologic Description	Depth To Water Table
0.0	<p>AUGERHOLE: BGC05-1677LAY-AH01 on Slope Crest FINAL DEPTH OF AUGERHOLE: 1.35 m THICKNESS OF LOOSE MATERIALS: 1.35 m minimum</p>		0.0	<p>AUGERHOLE: BGC05-1677LAY-AH02 15 m Downslope FINAL DEPTH OF AUGERHOLE: 0.95 m THICKNESS OF LOOSE MATERIALS: 0.95 m minimum</p>	
	<p>ORGANICS and SILT (ML) Trace fine to coarse sand, trace fine to coarse gravel, non plastic, soft, max particle size = 40 mm, sub-rounded, dark brown, moist, some concrete [FILL]</p>			<p>SILT (ML) Some fine to coarse grained sand, some fine to medium grained gravel, low plastic, very soft, dark brown, organic odour, moist, homogeneous, no cementation, trace rootlets [TOPSOIL] Trace gravel, organic odour, dry, rootlets, bark</p>	
0.35 m:	Decomposed wood			SAND (SP)	
0.5	<p>SAND (SP) Fine to coarse sand, gravelly, fine to coarse gravel, trace silt, loose, max particle size = 50 mm, sub-angular to sub-rounded, poorly graded, brown, moist, homogeneous [FILL]</p>		0.5	<p>Fine to medium sand, trace coarse sand, trace fine to medium grained gravel, gravel sized sand clasts, poorly graded, loose, max particle size = 40 mm, homogeneous, some organic material not decomposed [FILL / COLLUVIUM]</p>	
0.70 m:	Humic material				
0.90 m:	Humic material				
1.15 m:	Increase in gravel content				
1.35 m:	EOH - Refusal of auger on gravel			0.95 m: EOH - Refusal on gravel. Hole caving in.	
1.5			1.5		
2.0			2.0		
2.5			2.5		
3.0			3.0		

BGC05-1677LAY-AH01

SITE OBSERVATION FORM: DNV Landslide Risk Assessment
LOCATION: 1691 Layton Drive
INSPECTION DATE: (mm/dd/yy) 11/02/05
WEATHER: Overcast, heavy rain for several days prior to visit.



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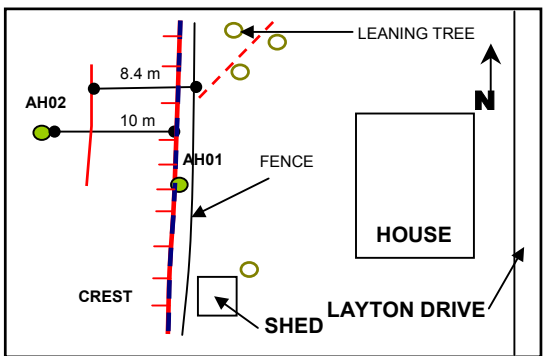
THICKNESS OF LOOSE MATERIALS	<1 m	1-2 m	2-3 m	>3 m
1 m DOWNSLOPE FROM FENCE LINE		<input checked="" type="checkbox"/>		
10 m DOWNSLOPE FROM SLOPE CREST			<input checked="" type="checkbox"/>	

SLOPE BELOW FENCE/ RETAINING STRUCTURE	SLOPE = 30° from crest to 8 m down slope; 40° from 8 m down slope to lower section of slope.		
	CRACKS <input checked="" type="checkbox"/>	SLIDES	EROSION <input checked="" type="checkbox"/>
OBSERVATIONS: Appears to be minor soil creep/soil erosion occurring. Appears to be tension cracks 8.4 m down slope from fence line located 1 m upslope from crest of slope.			

TREES BELOW FENCE/ RETAINING STRUCTURE	STRAIGHT	PISTOL-BUTT	LEANING <input checked="" type="checkbox"/>
PERCENT CONIFER: 75%			
OBSERVATIONS: Conifers leaning down slope on the lower sections of the slope. Trees tend to lean upslope closer to the crest of the slope.			

RETAINING STRUCTURES	YES	NO <input checked="" type="checkbox"/>	HEIGHT= n/a
TYPE	BLOCKS	CONCRETE	TIMBER CRIB
DEFORMATION	UNDEFORMED	CRACKED	SETTLED
OBSERVATIONS: None observed.			

DEFORMATION IN BACKYARD	YES <input checked="" type="checkbox"/>	NO
LOCATION: North corner of backyard near fence line.		
DESCRIPTION: Corner of yard is sloping down slope more steeply than the rest of the yard. Slumping occurred after the 1979 event.		



