

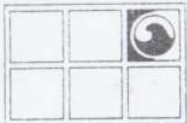
DowElanco (NZ) Ltd.
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**SUMMARY OF SOIL AND
GROUNDWATER EVALUATIONS
PARITUTU SITE, NEW PLYMOUTH
NEW ZEALAND**

Appendices Only



**GROUNDWATER
TECHNOLOGY**



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**SUMMARY OF SOIL AND
GROUNDWATER EVALUATIONS
PARITUTU SITE, NEW PLYMOUTH
NEW ZEALAND**

Appendices Only

Prepared for:

DowElanco (NZ) Limited
89 Paritutu Road
Private Bag 1
New Plymouth
New Zealand

4 July, 1996
Our Ref: N1034R03

Prepared by:

GROUNDWATER TECHNOLOGY (NZ) LIMITED

Written/Submitted by:

RDW for DEW

David Whyte
Operations Manager

Reviewed/Approved by:

Ronald J. Hicks

Ron Hicks
General Manager

**APPENDIX A
DRILLING LOGS**

Drilling Log

Monitoring Well **BH16-A**



Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. NI004
 Surface Elev. _____ Total Hole Depth 29.6 m Diameter 203 mm
 Top of Casing 22.3 m Water Level Initial 25.5 m Static _____
 Screen: Dia 50 mm Length 22.345 m Type/Size 0.05 mm
 Casing: Dia 50 mm Length 6.705 m Type Class E PVC
 Fill Material 8/16 Sand Rig/Core _____
 Drill Co. Brown Brothers Method Hollow Flight Auger
 Driller Nigel Bishop Log By M. Andrews Date 02/09/94 Permit # _____
 Checked By D. Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:
 PID max only (following stabilisation)

Depth (m)	Well Completion	217 (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1						
0				Ash	SP	BITUMEN OVER SANDY GRAVEL FILL: Grey, moist, gravel to 30 mm.
0.5						SAND: Grey black, moist, fine grained, some silt/clay fines.
1						CLAYEY SAND: Brown, moist, fine to medium sand, medium to high plasticity, some gravel to 5 mm.
2					SC	
3						
4					CH	SANDY CLAY: Pale brown to brown, moist, medium to high plasticity, fine sand.
5						
6						SILTY SANDY CLAY: Pale brown to brown, medium plasticity, moist (M.C.>P.L.), soft.
7					CL CH	
8						
9						CLAYEY SAND: Pale brown, moist, fine to medium sand, medium plasticity, soft.
10						
11					SC	
12						
13						
14						

UNIFIED SOIL CLASSIFICATION SYSTEM

CONFIDENTIAL

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS
	Concrete (55)	Solid (1s)
	Neat Cement (54)	Slotted PVC (3w)
	Base Course (30)	Slot. PVC High Flow (8w)
	Sluff (64)	Wire Wound PVC (16w)
	Bentonite (21)	Wire Wound Steel (15w)
	Filter Pack (7)	Saw Cut (12w)
	Pea Gravel (2)	
	Liner (33)	
	Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level



GROUNDWATER
TECHNOLOGY

Drilling Log

DowElanco (NZ) Ltd.
CONFIDENTIAL

Monitoring Well BH16-A

Project DowElanco New Plymouth
Location New Plymouth Plant

Owner DowElanco (NZ) Ltd.
Proj. No. N1004

Depth (m)	Well Completion	21.7 (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
14						
15						
16		21.7	15.83		SC	CLAYEY SAND: Greeny grey brown, moist, fine grained, loose to moderately loose, noticeable odour.
17						
18		82.5	17.38			SAND: Black, some clay fines, fine grained, moist, loose, noticeable odour, becoming wet below 25.0m.
19		83.2	18.89			
20						
21		94.3	20.42			
22		107	21.95		SP	
23						
24		97.8	23.48			
25		151	25.01			
26						
27		5.2	27.0			
28		1.3	28.0		SC	CLAYEY SAND: Grey, mottled orange brown, wet, moderately dense, fine to medium grained, slight odour.
29		15.0	29.0		SP SC SM	SAND: Cemented, iron stained, hard, medium grained.
30		2.1	29.6		SM	SILTY CLAYEY SAND: Pale pinky brown, very moist, fine to medium grained, feldspar and hornblende minerals, some iron staining, friable, slight odour.
31						SILTY CLAY SAND: Orange brown, moist, fine to medium grained, friable to firm (extremely weathered rock).
32						Weathered rock (possibly andesite): Represented by SILTY CLAYEY SAND, grey brown, hard, some iron staining, feldspar and hornblende minerals to 3 mm.
33						End of borehole at 29.6 metres at target depth. Casing installed to 29.05 metres.

UNIFIED SOIL CLASSIFICATION SYSTEM

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty sands and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4	76.2 to 4.75
	3" to 3/4" 3/4" to No. 4	76.2 to 19.1 19.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200	4.75 to 0.074
	No. 4 to No. 10	4.76 to 2.00
	No. 10 to No. 40 No. 40 to No. 200	2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS
	Concrete (55)	Solid (1s)
	Neat Cement (54)	Slotted PVC (3w)
	Base Course (30)	Slot. PVC High Flow (8w)
	Sluff (64)	Wire Wound PVC (16w)
	Bentonite (21)	Wire Wound Steel (15w)
	Filter Pack (7)	Saw Cut (12w)
	Pea Gravel (2)	
	Liner (33)	
	Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level



Drilling Log

Monitoring Well **BH33**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. NI004
 Surface Elev. _____ Total Hole Depth 23.3 m Diameter 203 mm
 Top of Casing 17.3 m Water Level Initial 19.8 m Static _____
 Screen: Dia 50 mm Length 5.81 m Type/Size 0.05 mm
 Casing: Dia 50 mm Length 17.43 m Type Class E PVC
 Fill Material 8/16 Sand Rig/Core _____
 Drill Co. Brown Brothers Method Hollow Flight Auger
 Driller Nigel Log By M. Andrews Date 22-23/08/94 Permit # _____
 Checked By D. Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:
 PTD max only (following stabilisation).

Depth (m)	Well Completion	PTD (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
							Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1							
0		0.4	0.38		Ash		BITUMEN:
1		0.9	1.0		SM		SILTY SAND: Grey/black, moist, fine grained, loose. SILTY SAND: Dark brown to black, fine grained, moist, loose.
2							
3		1.2	3.0				SAND: Dark brown to black, slightly moist, fine grained, loose, some silt.
4							
5		3.1	5.0		SP		SAND: Grey/brown with green tinge, slightly moist to dry, fine-medium grained, some silt and pumice clumps, loose.
6							
7		4.1	7.0		GP		GRAVEL: Welded tuff, grey/black to red/brown, glassy fragments to 30mm.
8					SM		SILTY SAND: Grey brown with green tinge, slightly moist, fine-medium grained, loose, some gravel (welded tuff) to 10mm.
9		4.7	9.0				CLAYEY SILTY SAND: Grey brown with green tinge, moist, fine grained, moderately loose, low plasticity, some pumice gravel to 10mm.
10							
11		4.1	11.0		SC		CLAYEY SILTY SAND: Pale grey brown, moist, low plasticity, (M.C.>P.L.) fine grained, trace of humic odour.
12							
13		6.7	12.7				CLAYEY SAND: Grey to grey brown, moist (M.C.>P.L.), low plasticity, fine grained, some pumice gravel to 5mm.
14							

UNIFIED SOIL CLASSIFICATION SYSTEM

CONFIDENTIAL

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils	20

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

<ul style="list-style-type: none"> Asphalt (68) Concrete (55) Neat Cement (54) Base Course (30) Sluff (64) Bentonite (21) Filter Pack (7) Pea Gravel (2) Liner (33) Geocloth (36) 	<h4 style="margin-top: 0;">SCREENS</h4> <ul style="list-style-type: none"> Solid (1s) Slotted PVC (3w) Slot. PVC High Flow (8w) Wire Wound PVC (16w) Wire Wound Steel (15w) Saw Cut (12w)
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SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level



Drilling Log

Monitoring Well **BH33**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. N1004

Depth (m)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
14							
15		4.1	15.0				CLAYEY SILTY SAND: Grey to grey brown, moist, fine grained, low plasticity, vegetation seed and some gravel (pumice) to 5mm.
16						SC	
17		5.7	17.2				
18							
19		1.8	18.7			SM	SILTY SAND: Black, fine grained, slightly moist to moist, loose to moderately dense.
20		2.7	19.5			SC	SILTY CLAYEY SAND: Pale brown to grey brown, moist to very moist, fine grained.
21		4.0	20.2			SM	CLAYEY SAND: Grey brown, low-medium plasticity, very moist to wet, (M.C.>P.L.), fine grained, slight anaerobic odour.
22		2.7	21.1				CLAYEY SAND: Brown, mottled orange, wet, fine grained, low plasticity (M.C>P.L.).
23		4.1	21.8			SP	SILTY SAND: Grey brown, wet, fine-medium grained, loose to moderately dense.
24		4.8	22.5				SAND: Orange brown, some silt and clay, wet, fine-medium grained, some gravel to 3mm, (minor bands of black sand present).
25		4.3	23.3				SAND: Grey black, wet, fine grained, some silt, moderately dense. (Mottled orange from 23.2m.)
26							End of borehole 23.33 metres at target depth. Well casing installed to 23.16m.
27							
28							
29							
30							
31							
32							
33							

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












CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level

Drilling Log

Monitoring Well **BH34**



GROUNDWATER
TECHNOLOGY

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. N1004
 Surface Elev. _____ Total Hole Depth 27.97 m Diameter 203 mm
 Top of Casing 22.1 m Water Level Initial 25.0 m Static _____
 Screen: Dia 50 mm Length 22.16 m Type/Size 0.05 mm
 Casing: Dia 50 mm Length 5.81 m Type Class E PVC
 Fill Material 8/16 Sand Rig/Core _____
 Drill Co. Brown Brothers Method Hollow Flight Auger
 Driller Nigel Bishop Log By M. Andrews Date 22-23/08/94 Permit # _____
 Checked By D. Whyte License No. _____

See Site Map
For Boring Location

COMMENTS:

Water used during drilling disappeared overnight.