POOLS	YES	NO <input checked="" type="checkbox"/>
DESCRIPTION: None.		

SEEPAGE/ SPRINGS IN OR BELOW FILL	YES	NO <input checked="" type="checkbox"/>
OBSERVATIONS: None observed.		

HOUSE DISTANCE TO CREST = 23.3 m

RECEIVES SURFACE RUNOFF FROM	BACKYARD <input checked="" type="checkbox"/>	½ ROOF <input checked="" type="checkbox"/>	FULL ROOF <input checked="" type="checkbox"/>	FRONT YARD	STREET
OBSERVATIONS: Unsure of where roof drainage is directed.					

CONNECTED TO STORM SEWER	YES <input checked="" type="checkbox"/>	NO	UNSURE
OWNERS COMMENTS:			

GENERAL OBSERVATIONS

- Auger hole 01 is located 1 m down slope from fence line at crest, Auger hole 02 is located 10 m down slope from Auger hole 01.
- Crest of slope appears to be an old scarp.



Figure 1. 1691 Layton Drive – Front of the house



Figure 2. 1691 Layton Drive – View looking NW along fenceline

Project : DNV Landslide Risk Assessment

Project No. : 0404-002-01

Location : 1691 Layton
Drill Method : Dutch Hand Auger
Inspection Date : 02 Nov 05
Logged by : MB/ES/SF/JB
Reviewed by : MJP

Depth (m)	Lithologic Description	Depth To Water Table	Depth (m)	Lithologic Description	Depth To Water Table
	<p>AUGERHOLE: BGC05-1691LAY-AH01 on from Slope Crest FINAL DEPTH OF AUGERHOLE: 1.70 m THICKNESS OF LOOSE MATERIALS: 1.70 m minimum</p>			<p>AUGERHOLE: BGC05-1677LAY-AH02 10 m Downslope FINAL DEPTH OF AUGERHOLE: 2.80 m THICKNESS OF LOOSE MATERIALS: 2.80 m minimum</p>	
0.0	<p>SILT (ML) Some fine to coarse sand, some fine to medium gravel, low plastic, very soft, dark brown, organic odour, moist, homogeneous, no cementation, trace rootlets [TOPSOIL]</p>		0.0	<p>SILT (ML) Some fine to coarse sand, some fine to medium gravel, low plastic, very soft, dark brown, organic odour, moist, homogeneous, no cementation, trace rootlets [TOPSOIL]</p>	
0.5	<p>SAND (SW) Fine to coarse sand, gravelly, fine to medium gravel, trace silt, fine gravel sized silt clasts, well graded, loose, max grain size = 30 mm, sub-angular, brown, organic odour, moist, homogeneous, no cementation, rootlets [FILL] 0.30 m - 0.40 m: ORGANIC LAYER Charcoal Present</p>		0.5	<p>SAND (SW) Fine to coarse sand, silty, some fine to medium gravel, well graded, loose, max particle size = 50 mm, sub-angular, brown, no odour, moist, no cementation, trace ash, trace rootlets [FILL / COLLUVIUM]</p>	
1.0	<p>0.90 m: Wood fragments</p>		1.0		
1.5	<p>1.20 m: Material becomes lighter in colour, decrease in silt content</p>		1.5		
2.0	<p>1.70 m: EOH - Refusal of auger on coarse gravel or cobble</p>		2.0	<p>1.70 m: Material colour changes from brown to light brown. Augered through a decomposed log 50 mm thick. Some charcoal noted at this depth.</p>	
2.5			2.5		
3.0			3.0	<p>2.80 m: Soil density changes from 'loose' to 'compact' 2.80 m: EOH - Refusal as material is too stiff to auger through</p>	

BGC05-1691LAY-AH01

SITE OBSERVATION FORM: DNV Landslide Risk Assessment
LOCATION: 1709 Layton Drive
INSPECTION DATE: (mm/dd/yy) 11/01/05
WEATHER: Heavy rain easing off, heavy rain for several days prior to visit.



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THICKNESS OF LOOSE MATERIALS	<1 m	1-2 m	2-3 m	>3 m
FENCE LINE			<input checked="" type="checkbox"/>	
10 m DOWNSLOPE FROM SLOPE CREST			<input checked="" type="checkbox"/>	

SLOPE BELOW FENCE/ RETAINING STRUCTURE	SLOPE = 36-37°		
	CRACKS	SLIDES	EROSION
OBSERVATIONS: No slope deformation observed.			