Depth (m)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1							
0							
1		1.8	0.5			SM	BITUMEN OVER SILTY SAND: Black, slightly moist to moist, fine grained, loose.
2							
3		1.5	2.5				CLAYEY SAND: Grey brown to orange brown, moist (M.C>P.L.), low-medium plasticity, fine grained, soft.
4							
5		1.9	4.5				
6							
7		1.4	6.5				
8		1.5	8.0			SC	
9							
10		0.9	10.0				Becoming grey brown with green tinge.
11							
12							Becoming grey brown.
13		1.9	12.6				
14		2.4	13.6			SC/S	CLAYEY SAND: Brown to orange brown, moist, fine to medium grained, low plasticity. CLAYEY SILTY SAND: Grey, moist, fine grained, moderately dense.

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












CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074



WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level

Drilling Log

Monitoring Well **BH34**



Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. N1004

Depth (m)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
14		2.0	14.2				
15						SC/S	
16		2.4	15.7				CLAYEY SAND: Brown, moist, some silt, fine-medium grained, low plasticity, moderately dense.
17						SC	
18		3.4	17.8				SANDY SILTY CLAY: Pale brown, moist, (M.C.>P.L.), medium to high plasticity, fine-medium sand, hornblende fragments to 1mm throughout, some iron staining, blocky texture, firm to friable.
19							
20		3.2	20.3				
21						CL CH	
22		2.2	21.8				SANDY SILTY CLAY: Orange brown, moist, fine to coarse grained sand, medium plasticity, weathered gravel to 50mm diameter (pink tinge), overall appearance of extremely weathered andesite.
23							
24		2.5	23.4				SILTY CLAY: Yellow brown, some fine sand, moist (M.C.>P.L.), medium plasticity, some iron staining, weathered gravel to 10mm, firm/friable.
25		3.1	24.9				SANDY SILTY CLAY: Pale grey brown, mottled purple, cream, grey, moist (M.C.>P.L.), medium plasticity, fine to coarse sand, some weathered gravel to 10mm, iron staining, hornblende fragments, and weathered feldspar.
26		3.8	25.6			SC	Weathered andesite boulder (feldspar and greyish).
27		2.7	26.7				GRAVELLY SANDY SILTY CLAY: Cream brown, mottled grey, orange, pink, moist (M.C.>P.L.), medium plasticity, firm to friable, weathered gravel to 20mm throughout (andesite).
28						Rock	CLAYEY GRAVELLY SAND: Pale greyey purple, wet, overall coarse grained sand representing weathered andesite rock, feldspar and hornblende present, very friable, gravel to 10mm throughout.
29							Rock at 25.1m to 25.3m and 26.3m to 26.4m (andesite). Dry and hard rock (andesite).
30							ANDESITE ROCK: Yellow green to grey green, dry, hard feldspar rich and glass etc., fine matrix.
31							End of borehole 27.97 metres at target depth. Well casing installed.
32							
33							

CONFIDENTIAL

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3'	305 to 76.2
GRAVEL COARSE FINE	3' to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074



WELL CONSTRUCTION MATERIALS

- | | | |
|--|------------------|--|
|  | Asphalt (68) | SCREENS |
|  | Concrete (55) |  Solid (1s) |
|  | Neat Cement (54) |  Slotted PVC (3w) |
|  | Base Course (30) |  Slot. PVC High Flow (8w) |
|  | Stuff (64) |  Wire Wound PVC (16w) |
|  | Bentonite (21) |  Wire Wound Steel (15w) |
|  | Filter Pack (7) |  Saw Cut (12w) |
|  | Pea Gravel (2) | |
|  | Liner (33) | |
|  | Geocloth (36) | |

SAMPLE TYPES

- SS - Split Spoon
- CC - Continuous Core
- CG - Cuttings Grab

SYMBOLS

-  Initial Water Level
-  Static Water Level



GROUNDWATER
 TECHNOLOGY

Drilling Log

Soil Boring **BH35**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. N1004
 Surface Elev. _____ Total Hole Depth 24.91 m Diameter 203 mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core _____
 Drill Co. Brown Brothers Method Hollow Flight Auger
 Driller Nigel Bishop Log By M. Andrews Date 25/08/94 Permit # _____
 Checked By D. Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:

No well installed. Borehole backfilled with
 drill cuttings.

Depth (m)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1						
0	8.1	0.5			Ash	BITUMEN over gravelly silty sand fill, grey brown, fine grained, moist, loose, gravel to 20mm.
1					SC	CLAYEY SAND: Orange brown, moist, low plasticity, fine grained, some gravel to 5mm (possible fill).
2	6.0	1.96			SP	SAND: Black, some silt, moist to dry, loose, fine grained.
3						
4	4.6	3.49			SC	CLAYEY SAND: Orange brown to grey brown, moist (M.C.>P.L.), low-medium plasticity, fine grained, moderately dense.
5	2.1	5.02			CH	SANDY SILTY CLAY: Orange brown, fine sand, moist soft (M.C.>P.L.), medium to high plasticity.
6						
7	1.8	6.55			CH	
8	2.3	8.08			SC	CLAYEY SAND: Brown, moist, (M.C.>P.L.), medium plasticity, fine-medium grained, some welded tuff gravel to 10mm.
9						
10	1.5	9.61			GP	Welded tuff gravel layer.
11						CLAYEY SAND: Pale brown to orange brown, soft moist, fine sand, sticky, medium plasticity.
12	1.8	11.14			SC	
13	2.2	12.87			SC	(As above with some welded tuff gravel to 5mm.)
14						

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS
	Concrete (55)	Solid (1s)
	Neat Cement (54)	Slotted PVC (3w)
	Base Course (30)	Slot. PVC High Flow (8w)
	Sluff (64)	Wire Wound PVC (16w)
	Bentonite (21)	Wire Wound Steel (15w)
	Filter Pack (7)	Saw Cut (12w)
	Pea Gravel (2)	
	Liner (33)	
	Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level

Drilling Log

Soil Boring **BH35**



GROUNDWATER
 TECHNOLOGY

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. N1004

Depth (m)	P10 (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%	
14	1.9	14.2			SC	CLAYEY SAND: Grey brown, some silt, fine grained, moist, low plasticity.	
15							
16	2.1	15.73					
17	1.4	17.26					
18							
19	1.1	18.79					
20	2.0	20.32			SC/S	GRAVELLY CLAYEY SILTY SAND: Grey brown, slightly moist to moist, (M.C.>P.L.), low-medium plasticity, andesitic gravel to 10mm throughout, soft to friable.	
21							
22	1.9	21.8			CL	GRAVELLY SANDY SILTY CLAY: (Represents extremely weathered andesitic rock), grey green, mottled orange, moist to dry, low plasticity, friable to hard, contains hornblende and feldspar mineral grains to >1mm throughout.	
23							Weathered andesite (as above)
24	2.3	23.4					As above with greeny yellow/purple staining.
25						End of borehole 24.91 metres due to slow hard drilling through weathered andesite therefore no groundwater expected.	
26							
27							
28							
29							
30							
31							
32							
33							

UNIFIED SOIL CLASSIFICATION SYSTEM

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

Asphalt (68)	SCREENS
Concrete (55)	Solid (1s)
Neat Cement (54)	Slotted PVC (3w)
Base Course (30)	Slot. PVC High Flow (8w)
Sluff (64)	Wire Wound PVC (16w)
Bentonite (21)	Wire Wound Steel (15w)
Filter Pack (7)	Saw Cut (12w)
Pea Gravel (2)	
Liner (33)	
Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level



GROUNDWATER
 TECHNOLOGY

Drilling Log

Monitoring Well **BH36**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. NI004
 Surface Elev. _____ Total Hole Depth 25.01 m Diameter 203 mm
 Top of Casing 17.3 m Water Level Initial 22.6 m Static _____
 Screen: Dia 50 mm Length 5.81 m Type/Size 0.05 mm
 Casing: Dia 50 mm Length 19.19 m Type Class E PVC
 Fill Material B/16 Sand Rig/Core _____
 Drill Co. Brown Brothers Method Hollow Flight Auger
 Driller Nigel Bishop Log By M. Andrews Date 26/08/94 Permit # _____
 Checked By D. Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:
 PID max only (following stabilisation).

Depth (m)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1						
0		0.4	0.38	Ash	SC	BITUMEN over gravelly silty sand: Grey green, moist, fine grained, gravel fill to 30mm.
1		0.9	1.0			CLAYEY SAND: Brown, moist, low-medium plasticity, fine grained, moderate density.
2					SP	SAND: Black, some silt, moist, fine grained, loose.
3		1.2	3.0			
4						CLAYEY SAND: Brown to grey brown, moist, (M.C.>P.L.), low-medium plasticity, fine-medium grained.
5		3.1	5.0		SC	As above.
6						
7		4.1	7.0			SANDY SILTY CLAY: Pale brown, moist (M.C.>P.L.), medium-high plasticity, sticky to soft, fine sand.
8						SANDY CLAY: Pale brown, moist (M.C.>P.L.), high plasticity, fine sand.
9		4.7	9.0		CH	As above (very moist and sticky).
10						
11		4.1	11.0			SANDY CLAY: Pale brown, very moist (and sticky), high plasticity, (M.C.>P.L.), fine sand.
12					SM	(Harder/slower drilling - possibly gravel layers).
13		6.7	12.7		SM	GRAVELLY SILTY SAND: Grey brown, dry, fine grained, loose to moderately dense, andesite gravel to 25mm throughout.
14					SP	SAND: Grey brown, slightly moist to dry, loose, fine to medium grained, some silt.