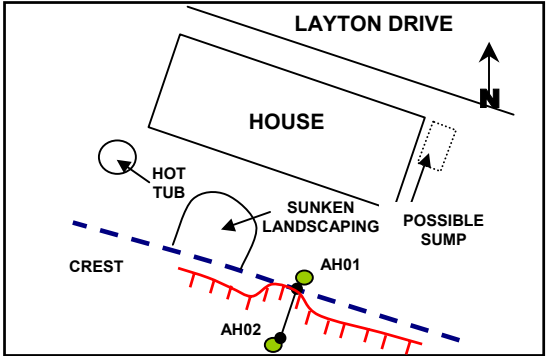
TREES BELOW FENCE/ RETAINING STRUCTURE	STRAIGHT	PISTOL-BUTT	LEANING
PERCENT CONIFER: 60 %			<input checked="" type="checkbox"/>
OBSERVATIONS: Area around down slope auger hole is open with shrubs, no trees for a 10 m radius.			

RETAINING STRUCTURES	YES	NO <input checked="" type="checkbox"/>	HEIGHT= n/a	
TYPE	BLOCKS	CONCRETE	TIMBER CRIB	OTHER:
DEFORMATION	UNDEFORMED	CRACKED	SETTLED	BULGING
OBSERVATIONS: None observed.				

DEFORMATION IN BACKYARD	YES	NO <input checked="" type="checkbox"/>
LOCATION:		
DESCRIPTION: None visible, yard mostly covered by gravel.		

POOLS	YES <input checked="" type="checkbox"/>	NO
DESCRIPTION: Hot tub level with ground surface.		

SEEPAGE/ SPRINGS IN OR BELOW FILL	YES	NO <input checked="" type="checkbox"/>
OBSERVATIONS: None observed.		



HOUSE DISTANCE TO CREST = 16 m

RECEIVES SURFACE RUNOFF FROM	BACKYARD	1/2 ROOF	FULL ROOF	FRONT YARD	STREET
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
OBSERVATIONS: Unsure if roof is draining into sump, or toward slope.					

CONNECTED TO STORM SEWER	YES <input checked="" type="checkbox"/>	NO	UNSURE
OWNERS COMMENTS:			

GENERAL OBSERVATIONS

- Landscaping makes it difficult to see any natural settlement.
- Slope crest at south end of property appears to be an old scarp.



Figure 1. 1709 Layton Drive – Front of the house



Figure 2. 1709 Layton Drive – View looking west downslope from crest



Figure 3. 1709 Layton Drive – View looking north towards house from backyard

Project : DNV Landslide Risk Assessment

Project No. : 0404-002-01

Location : 1709 Layton
Drill Method : Dutch Hand Auger
Inspection Date : 01 Nov 05
Logged by : SF/JB
Reviewed by : MJP

Depth (m)	Lithologic Description	Depth To Water Table	Depth (m)	Lithologic Description	Depth To Water Table
	<p>AUGERHOLE: BGC05-1709LAY-AH01 1.5 m back from Slope Crest FINAL DEPTH OF AUGERHOLE: 1.70 m THICKNESS OF LOOSE MATERIALS: 1.70 m minimum</p>			<p>AUGERHOLE: BGC05-1709LAY-AH02 10 m Downslope FINAL DEPTH OF AUGERHOLE: 2.55 m THICKNESS OF LOOSE MATERIALS: 2.55 m minimum</p>	
0.0	GRAVEL (GP) Medium to coarse landscaping gravel [FILL]		0.0	ORGANICS - moist SILT (ML) and SAND (SP) Fine to medium sand with trace coarse sand, fine gravel, poorly graded, non plastic silt, very loose, brown, moist, homogenous, max particle size = 5 mm, silt content decreasing with depth [FILL]	
0.5	SILT (ML) Trace sand, trace medium gravel, low plastic, very soft, dark brown, organic odour, moist, homogeneous [TOPSOIL] 0.35 m: Grading to brown colour and material becoming 'sandy' SAND (SP) Some fine to coarse gravel, trace silt, poorly graded, loose, max particle size = 50 mm, sub-angular to sub-rounded, brown, moist, homogeneous [FILL]		0.5	SILT (ML) Trace to some sand (varies with depth), trace fine to coarse gravel, gravel sized silt clasts, soft, non to low plastic, max particle size = 45 mm, sub-angular to sub-rounded, grey brown with orange brown rinds around silt clasts, roots, charcoal [FILL]	
1.0	SAND (SP) Fine to medium sand, trace fine to coarse gravel, trace silt, poorly graded, loose, max particle size = 20 mm, sub-angular to sub-rounded, brown, moist, homogeneous [FILL] 0.8 m: Lense of organic material 0.9 m: Slight increase in density 1.2 m: Organics and charcoal		1.0		
1.5	1.55 m: Material colour is grading to light brown, silt content decreased 1.6 m: 2 cm thick buried organic lense 1.7 m: EOH - Refusal on tree roots No groundwater encountered		1.5	1.40 - 1.60 m: Charcoal lenses, becoming sandy 1.45 - 1.50 m: Sandy lense/layer	
2.0			2.0	SAND (SP) Fine to medium sand, trace coarse sand and fine gravel, poorly graded, loose, max particle size = 5 mm, sub-rounded, yellow brown with orange brown mottling, moist, homogeneous [COLLUVIUM]	
2.5			2.5		
3.0			3.0	2.55 m: EOH - Refusal of auger on gravel No groundwater encountered	