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	<u>SILTS & CLAYS</u> <u>LL < 50</u>	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> <u>LL > 50</u>	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074



WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

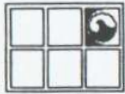
SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level

Drilling Log

Monitoring Well BH36



GROUNDWATER
 TECHNOLOGY

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. N1004

Depth (m)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
14						SP	
15		4.1	15.0			CH	SANDY SILTY CLAY: Brown to orange brown, moist (M.C.>P.L.), fine sand, medium to high plasticity, contains specks of iron and hornblende, friable to firm.
16						SC SP	CLAYEY SAND: Brown, moist (M.C.>P.L.), medium high plasticity, fine grained, soft.
17		5.7	17.2				SAND: Grey brown, very moist, some clay and silt, fine grained.
18							SANDY SILTY CLAY: Pale brown to yellow brown, moist (M.C.>P.L.) medium high plasticity, firm to friable, contains feldspar and hornblende minerals to >1mm (represents extremely weathered andesite)
19		1.8	18.7			CH	
20		2.7	19.5				
21		4.0	20.2				
22		2.7	21.1			SC	SILTY CLAYEY SAND: Orange brown, moist, fine grained, low plasticity, iron staining present.
23		4.1	21.8				
24		4.8	22.5			SP	SAND: Grey, cemented, very moist to wet, friable to hard, some silt, iron staining present.
25		4.3	23.3				
26						CL/O	SANDY SILTY CLAY: Orange, medium plasticity, moist (M.C.>P.L.), fine sand.
27						SC/S	SILTY CLAYEY SAND: Mottled cream/orange brown, moist, low plasticity, fine grained.
28							End of borehole 25.01 metres at target depth. Well casing installed to 25.0m.
29							
30							
31							
32							
33							

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4	76.2 to 4.75
	3" to 3/4"	76.2 to 19.1
	3/4" to No. 4	19.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200	4.75 to 0.074
	No. 4 to No. 10	4.76 to 2.00
	No. 10 to No. 40	2.00 to 0.420
	No. 40 to No. 200	0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

Asphalt (68)	SCREENS
Concrete (55)	Solid (1s)
Neat Cement (54)	Slotted PVC (3w)
Base Course (30)	Slot. PVC High Flow (8w)
Sluff (64)	Wire Wound PVC (16w)
Bentonite (21)	Wire Wound Steel (15w)
Filter Pack (7)	Saw Cut (12w)
Pea Gravel (2)	
Liner (33)	
Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level



GROUNDWATER
TECHNOLOGY

Drilling Log

Monitoring Well **BH37**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. NI004
 Surface Elev. _____ Total Hole Depth 26.44 m Diameter 203 mm
 Top of Casing 20.6 m Water Level Initial 23.8 m Static _____
 Screen: Dia 50 mm Length 20.34 m Type/Size 0.05 mm
 Casing: Dia 50 mm Length 5.81 m Type Class E PVC
 Fill Material B/16 Sand Rig/Core _____
 Drill Co. Brown Brothers Method Hollow Flight Auger
 Driller Nigel Bishop Log By M. Andrews Date 29-30/08/94 Permit # _____
 Checked By D. Whyte License No. _____

See Site Map
For Boring Location

COMMENTS:

Water used during drilling disappeared overnight.

Depth (m)	Well Completion	PTD (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1						
0		1.4	0.43	ASHY	SC	BITUMEN over gravel fill (sandy):
1						CLAYEY SAND: Yellow brown, moist, low plasticity, fine grained, moderately dense.
2		1.5	1.96		SP	SAND: Black, some clayey fines, moist, fine grained, loose.
3						
4		1.3	3.49			
5		1.7	5.02			CLAYEY SAND: As above, becoming brownish grey.
6						
7		1.7	6.55			
8		2.1	8.08			
9					SC	
10		4.4	9.61			
11		2.6	11.14			
12						
13		2.4	12.87			
14						

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

Asphalt (68)	SCREENS
Concrete (55)	Solid (1s)
Neat Cement (54)	Slotted PVC (3w)
Base Course (30)	Slot. PVC High Flow (8w)
Sluff (64)	Wire Wound PVC (16w)
Bentonite (21)	Wire Wound Steel (15w)
Filter Pack (7)	Saw Cut (12w)
Pea Gravel (2)	
Liner (33)	
Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level



Drilling Log

Monitoring Well **BH37**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. N1004

Depth (m)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
14		7.7	14.2				CLAYEY SILTY SAND: Grey brown, moist, loose to moderately dense, fine grained.
15							
16		3.5	15.73				
17		3.4	17.26			SC	
18							
19		2.5	18.79				
20							
21		1.3	20.32			SP	CLAYEY SAND: Grey brown, moist, low plasticity, fine grained, moderately dense.
22		4.0	21.8			CH	SAND: Black, fine grained (some coarse quartz), very moist. SILTY CLAY: Red brown, moist, medium plasticity, firm.
23		4.8	23.3				SILTY SANDY CLAY: Pale brown, moist (M.C.>P.L.), medium to high plasticity, iron staining and weathered rock fragments (andesite), friable, firm, fine sand, blocky texture, hornblende.
24		3.4	23.8			CL	SILTY SANDY CLAY: Pale brown to brown, low plasticity, wet, fine to medium sand, friable (to firm in places), hornblende, odour present.
25		3.6	24.6				
26		1.8	25.4			SC SM	CLAYEY SILTY SAND: Pale brown to brown, wet, fine to medium grained, some iron staining, hornblende and feldspar minerals.
27		0.3	26.0			SC SM CH	SILTY SAND: Black cemented, fine grained, wet, hard (ash?) SILTY CLAYEY SAND: Red brown to brown, wet, friable to moderately dense, fine to medium grained.
28							SILTY SANDY CLAY: Pale brown, moist, medium to high plasticity (M.C.>P.L.), fine to medium sand, iron staining, hornblende and feldspar minerals, friable to firm.
29							End of borehole at 26.44 metres at target depth. Casing installed to 26.44 metres.
30							
31							
32							
33							

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074



WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level



GROUNDWATER
 TECHNOLOGY

Drilling Log

Soil Boring **BH38**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. N1004
 Surface Elev. _____ Total Hole Depth 18.79 m Diameter 203 mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia 50 mm Length _____ Type/Size 0.05 mm
 Casing: Dia 50 mm Length 5.81 m Type Class E PVC
 Fill Material 8/16 Sand Rig/Core _____
 Drill Co. Brown Brothers Method Hollow Flight Auger
 Driller Nigel Bishop Log By M. Andrews Date 30/08/94 Permit # _____
 Checked By D. Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:

Driller had to raise Laskey so as to cut through rock first in order to core a sample. Rock broken up first (hard drilling) No well installed. Backfilled with cuttings and sealed at surface.

Depth (m)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1						
0	2.6	0.43			Ash	BITUMEN OVER SANDY GRAVEL FILL: Grey, fine sand, slightly moist, gravel to 25 mm.
1					CH	SANDY CLAY: Pale brown to yellow brown, fine sand, moist (M.C.>P.L.), high plasticity, firm to soft.
2	2.8	1.98				
3						
4	2.8	3.49				
5	2.9	5.02			SP	SAND: Black, some clay, moist, fine grained, loose to moderately dense.
6					SC	CLAYEY SAND: Brown, moist, medium plasticity, soft, fine to medium grained.
7	3.1	6.55				SAND: Black, some clay/silty fines, slight moist, fine grained, loose.
8	2.4	8.08				
9						
10	2.4	9.81			SC	CLAYEY SAND: Black, moist, fine grained, loose to moderately loose, some gravel to 10 mm.
11	2.5	11.14				
12						
13	8.8	12.87			CH	SANDY SILTY CLAY: Brown to pale brown, moist (M.C.>P.L.), medium to high plasticity, fine sand, some weathered gravel and iron staining.
14					CL	GRAVELLY SANDY SILTY CLAY: Pale brown mottled grey, fine to medium sand, slightly moist, medium plasticity, gravel (rock fragments - andesite), to 20 mm throughout.

UNIFIED SOIL CLASSIFICATION SYSTEM

DowElanco (NZ) Ltd.

CONFIDENTIAL

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty sands and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3'	305 to 76.2
GRAVEL COARSE FINE	3' to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

Asphalt (68)	SCREENS
Concrete (55)	Solid (1s)
Neat Cement (54)	Slotted PVC (3w)
Base Course (30)	Slot. PVC High Flow (8w)
Sluff (64)	Wire Wound PVC (16w)
Bentonite (21)	Wire Wound Steel (15w)
Filter Pack (7)	Saw Cut (12w)
Pea Gravel (2)	
Liner (33)	
Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level

GROUNDWATER
TECHNOLOGY

Drilling Log



Soil Boring **BH38**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. NI004

Depth (M)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description
						(Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
14	5.4	14.2			CH CL	GRAVELLY SANDY SILTY CLAY: Mottled pale brown/cream, slightly moist, medium plasticity, fine sand, friable to firm, appearance of extremely weathered volcanic rock (andesite?), hornblende and feldspar minerals, some pink rock gravel (andesite) and black siltstone/ash (layered) to 25 mm throughout.
15	3.1	15.5				
16						
17	3.8	17.0			SC	GRAVELLY SILTY CLAYEY SAND: Yellow brown to purple grey, slightly moist to moist, fine to medium grained (some coarse sand), hard to friable. (see comments)
18	4.7	18.0				
19					SM	ROCK: Medium to coarse grained, feldspar and hornblende. Major components (andesite?), cream colour with pink tinge, weathered to fresh.
20						End of borehole at 18.79 metres due ot hard drilling on andesite rock. No groundwater expected. No casing installed. Borehole backfilled using drill cuttings and bentonite sealed at surface.
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						

UNIFIED SOIL CLASSIFICATION SYSTEM

DowElanco (NZ) Ltd.