BGC05-1709LAY-AH01

SITE OBSERVATION FORM: DNV Landslide Risk Assessment
LOCATION: 1731 Layton Drive
INSPECTION DATE: (mm/dd/yy) 11/01/05
WEATHER: Rain, heavy rain for several days prior to visit.



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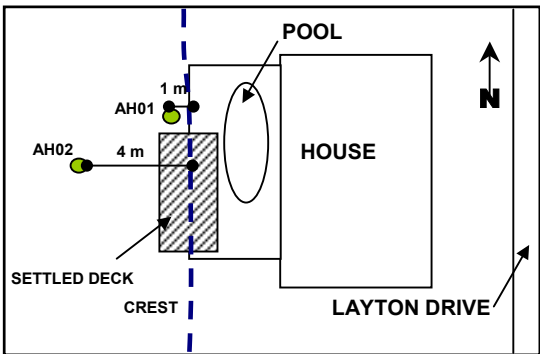
THICKNESS OF LOOSE MATERIALS	<1 m	1-2 m	2-3 m	>3 m
1 m DOWNSLOPE FROM FENCE LINE			<input checked="" type="checkbox"/>	
4 m DOWNSLOPE FROM SLOPE CREST			<input checked="" type="checkbox"/>	

SLOPE BELOW FENCE/ RETAINING STRUCTURE	SLOPE = 32 for 5 m from crest of slope; 39 from 5 m down slope to lower section of slope.		
	CRACKS	SLIDES	EROSION
OBSERVATIONS: None observed.			

TREES BELOW FENCE/ RETAINING STRUCTURE	STRAIGHT	PISTOL-BUTT	LEANING
PERCENT CONIFER: 60%	<input checked="" type="checkbox"/>		
OBSERVATIONS: No conifers at top of slope. Conifers begin at 20 m down slope.			

RETAINING STRUCTURES	YES	NO <input checked="" type="checkbox"/>	HEIGHT= n/a
TYPE	BLOCKS	CONCRETE	TIMBER CRIB
DEFORMATION	UNDEFORMED	CRACKED	SETTLED
OBSERVATIONS: None observed.			

DEFORMATION IN BACKYARD	YES <input checked="" type="checkbox"/>	NO
LOCATION: Fence line		
DESCRIPTION: Deck behind the yard straddles the crest; Evidence of settlement.		



POOLS	YES <input checked="" type="checkbox"/>	NO
DESCRIPTION: No evidence of tilting. May have settled, cracks observed between pool and house.		

SEEPAGE/ SPRINGS IN OR BELOW FILL	YES	NO <input checked="" type="checkbox"/>
OBSERVATIONS: None observed.		

HOUSE DISTANCE TO CREST = 13.5 m

RECEIVES SURFACE RUNOFF FROM	BACKYARD	1/2 ROOF	FULL ROOF	FRONT YARD	STREET
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
OBSERVATIONS: Unsure of where roof drainage is directed.					

CONNECTED TO STORM SEWER	YES <input checked="" type="checkbox"/>	NO	UNSURE
OWNERS COMMENTS:			

- GENERAL OBSERVATIONS**
- Owner notes that he constantly jacks up his deck to keep it level. Footing is located on down slope side of crest. Owner estimated that the deck settles 2" per year.
 - House does not have a basement below ground level.
 - Compost thrown over crest.