CONFIDENTIAL

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO.4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4 3" to 3/4" 3/4" to No.4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074

WELL CONSTRUCTION MATERIALS

Asphalt (68)	SCREENS
Concrete (55)	Solid (1s)
Neat Cement (54)	Slotted PVC (3w)
Base Course (30)	Slot. PVC High Flow (8w)
Sluff (64)	Wire Wound PVC (16w)
Bentonite (21)	Wire Wound Steel (15w)
Filter Pack (7)	Saw Cut (12w)
Pea Gravel (2)	
Liner (33)	
Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level

GROUNDWATER
TECHNOLOGY



GROUNDWATER
TECHNOLOGY

Drilling Log

Monitoring Well **BH39**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. N1004
 Surface Elev. _____ Total Hole Depth 26.39 m Diameter 203 mm
 Top of Casing 20.6 m Water Level Initial 23.4 m Static _____
 Screen: Dia 50 mm Length 20.335 m Type/Size 0.05 mm
 Casing: Dia 50 mm Length 5.81 m Type Class E PVC
 Fill Material 8/16 Sand Rig/Core _____
 Drill Co. Brown Brothers Method Hollow Flight Auger
 Driller Nigel Bishop Log By M. Andrews Date 31/08/94 Permit # _____
 Checked By D. Whyte License No. _____

See Site Map
For Boring Location

COMMENTS:

Back fill above 10.8m with clean coarse sand.

Depth (m)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1							
0		4.5	0.38				Grass over GRAVELLY CLAYEY SAND: Pale brown, moist, gravel to 15 mm throughout (FILL), fine roots.
1							
2		28.1	1.91			SC	CLAYEY SAND: Brown, low plasticity, moist, fine grained, strong odour.
3							
4		18.3	3.44			SP	SAND: Black, fine to medium grained, some silty/clayey fines, moist, loose, strong odour, some gravel to 10 mm.
5		21.5	4.97				
6							
7		37.4	6.5			SC	CLAYEY SAND: Grey brown to black, moist, fine grained, moderately dense to loose, some gravel to 5 mm, strong odour.
8							
9		23.7	8.03			SP	SAND: Greeny grey brown, moist to very moist, fine to medium grained, clay fines, loose, strong odour.
10		82.3	9.58				
11							
12		63.6	11.09			SC	CLAYEY SAND: Greeny grey, moist, fine to medium grained, moderately dense to loose, strong odour.
13							
14		58.3	12.02				

UNIFIED SOIL CLASSIFICATION SYSTEM

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO.4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and inorganic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils	20

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4	76.2 to 4.75
	3" to 3/4" / 3/4" to No.4	76.2 to 19.1 / 19.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200	4.75 to 0.074
	No.4 to No.10	4.76 to 2.00
	No.10 to No.40	2.00 to 0.420
	No.40 to No.200	0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074

WELL CONSTRUCTION MATERIALS

- | | | |
|--|------------------|--------------------------|
| | Asphalt (68) | SCREENS |
| | Concrete (55) | Solid (1s) |
| | Neat Cement (54) | Slotted PVC (3w) |
| | Base Course (30) | Slot. PVC High Flow (8w) |
| | Sluff (64) | Wire Wound PVC (16w) |
| | Bentonite (21) | Wire Wound Steel (15w) |
| | Filter Pack (7) | Saw Cut (12w) |
| | Pea Gravel (2) | |
| | Liner (33) | |
| | Geocloth (36) | |

SAMPLE TYPES

- SS - Split Spoon
- CC - Continuous Core
- CG - Cuttings Grab

SYMBOLS

- Initial Water Level
- Static Water Level

Drilling Log

Monitoring Well **BH39**



Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. N1004

Depth (m)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
14		64.5	14.5				CLAYEY SAND: Greeny grey, fine grained, moist to very moist, moderately dense, strong odour.
15						SC	
16		38.9	15.88				
17							
18		8.2	17.21				SAND: Grey black, moist, fine to medium grained, loose, some clay fines, strong odour.
19		6.7	18.74			SP	
20		6.1	20.2				
21		23.8	20.8			CH	SANDY CLAY: Grey brown, mottled black (layers), fine sand, moist, medium to high plasticity (M.C.>P.L.), strong odour.
22		9.2 17.1	21.8 22.0			CL CH	SANDY SILTY CLAY: Yellow brown, moist, fine sand, medium to high plasticity, slight odour.
23						CH	SANDY SILTY CLAY: Pale grey brown, moist (M.C.>P.L.), high plasticity, fine to medium sand, slight odour.
24		12.2	23.3			CL	SANDY SILTY CLAY: Pale brown, moist to very moist, blocky texture, fine to medium sand, medium plasticity, friable, strong odour, froth with "rainbow" sheen.
25		7.3	24.0				
26		20.7	24.8			SP	SANDY SILTY CLAY: Pale brown, moist, low plasticity (M.C.>P.L.), friable, weathered rock fragments, slight odour.
27		19.3	26.0			SC	SANDY SILTY CLAY: Pale brown, medium to high plasticity, slightly moist to moist, firm, contains hornblende and feldspar minerals, slight odour.
28						CH	SANDY SILTY CLAY: Pale brown, low plasticity, very moist to wet, fine to medium sand, very friable, odour, froth with "rainbow" sheen.
29							SAND: Grey black, cemented (hard to friable in places), very moist to wet, fine to medium grained, noticeable solvent odour.
30							SAND: Black, wet, fine to medium grained, some clay fines, loose, odour.
31							CLAYEY SAND: Orange brown, moist to very moist, low plasticity, fine grained, firm, odour.
32							SANDY CLAY: Pale brown, moist (M.C.>P.L.), fine sand, medium to high plasticity, iron staining, firm to stiff, contains feldspar and hornblende minerals, strong odour.
33							End of borehole at 26.39 metres at target depth. Casing installed to 26.39 metres.

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and/or organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3'	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074



WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level



GROUNDWATER
 TECHNOLOGY

Drilling Log

Monitoring Well **BH40**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. N1004
 Surface Elev. _____ Total Hole Depth 26.44 m Diameter 203 mm
 Top of Casing 18.75 m Water Level Initial 20.8 m Static _____
 Screen: Dia 50 mm Length 20.43 m Type/Size 0.05 mm
 Casing: Dia 50 mm Length 5.81 m Type Class E PVC
 Fill Material 8/16 Sand Rig/Core _____
 Drill Co. Brown Brothers Method Hollow Flight Auger
 Driller Nigel Bishop Log By M. Andrews Date 01/09/94 Permit # _____
 Checked By D. Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:

BH40 positioned where old pond use to be situated.

Depth (m)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1							
0		4.3	0.43		Ash	SC	BITUMEN OVER SANDY GRAVEL FILL: Grey brown, dry, gravel to 30 mm. (FILL)
1					CH		GRAVELLY CLAYEY SAND: Grey brown, mottled orange, moist, fine sand, loose to moderately loose, gravel to 20 mm throughout (FILL).
2		6.9	2.0		SC		Very thin layer of black stained sand - with odour (app. 30 mm thick).
3		4.3	2.8		SP CL CH		(Alternating) SANDY CLAY and CLAYEY SAND layers. Brown to orange brown, fine to medium gravel, moist, medium to medium high plasticity. (FILL)
4							GRAVELLY CLAYEY/SILTY SAND: Grey brown, moist, fine to medium grained, gravel to 25 mm, moderately dense, fine roots throughout, trace of odour. (FILL)
5		5.1	5.02				SAND: Grey, dry, fine grained, loose.
6							SANDY SILTY CLAY: Pale brown to orange brown, moist (M.C.>P.L.), fine sand, medium plasticity.
7		5.4	6.55			SP	SAND: Light brown, moist to dry, cemented to loose, fine to medium grained.
8		4.3	8.08				
9							
10		6.2	9.61				
11		4.3	11.14				
12						SM	SILTY SAND: Grey brown, fine to medium grained, moist, moderately dense to loose.
13		4.6	12.67			SC	CLAYEY SAND: Grey brown, moist, fine to medium grained, moderately dense.
14							

UNIFIED SOIL CLASSIFICATION SYSTEM

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	<u>GRAVELS</u>	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u>	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	<u>SILTS & CLAYS</u> <u>LL < 50</u>	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> <u>LL > 50</u>	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils	20

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4 3" to 3/4" 3/4" to No.4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074



WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level

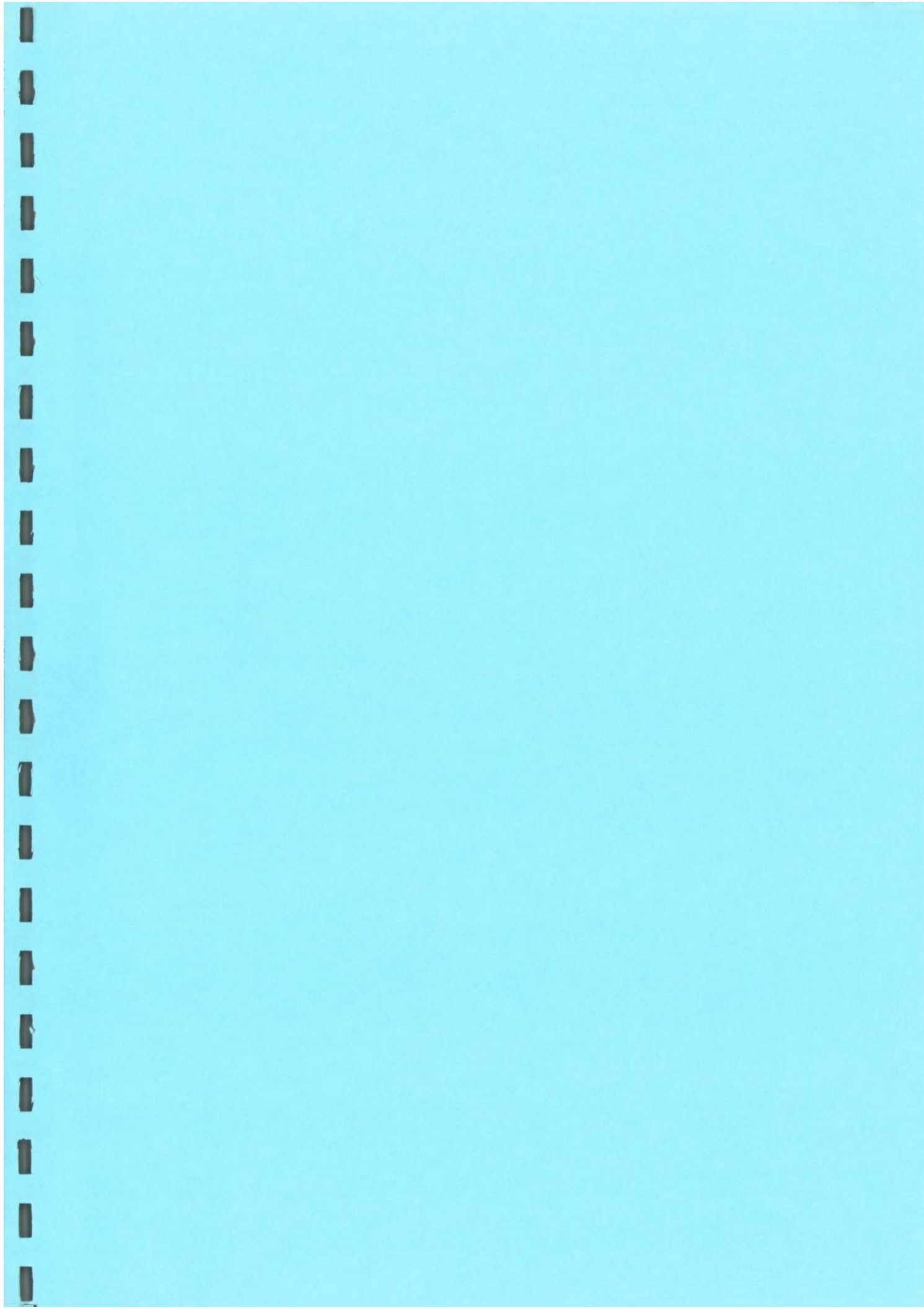
Drilling Log

Monitoring Well **BH40**



Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth Plant Proj. No. NI004

Depth (m)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description
						(Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
14		4.3	14.2			CLAYEY SAND: Grey brown, moist, fine to medium grained, moderately dense.
15						
16		2.0	15.73		SC	
17						
18		4.7	17.28		SP	SAND: Grey brown, moist, fine to medium grained, clay/silt fines, loose.
19		7.7	18.79		SC	CLAYEY SAND: Grey brown, fine to medium grained, moist, loose to moderately dense.
20						
21		6.0	21.0		SP	SAND: Black, wet, fine grained, loose, some silty/clay fines (minor cemented layers with increasing depth.)
22		6.7	21.8		SP	SAND: Brown to orange brown, wet, some silt/clay fines, cemented (in places) to loose, fine to medium grained.
23		5.1	22.4			SANDY SILTY CLAY: Cream brown, mottled orange, wet, low plasticity (M.C.>P.L.), fine to medium sand, iron staining, firm to stiff, feldspar and hornblende minerals present.
24		6.6	24.0		CL	
25						
26		7.1	26.0			
27						End of borehole at 26.44 metres at target depth. Casing installed to 26.44 metres.
28						
29						
30						
31						
32						
33						



Drilling Log



GROUNDWATER
 TECHNOLOGY

Soil Boring **SB1**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. NI034
 Surface Elev. _____ Total Hole Depth 2.5 m Diameter 203 mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 24/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:

See Site Plan for location. PID readings
 are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
					Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0	0.04			GP	ASPHALITIC CONCRETE
	0.1				ABC AGGREGATE: base course
	0.9	0.5			SILTY SAND: olive grey, fine grade, medium dense to loose, moist, no odour.
1	0.9	1.0			Colour change to dark grey.
	1.1	1.5			Medium dense sand
2	0.0	2.0			
	0.0	2.5			HOLE TERMINATED AT TARGET DEPTH
3					
4					
5					
6					
7					
8					
9					
10					

CONFIDENTIAL

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO.4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4 3" to 3/4" 3/4" to No.4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074



WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

- SS - Split Spoon
- CC - Continuous Core
- CG - Cuttings Grab

SYMBOLS

-  Initial Water Level
-  Static Water Level

Drilling Log



GROUNDWATER
 TECHNOLOGY

Soil Boring 16b

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034
 Surface Elev. _____ Total Hole Depth 20.6 m Diameter 203 mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 17/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:

See Site Plan for location. PID readings are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description
					(Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0	8.5	0.04		GP	ASPHALT AGGREGATE BASE COURSE.
1					
2	4.5	2.4		SW	SAND: black, fine to medium graded, moist, no odour.
3	4.5 3.4	2.8 3.1			SANDY SILTY CLAY: brownish/orange with black bands, moderately plastic, stiff, moist, no odour. Sand black, fine to medium graded, loose, moist, no odour.
4					
5	5.5	5.0		ML	
6	203	6.0			Becoming yellowish orange, slight xylene odour.
7	884	7.0			
8	1212	8.0		SC	CLAYEY SAND: brownish grey, fine to medium graded, slightly moist, moderate xylene odour. Change to sand with clay of olive grey colour.
9	244	8.0			
10	44.8	10.0			

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO.4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	<u>SILTS & CLAYS</u> <u>LL < 50</u>	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> <u>LL > 50</u>	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4 3" to 3/4" 3/4" to No.4	76.2 to 4.75 76.2 to 19.1 19.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.75 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074



WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level

Drilling Log



Soil Boring 16b

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. NI034

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
10	44.8	10.0		SC	CLAYEY SAND: brownish grey, fine to medium graded, slightly moist, moderate xylene odour. medium dense/stiff, moist, no odour.
11	96.2	11.0		CL	SILTY CLAY: dark brown, moderately plastic, stiff, moist, strong odour.
12	129	12.0 12.3			SAND: black, fine to medium graded, moist, loose, slight to moderate xylene odour.
13	293	13.0			
14	195	14.0			
15	239	15.0			
16	506	16.0		SW	
17	232	17.0			
18	374	18.0			
19	297	19.0			
20	194	20.0			
21	20.6				HOLE TERMINATED AT TARGET DEPTH
22					
23					
24					

CONFIDENTIAL

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO.4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4 3" to 3/4" 3/4" to No.4	.76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074



WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS
	Concrete (55)	 Solid (1s)
	Neat Cement (54)	 Slotted PVC (3w)
	Base Course (30)	 Slot. PVC High Flow (8w)
	Stuff (64)	 Wire Wound PVC (16w)
	Bentonite (21)	 Wire Wound Steel (15w)
	Filter Pack (7)	 Saw Cut (12w)
	Pea Gravel (2)	
	Liner (33)	
	Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level



GROUNDWATER
 TECHNOLOGY

Drilling Log

Soil Boring **16c**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034
 Surface Elev. _____ Total Hole Depth 20.7 m Diameter 203 mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 18/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:

See Site Plan for location. PID readings are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0	0.04			GW	ASPHALITIC CONCRETE
	0.30			SM	AGGREGATE: base course
1	0.8				SANDY SILTY CLAY: brown, moderately plastic, medium stiff, moist, no odour, interbedded with sand, black, fine to medium graded, loose moist, no odour.
2	9.0	1.5			CLAY WITH SAND: light brown, moderately plastic, medium stiff, no odour.
3	15.1	3.0		GC	
4					
5	3.9	4.5			SAND WITH CLAY: brown, fine, loose, moist, no odour.
6	1.2	6.0		SC	
7	6.9	7.1		GC	CLAYEY SAND: greenish brown, dense, dry to moist, no odour.
	0.0	7.5		SW	SAND: brown, fine, loose, moist, no odour.
8				SM	SANDY SILTY CLAY: light brown, moderately stiff, moist, no odour.
	8.1				SAND: brown, fine, ??????
	8.5			SW	
9	8.8				CLAYEY SAND: grey/brown, dense, moist, slight to moderate odour.
	530	8.5		GC	
10	9.9			SW	SAND: dark brown and black, loose, moist, strong odour.

UNIFIED SOIL CLASSIFICATION SYSTEM

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO.4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	<u>SILTS & CLAYS</u> <u>LL < 50</u>	ML	Inorganic silty soils and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> <u>LL > 50</u>	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4 3" to 3/4" 3/4" to No.4	.76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074

WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS
	Concrete (55)	Solid (1s)
	Neat Cement (54)	Slotted PVC (3w)
	Base Course (30)	Slot. PVC High Flow (8w)
	Stuff (64)	Wire Wound PVC (16w)
	Bentonite (21)	Wire Wound Steel (15w)
	Filter Pack (7)	Saw Cut (12w)
	Pea Gravel (2)	
	Liner (33)	
	Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level



Drilling Log

Soil Boring 16c

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
10					
11	2500+	10.7		SW	CLAYEY SAND: brown, firm, moist, strong odour.
12	2500+	11.5		GC	
13	2500+	12.0			SAND: dark brown to black, loose, moist, strong odour.
13	2500+	12.3			
13	2500+	12.5			
14	248	13.5			
15	643	14.5			
15		15.0			
16	181	15.5			
16	317	16.0			
17	258	16.5		SW	
18	153	17.5			
19	125	18.5			
19	183	19.0			
20	943	19.5			
21	81.2	20.5 20.7			HOLE TERMINATED AT TARGET DEPTH
22					
23					
24					

CONFIDENTIAL

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	<u>SILTS & CLAYS</u> <u>LL < 50</u>	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> <u>LL > 50</u>	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 19.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

Asphalt (68)	SCREENS
Concrete (55)	Solid (1s)
Neat Cement (54)	Slotted PVC (3w)
Base Course (30)	Slot. PVC High Flow (8w)
Sluff (64)	Wire Wound PVC (16w)
Bentonite (21)	Wire Wound Steel (15w)
Filter Pack (7)	Saw Cut (12w)
Pea Gravel (2)	
Liner (33)	
Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level

Drilling Log



GROUNDWATER
TECHNOLOGY

Soil Boring **39a**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. NI034
 Surface Elev. _____ Total Hole Depth 26.0 m Diameter 203 mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger 1
 Driller Nigel Bishop Log By Kurt Harris Date 10/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
For Boring Location

COMMENTS:

See Site Plan for location. PID readings are maximums only following stabilisation

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0				GC	GRAVELLY CLAYEY SAND: Light brown, moist, loose.
1					
2	2.3 22.9	1.5 2.0		SP	GRAVELLY SAND: Brown, moist, loose, slight odour at 1.5 m, strong odour at 2.0 metres.
3					10 cm thick wood layer, possibly fill above this level.
4	24.4	3.3		SW	SAND: Black, fine to medium, moist, loose, very strong odour.
5					
6	79.7	5.4 5.8		OL	CLAY: Black, moist, stiff, moderately plastic, strong odour.
7					
8				SM	SAND: Black, fine to medium, moist, loose, very strong odour becoming gravelly with some silt and clay.
9					
10					

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














CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4	76.2 to 4.75
	3" to 3/4" 3/4" to No. 4	76.2 to 19.1 19.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200	4.75 to 0.074
	No. 4 to No. 10	4.76 to 2.00
	No. 10 to No. 40 No. 40 to No. 200	2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074



WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level

Drilling Log



GROUNDWATER
 TECHNOLOGY

Soil Boring **39a**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
10				SM	
11	101 10.6 140 11.0 73.5 11.4			ML	SANDY SILTY CLAY: olive grey, low plastic, soft, fine sand, moist, slight to moderate odour.
12	20.8 12.5				SAND: light grey, fine to medium graded, dense, slightly moist, slight odour.
13	36.4 13.5				SAND: light grey, fine to medium graded, dense, slightly moist, slight odour.
14	36.4 14.5				Increase in density, some silt to 14.7.
15	2.0 15.4				SAND: black, fine to medium graded, some silt, moist, loose, no odour.
16				SW	
17	11.6 17.5				
18	33.4 18.4				Change to medium density, slight odour.
19	12.8 19.5				
20					
21	29.7 20.8			CL	SANDY SILTY CLAY: very moist clay, grey brown, low to plastic, stiff, fine sand, slightly moist.
22	15.0 21.5				
23	3.4 22.8			ML	GRAVELLY SANDY CLAY
24	0.0 23.6 23.9			SW	SAND: black, fine to medium, very moist.
				OL	CLAY: olive grey brown, saturated to moist.

CONFIDENTIAL

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO.4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4 3" to 3/4" 3/4" to No.4	.76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074

WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS	
	Concrete (55)		Solid (1s)
	Neat Cement (54)		Slotted PVC (3w)
	Base Course (30)		Slot. PVC High Flow (8w)
	Sluff (64)		Wire Wound PVC (16w)
	Bentonite (21)		Wire Wound Steel (15w)
	Filter Pack (7)		Saw Cut (12w)
	Pea Gravel (2)		
	Liner (33)		
	Geocloth (36)		

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level

Drilling Log

Soil Boring 39a



Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description
					(Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24					Slightly moist.
24.5	0.0	24.5	[Hatched pattern]	OL	Moderately plastic, stiff, no odour.
25		25.0	[Vertical lines pattern]		SANDY SILTY CLAY: pale brown with orangish red, moderately to highly plastic, soft to firm, no odour.
25.5	0.0	25.5	[Vertical lines pattern]	ML	
26		26.0			
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					

CONFIDENTIAL

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO.4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	<u>SILTS & CLAYS</u> <u>LL < 50</u>	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> <u>LL > 50</u>	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3'	305 to 76.2
GRAVEL COARSE FINE	3' to No.4 3" to 3/4" 3/4" to No.4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074

WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS
	Concrete (55)	Solid (1s)
	Neat Cement (54)	Slotted PVC (3w)
	Base Course (30)	Slot. PVC High Flow (8w)
	Sluff (64)	Wire Wound PVC (16w)
	Bentonite (21)	Wire Wound Steel (15w)
	Filter Pack (7)	Saw Cut (12w)
	Pea Gravel (2)	
	Liner (33)	
	Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level



GROUNDWATER
 TECHNOLOGY

Drilling Log

Soil Boring **39b**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034
 Surface Elev. _____ Total Hole Depth 2.1 m Diameter 203 mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 10/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:

See Site Plan for location. PID readings
 are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0				GP	ASHPALT
0.5	12.7			SP	AGGREGATE BASE COURSE: slight odour.
1				SP	GRAVELLY SAND: brown, fine sand, fine to medium gravels, moist, some roots, strong odour. [Fill]
1.3	1144				DEMOLISH BUILDING: materials, wood, wire, rock. [Fill]
2					AUGER REFUSAL: 2.1 ROCK .
2.1	1363				
3					
4					
5					
6					
7					
8					
9					
10					

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	.76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074



WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level

Drilling Log



GROUNDWATER
 TECHNOLOGY

Soil Boring **39c**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034
 Surface Elev. _____ Total Hole Depth 9.7 m Diameter _____
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 24/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:

See Site Plan for location. PID readings
 are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0	18.4	0.5		GC	GRAVELLY, CLAYEY SAND: fine sand and gravel, moist, fine roots, light reddish brown, (fill material top soil), slight odour 0.5 m, strong odour at 1.4 m.
1	14.9	1.4		SP	GRAVELLY SAND WITH CLAY: light brown sand, grey and white volcanic clay, fine sand, fine to medium gravels, moist, some roots at 2.0 m, strong odour 2.5 m to 2.75 m, extensive roots.
2	1.5				
3	906	2.7		SW	SAND: black, fine to medium, some silty/clayey, fine, moist, loose, very strong odour, (pumice=white). Moderate odour:
4	28.4	3.5			
5	15.3	4.5			
6	70.4	5.6		SW	Slight odour:
7	0.0	6.5			
8				ML	SILT WITH SAND: (weathered volcanic ash), brownish orange, fine grain sand, low to moderately plastic, moist, moderate odour.
9	20.9	8.6			
10	2.3	9.3		SW	SAND: black, fine to medium, some silt/clay, fine, moist, loose, very strong odour, (pumice white). HOLE TERMINATED AT TARGET DEPTH

CONFIDENTIAL

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3'	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4	76.2 to 4.75
	3" to 3/4" 3/4" to No. 4	76.2 to 19.1 19.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200	4.75 to 0.074
	No. 4 to No. 10	4.75 to 2.00
	No. 10 to No. 40 No. 40 to No. 200	2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS
	Concrete (55)	Solid (1s)
	Neat Cement (54)	Slotted PVC (3w)
	Base Course (30)	Slot. PVC High Flow (8w)
	Sluff (64)	Wire Wound PVC (16w)
	Bentonite (21)	Wire Wound Steel (15w)
	Filter Pack (7)	Saw Cut (12w)
	Pea Gravel (2)	
	Liner (33)	
	Geocloth (38)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level

Drilling Log



GROUNDWATER
 TECHNOLOGY

Soil Boring **39d**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. NI034
 Surface Elev. _____ Total Hole Depth 9.8 m Diameter 203 mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 10/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:

See Site Plan for location. PID readings
 are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0		0.05		GP	ASPHALT
	30.6	0.35		SP	AGGREGATE BASE COURSE
1		0.5		SP	GRAVELLY SAND WITH SILT: dark brown, fine sand, fine to medium gravels, moist, loose, slight odour.
	62.2	1.5		OL	CLAY: brown, moderately plastic, stiff, moist, some fine sand, slight odour.
2		2.0		SW	SAND: black, fine to medium, (medium grained, white pumice), moist, loose, slight odour.
	23.7	2.5		SW	
3				OL	CLAY: brown, moderately plastic, stiff, moist, some fine sand, moderate odour.
	147	3.3		OL	
4		3.5		OL	CLAY: brown, moderately plastic, stiff, moist, some fine sand, moderate odour.
	289	4.5		SW	SAND: black, fine to medium sand, (medium grained, white pumice), moist, loose, moderate odour. STRONG ODOURS
5				SW	
	100	5.8		SW	
6				SW	
	127	6.5		SW	
7				SW	
	220	7.5		SW	
8				SW	
	168	8.5		SW	
9				SW	
	13.5	9.5		SW	
10		9.8			HOLE TERMINATED AT TARGET DEPTH

UNIFIED SOIL CLASSIFICATION SYSTEM

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	<u>SILTS & CLAYS</u> <u>LL < 50</u>	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> <u>LL > 50</u>	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	.76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS
	Concrete (55)	Solid (1s)
	Neat Cement (54)	Slotted PVC (3w)
	Base Course (30)	Slot. PVC High Flow (8w)
	Sluff (64)	Wire Wound PVC (16w)
	Bentonite (21)	Wire Wound Steel (15w)
	Filter Pack (7)	Saw Cut (12w)
	Pea Gravel (2)	
	Liner (33)	
	Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level

Drilling Log



Soil Boring 39e

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. NI034
 Surface Elev. _____ Total Hole Depth 8.6 m Diameter 203 mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 11/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:

See Site Plan for location. PID readings
 are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0	7.6	0.5		SP	GRAVELLY SAND: brown, fine sand and gravel (andesite), moist, fine roots, no odour.
1	7.1	1.5			
2		2.1		SC	SANDY CLAY: (no retrieval), light brown, moderately plastic, stiff, moist, fine grained sand, no odour.
3		2.9			
4	6.2	3.5		SW	SAND: black, fine to medium grained, moist, loose, no odour, (medium grains, white pumice).
5		5.1			
	9.4	5.4		OL	CLAY: orange and brown, moderately plastic, very stiff, moist, no odour.
6		5.5			
7	4.9	6.5		SW	SAND: black, fine to medium grained, moist, loose, no odour, (medium grains, white pumice).
8	5.7	7.5			
9	4.5	8.5			
		8.6			
10					HOLE TERMINATED AT TARGET DEPTH

UNIFIED SOIL CLASSIFICATION SYSTEM

CONFIDENTIAL

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO.4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4 3" to 3/4" 3/4" to No.4	.76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074

WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS
	Concrete (55)	Solid (1s)
	Neat Cement (54)	Slotted PVC (3w)
	Base Course (30)	Slot. PVC High Flow (8w)
	Sluff (64)	Wire Wound PVC (16w)
	Bentonite (21)	Wire Wound Steel (15w)
	Filter Pack (7)	Saw Cut (12w)
	Pea Gravel (2)	
	Liner (33)	
	Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level