Figure 1. 1731 Layton Drive – Front of the house



Figure 2. 1731 Layton Drive – View downslope looking SW



Figure 3. 1731 Layton Drive – View upslope looking at bottom of rotting deck



Figure 4. 1731 Layton Drive – View looking SE along deck/fenceline

Project : DNV Landslide Risk Assessment

Project No. : 0404-002-01

Location : 1731 Layton
Drill Method : Dutch Hand Auger
Inspection Date : 01 Nov 05
Logged by : MB/ES
Reviewed by : MJP

Depth (m)	Lithologic Description	Depth To Water Table	Depth (m)	Lithologic Description	Depth To Water Table
	<p>AUGERHOLE: BGC05-1731LAY-AH01 1 m Down from Slope Crest FINAL DEPTH OF AUGERHOLE: 2.30 m THICKNESS OF LOOSE MATERIALS: 2.20 m</p>			<p>AUGERHOLE: BGC05-1731LAY-AH02 4 m Downslope FINAL DEPTH OF AUGERHOLE: 2.20 m THICKNESS OF LOOSE MATERIALS: 2.00 m</p>	
0.0	SAND (SW) Some silt, some fine to coarse gravel, well graded, loose, max particle size = 30 mm, sub-rounded, brown, no odour, moist, homogeneous, no cementation [FILL]		0.0	SAND (SM) Fine to medium sand, silty, poorly graded, loose, max particle size = 1 mm, dark brown, no odour, moist, homogeneous, no cementation [FILL]	
0.5	0.70 m: 10 cm of ash and charcoal encountered		0.5		
1.0	SAND (SW) Trace silt, some gravel, fine to coarse gravel, well graded, loose, max particle size = 50 mm, sub-rounded, light brown to brown, no odour, moist, homogeneous, no cementation [FILL / COLLUVIUM]		1.0	1.00 m: Wood fragments and charcoal encountered SAND (SW) Fine sand, trace silt, some fine gravel, well graded sand, loose, max particle size = 5 mm, light brown to brown with orange and red mottling, no odour, moist, homogeneous, no cementation [FILL / COLLUVIUM]	
1.5	1.70 m: Gravel content decreases to 'trace fine to medium grained gravel' 1.80 m: Orange mottling beigns		1.5		
2.0	SAND (SP) Fine sand, trace silt, poorly graded, loose to compact, max particle size = <1 mm, grey to light brown with orange mottling, no odour, moist, homogeneous, no cementation, slow dilatant [Weathered GLACIOMARINE]		2.0	SAND (SP) Fine sand, trace silt, poorly graded, loose, density changes to compact by 2.00 m, max particle = <1 mm, grey and light brown, no odour, moist to wet, homogeneous, no cementation [Weathered GLACIOMARINE]	
2.5	2.30 m: EOH - Refusal as material is too stiff to auger through		2.5	2.20 m: EOH - Refusal as material is too stiff to auger through	
3.0			3.0		



BGC05-1731LAY-AH01

SITE OBSERVATION FORM: DNV Landslide Risk Assessment
LOCATION: 1753 Layton Drive
INSPECTION DATE: (mm/dd/yy) 11/01/05
WEATHER: Raining, heavy rain for several days prior to visit.



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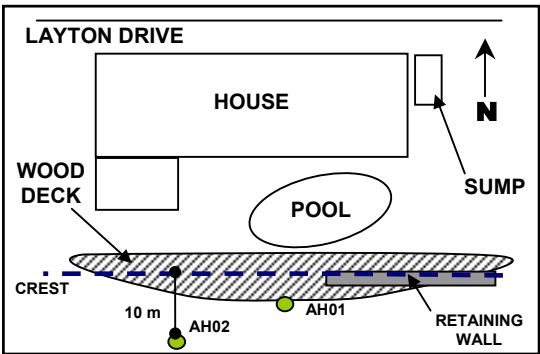
THICKNESS OF LOOSE MATERIALS	<1 m	1-2 m	2-3 m	>3 m
2m DOWNSLOPE FROM FENCE LINE		<input checked="" type="checkbox"/>		
10 m DOWNSLOPE FROM SLOPE CREST		<input checked="" type="checkbox"/>		

SLOPE BELOW FENCE/ RETAINING STRUCTURE	SLOPE = 33° from deck edge to 10 m down slope; 34° from 10 m down slope to trail below		
	CRACKS	SLIDES	EROSION
OBSERVATIONS: Heavily vegetated with blackberries and ferns, difficult to see surface of slope. No deformation observed.			

TREES BELOW FENCE/ RETAINING STRUCTURE	STRAIGHT	PISTOL-BUTT	LEANING
PERCENT CONIFER: 70%			<input checked="" type="checkbox"/>
OBSERVATIONS: Douglas Fir tree appears to be leaning down slope. Trees are trimmed back, tree line begins 10 m down slope. A patch of deciduous trees observed 20 m down slope from crest.			

RETAINING STRUCTURES	YES <input checked="" type="checkbox"/>	NO	HEIGHT= 0.30 m
TYPE	BLOCKS	CONCRETE	TIMBER CRIB
			OTHER: Rock/Mortar <input checked="" type="checkbox"/>
DEFORMATION	UNDEFORMED	CRACKED	SETTLED
			BULGING <input checked="" type="checkbox"/>
OBSERVATIONS: 6 m long wall on east side of property, none observed on west side of property. Appears to be falling apart due to age.			

DEFORMATION IN BACKYARD	YES <input checked="" type="checkbox"/>	NO
LOCATION: Edge of wood deck.		
DESCRIPTION: Owner noted movement/settlement of deck after 1979 event. Settlement possibly due to rotting wood observed in south east corner of wood deck.		



POOLS	YES <input checked="" type="checkbox"/>	NO
DESCRIPTION: Entire yard covered by cement pool deck. No cracks observed in pool.		

SEEPAGE/ SPRINGS IN OR BELOW FILL	YES	NO <input checked="" type="checkbox"/>
OBSERVATIONS: None observed.		

HOUSE DISTANCE TO CREST = 8.0 m

RECEIVES SURFACE RUNOFF FROM	BACKYARD <input checked="" type="checkbox"/>	½ ROOF	FULL ROOF	FRONT YARD	STREET
OBSERVATIONS: All pool and roof water goes to sump located at east side of house.					

CONNECTED TO STORM SEWER	YES <input checked="" type="checkbox"/>	NO	UNSURE
OWNERS COMMENTS:			

GENERAL OBSERVATIONS

- Entire backyard is covered by cement pool deck or by large curved wood deck that overhangs the crest of the slope.
- Owner noted movement some of deck after 1979 event.

Closest section of house is 8.0 m from crest, main section of house is 14.25 m from crest.



Figure 1. 1753 Layton Drive – Front of the house



Figure 2. 1753 Layton Drive – View looking SE along decline



Figure 3. 1753 Layton Drive – View looking south of pool and backyard/deck

Project : DNV Landslide Risk Assessment

Project No. : 0404-002-01

Location : 1753 Layton
Drill Method : Dutch Hand Auger
Inspection Date : 01 Nov 05
Logged by : SF/JB
Reviewed by : MJP

Depth (m)	Lithologic Description	Depth To Water Table	Depth (m)	Lithologic Description	Depth To Water Table
	<p>AUGERHOLE: BGC05-1753LAY-AH01 2 m Downslope of Slope Crest FINAL DEPTH OF AUGERHOLE: 1.10 m THICKNESS OF LOOSE MATERIALS: 1.10 m minimum</p>			<p>AUGERHOLE: BGC05-1753LAY-AH02 10 m Downslope FINAL DEPTH OF AUGERHOLE: 1.25 m THICKNESS OF LOOSE MATERIALS: 1.15 m minimum</p>	
0.0	<p>SILT (ML) and SAND (SP) Medium to coarse sand, some gravel sized silt clasts, poorly graded, non plastic silt, very loose, max particle size = 20 mm, dark brown, organic odour, moist, homogenous, sub-rounded, some gravel sized silt clasts [TOPSOIL] 0.10 - 0.15 m: Lense of yellowish brown sand</p>		0.0	<p>ORGANICS and SILT (ML) Trace sand, loose, moist SILT (ML) and SAND (SP) Fine to medium sand, trace fine to coarse gravel, gravel sized silt and sand clasts, poorly graded, loose, non plastic silt, max particle size = 30 mm, sub-rounded, brown to dark brown, moist, homogenous, roots [FILL]</p>	
0.5	<p>SAND (SP) Medium to coarse sand, some fine to medium gravel, trace coarse gravel, poorly graded, loose to very loose, max particle size = 40 mm, sub-angular to sub-rounded, brown, moist, organic odour, homogeneous [FILL]</p>		0.5	<p>SILT (ML) Trace fine sand, trace fine to medium gravels, gravel sized silt clasts commonly with orange brown rinds, soft to firm, low plastic, max particle size = 45 mm, sub-angular to sub-rounded, light grey, moist, homogeneous, slow dilatency, trace organics, trace charcoal [FILL / COLLUVIUM]</p>	
1.0	<p>0.90 m: Material density is loose</p>		1.0		
1.5	<p>1.10 m: EOH - Refusal on gravel or tree roots No groundwater encountered</p>		1.5	<p>1.15 m: Perched water table at 1.15 m SILT (ML) Low plastic, firm to stiff, grey with orange mottling, wet, homogeneous [Weathered GLACIOMARINE]</p>	▼
2.0			2.0	<p>1.25 m: EOH - Refusal as material is too dense to auger through</p>	
2.5			2.5		
3.0			3.0		

BGC05-1753LAY-AH01

SITE OBSERVATION FORM: DNV Landslide Risk Assessment
LOCATION: 1775 Layton Drive
INSPECTION DATE: (mm/dd/yy) 11/01/05
WEATHER: Raining, heavy rain for several days prior to visit.



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500 - 1045 Howe Street
 Vancouver, BC
 Canada V6Z 2A9

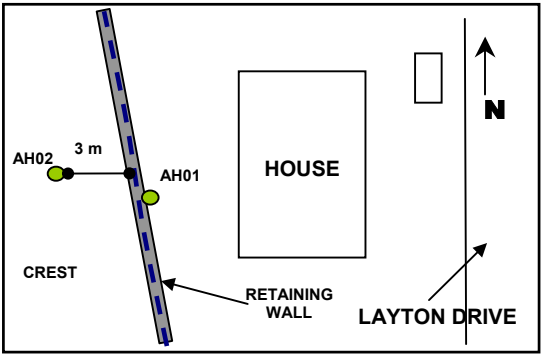
THICKNESS OF LOOSE MATERIALS	<1 m	1-2 m	2-3 m	>3 m
FENCE LINE				<input checked="" type="checkbox"/>
3 m DOWNSLOPE FROM SLOPE CREST			<input checked="" type="checkbox"/>	

SLOPE BELOW FENCE/ RETAINING STRUCTURE	SLOPE = 37°		
	CRACKS	SLIDES	EROSION
OBSERVATIONS: No evidence of slope deformation.			

TREES BELOW FENCE/ RETAINING STRUCTURE	STRAIGHT	PISTOL-BUTT	LEANING
PERCENT CONIFER: 85%	<input checked="" type="checkbox"/>		
OBSERVATIONS:			

RETAINING STRUCTURES	YES <input checked="" type="checkbox"/>	NO	HEIGHT= 0.60 m
TYPE	BLOCKS	CONCRETE	TIMBER CRIB
DEFORMATION	UNDEFORMED <input checked="" type="checkbox"/>	CRACKED	SETTLED
OBSERVATIONS: No evidence of deformation.			

DEFORMATION IN BACKYARD	YES	NO <input checked="" type="checkbox"/>
LOCATION:		
DESCRIPTION: Backyard dips toward slope.		



HOUSE DISTANCE TO CREST = 6.7 m

POOLS	YES <input checked="" type="checkbox"/>	NO
DESCRIPTION: Hot tub		

SEEPAGE/ SPRINGS IN OR BELOW FILL	YES	NO <input checked="" type="checkbox"/>
OBSERVATIONS: None observed.		

RECEIVES SURFACE RUNOFF FROM	BACKYARD	½ ROOF	FULL ROOF	FRONT YARD	STREET
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
OBSERVATIONS:					

CONNECTED TO STORM SEWER	YES	NO	UNSURE <input checked="" type="checkbox"/>
OWNERS COMMENTS:			

GENERAL OBSERVATIONS

- Slope heavily vegetated
- Occupant informs that none of the houses along Layton are connected to the storm sewer and that a dye test was done this year (January 2005?)



Figure 1. 1775 Layton Drive – Front of the house



Figure 2. 1775 Layton Drive – View looking SW downslope from crest



Figure 3. 1775 Layton Drive – Timber retaining wall

INSPECTION LOCATION # 1775 Layton

Project : DNV Landslide Risk Assessment

Project No. : 0404-002-01

Location : 1775 Layton
Drill Method : Dutch Hand Auger
Inspection Date : 01 Nov 05
Logged by : MB/ES
Reviewed by : MJP

Depth (m)	Lithologic Description	Depth To Water Table	Depth (m)	Lithologic Description	Depth To Water Table
	<p>AUGERHOLE: BGC05-1775LAY-AH01 on Slope Crest FINAL DEPTH OF AUGERHOLE: 3.10 m THICKNESS OF LOOSE MATERIALS: 3.10 m minimum</p>			<p>AUGERHOLE: BGC05-1775LAY-AH02 3 m Downslope FINAL DEPTH OF AUGERHOLE: 2.35 m THICKNESS OF LOOSE MATERIALS: 2.35 m minimum</p>	
0.0	SAND (SP) Fine grained sand, silty, trace (<1%) gravel, poorly graded, loose, max particle = 30 mm, sub-angular, dark brown, no odour, moist, homogeneous, no cementation [TOPSOIL]		0.0	SAND (SM) Fine to medium grained sand, silty, some gravel, poorly graded, loose, max particle = 15 mm, dark brown, moist, homogeneous, no cementation, trace rootlets [TOP SOIL]	
0.5	SAND (SW) Fine to coarse grained sand, trace silt, trace (<1%) gravel, well graded, loose, max particle size = 3 mm, sub-angular, grey and black peppered appearance, no odour, moist, homogeneous, no cementation [FILL]		0.5	SAND (SW) Some silt, trace fine to medium grained gravel, well graded, loose, max particle = 25 mm, brown, no odour, moist, homogeneous, no cementation, trace rootlets, bark mulch and charcoal [FILL]	
1.0	SILT (ML) and SAND (SP) Fine to medium grained sand, trace gravel, poorly graded sand, loose, max particle size = 7 mm, rounded, dark brown, no odour, moist, homogeneous, no cementation [FILL]		1.0		
1.5	SAND (SW) Some silt, some fine to coarse grained gravel, well graded, loose, max particle size = 30 mm, sub-rounded, brown, no odour, moist, homogeneous, no cementation [FILL]		1.5		
2.0	SAND (SW) Trace silt, trace gravel, well graded, loose, max particle size = 20 mm, sub-rounded, light brown, no odour, moist, homogeneous, no cementation [FILL]		2.0	SAND (SW) Trace silt, trace cobbles, well graded, loose, max particle = 10 mm, light brown to brown, moist, homogeneous, no cementation, trace rootlets [FILL]	
2.5	SAND (SW) Some silt, some fine gravel, well graded, loose, max particle size = 5 mm, sub-rounded, brown to dark brown, no odour, moist, homogeneous, no cementation [FILL]		2.5	2.35 m: EOH - Refusal of auger on cobbles	
2.0	2.00 m: Wood fragments				
2.5	SAND (SP) Mainly medium grained sand, trace fine gravel, trace silt, gravel sized fine sand clasts, poorly graded, loose, max particle size = 4 mm, sub-rounded, light brown to brown with orange mottling, no odour, moist, homogeneous, no cementation [COLLUVIUM]	▼			
3.0	SAND (SP) Fine grained sand, trace silt, poorly graded, max particle size = <1 mm, loose, grey, light brown, orange mottling, moist, homogeneous, no cementation [COLLUVIUM]		3.0		

(Continued on next page)

BGC05-1775LAY-AH01

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY
Vancouver, BC Phone: (604) 684 5900

Client: District of North Vancouver

INSPECTION LOCATION # 1775 Layton

Project : DNV Landslide Risk Assessment

Project No. : 0404-002-01

Location : 1775 Layton
Drill Method : Dutch Hand Auger
Inspection Date : 01 Nov 05
Logged by : MB/ES
Reviewed by : MJP

Depth (m)	Lithologic Description	Depth To Water Table	Depth (m)	Lithologic Description	Depth To Water Table
	<p>AUGERHOLE: BGC05-1775LAY-AH01 on Slope Crest FINAL DEPTH OF AUGERHOLE: 3.10 m THICKNESS OF LOOSE MATERIALS: 3.10 m minimum</p>			<p>AUGERHOLE: BGC05-1775LAY-AH02 3 m Downslope FINAL DEPTH OF AUGERHOLE: 2.35 m THICKNESS OF LOOSE MATERIALS: 2.35 m minimum</p>	
3.10	3.10 m: EOH - Extent of auger				
3.5			3.5		
4.0			4.0		
4.5			4.5		
5.0			5.0		
5.5			5.5		
6.0			6.0		

BGC05-1775LAY-AH01