Drilling Log



Soil Boring **39f**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. NI034
 Surface Elev. _____ Total Hole Depth 9.8 m Diameter 203 mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller _____ Log By Kurt Harris Date 11/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:
 See Site Plan for location. PID readings
 are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0	PID 194	SAMPLE 0.5		GC	GRAVELLY CLAYEY SAND: light reddish brown, fine sand and gravel, slight odour.
1	7.6	1.5		GC	NO ODOUR
2	5.6	2.5		SP	SAND: black, fine to medium grain, moist, loose, no odour, (medium grains, white pumice).
3	3.9	3.5		SP	
4	5.7	4.5		SP	
5	32.9	5.5		OL	CLAY: brown, moderately plastic, very stiff, slightly moist, slight to moderate odour.
6	42.2	6.5		OL	STRONG ODOURS
7	207	7.5		OL	
8	8.2	8.2		SP	SAND: black, fine to medium grain, moist, loose, slight odour, (medium grains, white pumice).
9	8.9	8.9		SP	
10	5.5	9.7 9.8			HOLE TERMINATED AT TARGET DEPTH

UNIFIED SOIL CLASSIFICATION SYSTEM

CONFIDENTIAL

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO.4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	<u>SILTS & CLAYS</u> <u>LL < 50</u>	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> <u>LL > 50</u>	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4 3" to 3/4" 3/4" to No.4	.76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074

WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS
	Concrete (55)	Solid (1s)
	Neat Cement (54)	Slotted PVC (3w)
	Base Course (30)	Slot. PVC High Flow (8w)
	Sluff (64)	Wire Wound PVC (16w)
	Bentonite (21)	Wire Wound Steel (15w)
	Filter Pack (7)	Saw Cut (12w)
	Pea Gravel (2)	
	Liner (33)	
	Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level



GROUNDWATER
 TECHNOLOGY

Drilling Log

Soil Boring 39g

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034
 Surface Elev. _____ Total Hole Depth 7.6 m Diameter 203 mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 12/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:

See Site Plan for location. PID readings
 are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0	PID	SAMPLE		GP	ASPHALT
	0.04	0.04			
	5.2	0.5		SC	AGGREGATE BASE COURSE.
1		1.0			SANDY CLAY: brown, slightly plastic, semi fine sand, no odour.
	7.6	1.5			SAND: black, fine to medium graded, (medium grains, white pumice), moist, no odour.
2		2.5			
	4.1	2.5			
3		3.5			
	20.0	3.5			
4		4.5		SW	
	4.7	4.5			
5		5.5			
	4.4	5.5			
6		6.5			
	22.8	6.5			
7		7.5			
	6.6	7.5			
8		7.6			HOLE TERMINATED AT TARGET DEPTH
9					
10					

UNIFIED SOIL CLASSIFICATION SYSTEM

DowElanco (NZ) Ltd.

CONFIDENTIAL

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	<u>SILTS & CLAYS</u> LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils	20

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4	76.2 to 4.75
	3" to 3/4" 3/4" to No. 4	76.2 to 19.1 19.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200	4.75 to 0.074
	No. 4 to No. 10	4.75 to 2.00
	No. 10 to No. 40 No. 40 to No. 200	2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

<table style="width: 100%;"> <tr> <td></td> <td>Asphalt (68)</td> </tr> <tr> <td></td> <td>Concrete (55)</td> </tr> <tr> <td></td> <td>Neat Cement (54)</td> </tr> <tr> <td></td> <td>Base Course (30)</td> </tr> <tr> <td></td> <td>Stuff (64)</td> </tr> <tr> <td></td> <td>Bentonite (21)</td> </tr> <tr> <td></td> <td>Filter Pack (7)</td> </tr> <tr> <td></td> <td>Pea Gravel (2)</td> </tr> <tr> <td></td> <td>Liner (33)</td> </tr> <tr> <td></td> <td>Geocloth (36)</td> </tr> </table>		Asphalt (68)		Concrete (55)		Neat Cement (54)		Base Course (30)		Stuff (64)		Bentonite (21)		Filter Pack (7)		Pea Gravel (2)		Liner (33)		Geocloth (36)	<p style="text-align: center;">SCREENS</p> <table style="width: 100%;"> <tr> <td></td> <td>Solid (1s)</td> </tr> <tr> <td></td> <td>Slotted PVC (3w)</td> </tr> <tr> <td></td> <td>Slot. PVC High Flow (8w)</td> </tr> <tr> <td></td> <td>Wire Wound PVC (16w)</td> </tr> <tr> <td></td> <td>Wire Wound Steel (15w)</td> </tr> <tr> <td></td> <td>Saw Cut (12w)</td> </tr> </table>		Solid (1s)		Slotted PVC (3w)		Slot. PVC High Flow (8w)		Wire Wound PVC (16w)		Wire Wound Steel (15w)		Saw Cut (12w)
	Asphalt (68)																																
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SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

∇ Initial Water Level
▼ Static Water Level

Drilling Log



Soil Boring 39h

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. NI034
 Surface Elev. _____ Total Hole Depth 8.3 m Diameter 203 mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 12/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:

See Site Plan for location. PID readings
 are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0	7.1	0.5		GC	GRAVELLY CLAYEY SAND: brown to light reddish brown, fine sand and gravel (andesite), loose, moist, no odour.
1		0.7			
2	4.1	1.5			SAND: black, fine to medium graded, (medium grains, white pumice), loose, moist, no odour.
3	0.0	2.5		SW	
4	0.0	3.5			
5	4.5				CLAY: brown, moderately plastic, stiff, slightly moist, no odour.
6	0.0	5.5			
7	0.0	6.5		OL	
8	0.0	7.5			
9	0.0	8.3			HOLE TERMINATED AT TARGET DEPTH
10					

CONFIDENTIAL

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
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		SP	Poorly graded sands or gravelly sands, little or no fines	6
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FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
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	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4	76.2 to 4.75
	3" to 3/4" 3/4" to No.4	76.2 to 19.1 19.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200	4.75 to 0.074
	No.4 to No.10	4.75 to 2.00
	No.10 to No.40 No.40 to No.200	2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074



WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level

Drilling Log



Soil Boring **39i**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034
 Surface Elev. _____ Total Hole Depth 8.3 m Diameter 203 mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 13/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
For Boring Location

COMMENTS:

See Site Plan for location. PID readings are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0	0.04 0.25			GP	ASPHALT
0.5	5.4			SC	AGGREGATE BASE COURSE
1				SC	SANDY CLAY: brown, low plastic, soft, fine sand, moist, no odour.
1.5	0.3				SAND: black, fine to medium graded, (medium grains, white pumice), loose, moist, no odour.
2					Roots, dark ash, slight odour.
2.5	0.0			SW	
3				SW	
3.5	0.0			SW	Colour changes orangish black, very slight odour.
4				SW	
4.5	0.0			SW	
5	5.3 5.4 5.5			SM	SILTY SAND: grey, dry, dense (cemented)
6				SM	
6.5	3.2			SM	
7				SM	
7.1	0.0			SM	
7.5				SM	
8	0.0			SW	SAND: black, fine to medium graded, loose, moist, no odour.
8.2				SW	
8.3				SW	HOLE TERMINATED AT TARGET DEPTH
9					
10					

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO.4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4 3" to 3/4" 3/4" to No.4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.75 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074



WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (38)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level

Drilling Log



GROUNDWATER
 TECHNOLOGY

Soil Boring **39j**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. NI034
 Surface Elev. _____ Total Hole Depth 24.0 m Diameter 203 mm
 Top of Casing _____ Water Level Initial 20.9 m Static _____
 Screen: Dia 50 mm Length _____ Type/Size _____
 Casing: Dia 50 mm Length 3 m Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 20/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:

See Site Plan for location. PID readings
 are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0				SW	GRAVELLY SAND: Light brown, fine sand and gravel, loose, moist, no odour.
1					
2	1.5			GM	GRAVELLY SAND: brown, fine grained gravel and sand, loose, moist, slight odour.
3	22.4	3.0			SAND: black, fine to medium, loose, moist, slight odours,
4					
5	36.5	5.0		SP	
6	27.2	6.0			
7		7.0		SP	Becoming CLAYEY SAND with depth.
8	43.8	8.0		SP	Becoming SILTY SAND with depth.
9					
10	45.5	10.0		SP	

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CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

	Asphalt (88)	SCREENS	
	Concrete (55)		Solid (1s)
	Neat Cement (54)		Slotted PVC (3w)
	Base Course (30)		Slot. PVC High Flow (8w)
	Sluff (64)		Wire Wound PVC (16w)
	Bentonite (21)		Wire Wound Steel (15w)
	Filter Pack (7)		Saw Cut (12w)
	Pea Gravel (2)		
	Liner (33)		
	Geocloth (36)		

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level

Drilling Log



GROUNDWATER
 TECHNOLOGY

Soil Boring **39j**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
10	45.5	10.0		SP	SILTY SAND: black, fine to medium. loose, moist.
11					Moderate odours.
12	12.0				
13	30.4	13.0			
14	14.7	14.0			
15					
16	15.7	16.0			
17	9.5	17.0			
18	6.5	18.0			
19	8.0	19.0			
20	12.2	20.0			
21					
21.3				SC	SANDY CLAY: olive green and black with 1cm thick interbedded black sand, low plastic, soft, saturated, slight odour.
22					
22.1				OL	CLAY: olive grey, moderately plastic, soft to medium. (Weathered Andesite)
23					
23.2					
24					
24.0					

DowElanco (NZ) **UNIFIED SOIL CLASSIFICATION SYSTEM**
CONFIDENTIAL

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO.4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	<u>SILTS & CLAYS</u> <u>LL < 50</u>	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> <u>LL > 50</u>	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4 3" to 3/4" 3/4" to No.4	.76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074

WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS
	Concrete (55)	Solid (1s)
	Neat Cement (54)	Slotted PVC (3w)
	Base Course (30)	Slot. PVC High Flow (8w)
	Sluff (64)	Wire Wound PVC (16w)
	Bentonite (21)	Wire Wound Steel (15w)
	Filter Pack (7)	Saw Cut (12w)
	Pea Gravel (2)	
	Liner (33)	
	Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level

Drilling Log



GROUNDWATER
 TECHNOLOGY

Soil Boring **39k**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034
 Surface Elev. _____ Total Hole Depth 25.0 m Diameter _____
 Top of Casing _____ Water Level Initial 23.3 m Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 24/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:

See Site Plan for location. PID readings
 are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0					
0.30 0.5	3.7	0.30 0.5	[Vertical lines pattern]	SM	SANDY SILT: brown, low plastic, soft, moist, no odour.
1					
2					
2.2	2.2	2.0	[Vertical lines pattern]	SM	
3					
0.1	0.1	3.5	[Dotted pattern]	SW	SAND: dark brown to black, fine to medium, loose, moist, no odour.
4					
5					
3.6	3.6	5.5	[Dotted pattern]	SW	
6					
0.0	0.0	6.0 6.5	[Diagonal lines pattern]	OL	SANDY CLAY: olive grey to light brown, moderately plastic, soft to firm.
7					
0.0	0.0	7.5	[Diagonal lines pattern]	OL	
8					
0.3	0.3	8.5	[Diagonal lines pattern]	OL	
9					
5.7	5.7	9.5	[Diagonal lines pattern]	OL	
10					
		10.0	[Diagonal lines pattern]	OL	

UNIFIED SOIL CLASSIFICATION SYSTEM

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














CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO.4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4 3" to 3/4" 3/4" to No.4	.76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074

WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (38)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

∇ Initial Water Level
▼ Static Water Level

Drilling Log



GROUNDWATER
TECHNOLOGY

Soil Boring **39k**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
10		10.0		OL	CLAY: light yellowish brown, moderately plastic, firm, moist to wet, no odour.
	5.7	10.5			
11		11.0		SC	SANDY CLAY TO CLAYEY SAND: olive grey, moderately plastic, firm, moist, no odour.
	5.2	11.5			
12		12.5		SC	SANDY CLAY TO CLAYEY SAND: olive grey, moderately plastic, firm, moist, no odour.
	4.8	12.5			
13		14.0		SC	SANDY CLAY TO CLAYEY SAND: olive grey, moderately plastic, firm, moist, no odour.
	5.0	14.0			
14		15.5		OL	CLAY: light yellowish brown, moderately plastic, firm, moist to wet, no odour.
	6.6	15.5			
15		16.5		SC	SANDY CLAY: olive grey, moderately plastic, moist, no odour.
	4.1	17.0			
16		18.0		SC	SANDY CLAY: olive grey, moderately plastic, moist, no odour.
	3.2	18.0			
17		19.0		SW	SAND: black, fine to medium grained, loose, moist, no odour.
	0.8	19.5			
18		20.5		SW	SAND: black, fine to medium grained, loose, moist, no odour.
	0.2	20.5			
19		21.5		SW	SAND: black, fine to medium grained, loose, moist, no odour.
	1.5	21.5			
20		22.0		SW	SAND: black, fine to medium grained, loose, moist, no odour.
	13.8	22.0			
21		23.5		OL	CLAY: black, olive grey to brown, moderately plastic, firm, saturated, (Weathered Andesite).
	13.9	24.0			

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














CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
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HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074



WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS
	Concrete (55)	 Solid (1s)
	Neat Cement (54)	 Slotted PVC (3w)
	Base Course (30)	 Slot. PVC High Flow (8w)
	Sluff (64)	 Wire Wound PVC (16w)
	Bentonite (21)	 Wire Wound Steel (15w)
	Filter Pack (7)	 Saw Cut (12w)
	Pea Gravel (2)	
	Liner (33)	
	Geocloth (38)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level

Drilling Log



GROUNDWATER
 TECHNOLOGY

Soil Boring **39k**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. NI034

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description
					(Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24	13.9	24.0		OL	CLAY: black, olive grey to brown, moderately plastic, firm, saturated, (Weathered Andesite).
25		25.0			HOLE TERMINATED AT TARGET DEPTH
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					

UNIFIED SOIL CLASSIFICATION SYSTEM

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

▽ Initial Water Level
 ▼ Static Water Level



GROUNDWATER
 TECHNOLOGY

Drilling Log

Soil Boring **BH41**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034
 Surface Elev. _____ Total Hole Depth 22.0 m Diameter _____
 Top of Casing _____ Water Level Initial 20.8 m Static _____
 Screen: Dia 50 mm Length 3 m Type/Size 0.5 mm
 Casing: Dia 50 mm Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 25/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:

See Site Plan for location. PID readings
 are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0				SM	SANDY SILT: dark brown, low plasticity, very stiff moist.
1	0.0	0.55 1.0			SAND: black, fine to medium, loose, moist, no odour.
2	0.2	2.0			
3	0.0	3.0			
4	0.1	4.0			
5				SW	
6	0.3	6.0			
7	0.5	7.0			
8	0.4	8.0			
9	0.3	9.0			
10		9.75		SC	CLAYEY SAND: grey to dark brown, fine, moderately plastic, medium dense/stiff, moist, no odour.

CONFIDENTIAL

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO.4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4 3" to 3/4" 3/4" to No.4	76.2 to 4.75 76.2 to 19.1 19.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.75 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074

WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

▽ Initial Water Level
▼ Static Water Level

Drilling Log

Soil Boring **BH41**



GROUNDWATER
 TECHNOLOGY

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
10				SC	CLAYEY SAND: grey to dark brown, fine, moderately plastic, medium dense/stiff, moist, no odour.
11	0.1	11.0			
12	0.0	12.0			
13	0.4	13.0			
14	0.0	14.0		SC	SANDY CLAY: grey to dark brown, moderately to highly plastic, soft, moist.
15	0.3	14.75 15.0			
16				ML	CLAYEY SAND: dark olive grey, dense, moist, no odour.
17	0.1	16.5			
18	0.0	18.0			
19	0.0	18.5 19.0		SW	SAND: dark olive grey, dense, very moist, no odour.
20	0.0	20.0			
21				OL	CLAY: (weathered andesite), light olive grey, low plasticity, stiff, saturated, no odour, pumice, iron oxide banding, blocky texture.
22	21.2				
23					HOLE TERMINATED AT TARGET DEPTH
24		22.0			

DowElanco (NZ) Ltd. **UNIFIED SOIL CLASSIFICATION SYSTEM**
CONFIDENTIAL CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4	76.2 to 4.75
	3" to 3/4" 3/4" to No. 4	76.2 to 19.1 19.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200	4.75 to 0.074
	No. 4 to No. 10	4.75 to 2.00
	No. 10 to No. 40 No. 40 to No. 200	2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

Asphalt (68)	SCREENS
Concrete (55)	Solid (1s)
Neat Cement (54)	Slotted PVC (3w)
Base Course (30)	Slot. PVC High Flow (8w)
Sluff (64)	Wire Wound PVC (16w)
Bentonite (21)	Wire Wound Steel (15w)
Filter Pack (7)	Saw Cut (12w)
Pea Gravel (2)	
Liner (33)	
Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level



GROUNDWATER
 TECHNOLOGY

Drilling Log

Soil Boring **BH42**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034
 Surface Elev. _____ Total Hole Depth 20.6 m Diameter _____
 Top of Casing _____ Water Level Initial 18.3 m Static _____
 Screen: Dia 25 mm Length 3 m Type/Size 0.5 mm
 Casing: Dia 25 mm Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 25/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:
 See Site Plan for location. PID readings
 are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0				SM	SANDY SILT: dark brown, low plasticity, stiff to hard, moist to dry, no odour.
1	0.4	0.75 1.0			CLAY WITH SAND: light brown, highly plastic, stiff, dry, no odour.
2	2.1	2.0		SC	
3					
4	3.1	3.8 4.0			SAND: black, loose, moist, no odour.
5					
6	3.4	6.0			
7				SW	
8	2.8	8.0			
9					
10	0.8	10.0			

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	<u>SILTS & CLAYS</u> <u>LL < 50</u>	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> <u>LL > 50</u>	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	.76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS
	Concrete (55)	Solid (1s)
	Neat Cement (54)	Slotted PVC (3w)
	Base Course (30)	Slot. PVC High Flow (8w)
	Sluff (64)	Wire Wound PVC (16w)
	Bentonite (21)	Wire Wound Steel (15w)
	Filter Pack (7)	Saw Cut (12w)
	Pea Gravel (2)	
	Liner (33)	
	Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level

Drilling Log



GROUNDWATER
 TECHNOLOGY

Soil Boring **BH42**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
10	0.8	10.0		SW	SAND: black, loose, moist.
11	1.6	11.0			
12					
13	0.4	13.0			
14					
15	1.3	15.0			
16	0.8	16.0			
17	0.9	17.0			
18					
19	3.1	18.3 18.6 19.0			▽
20		19.7		SM	SANDY SILTY CLAY: light brown, low to moderately plastic, stiff saturated, no odour, (Weathered Andesite).
21		20.8			HOLE TERMINATED AT TARGET DEPTH
22					
23					
24					

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	<u>SILTS & CLAYS</u> <u>LL < 50</u>	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> <u>LL > 50</u>	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3'	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	.76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

SCREENS	
	Asphalt (68)
	Concrete (55)
	Neat Cement (54)
	Base Course (30)
	Sluff (64)
	Bentonite (21)
	Filter Pack (7)
	Pea Gravel (2)
	Liner (33)
	Geocloth (36)
	Solid (1s)
	Slotted PVC (3w)
	Slot. PVC High Flow (8w)
	Wire Wound PVC (16w)
	Wire Wound Steel (15w)
	Saw Cut (12w)

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level

Drilling Log



GROUNDWATER
TECHNOLOGY

Soil Boring **BH43**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034
 Surface Elev. _____ Total Hole Depth 16.0 m Diameter _____
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 30/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
For Boring Location

COMMENTS:

See Site Plan for location. PID readings are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0				Pt	TOPSOIL
0.55				OL	CLAY: greenish brown, soft, moderately plastic, moist, no odour.
2.08				SW	SAND: grey, loose, moist, no odour.
6.67				SC	CLAYEY SAND: greenish grey, loose, moist to wet, no odour.
8					
9					
10					

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO.4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	<u>SILTS & CLAYS</u> <u>LL < 50</u>	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> <u>LL > 50</u>	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4 3" to 3/4" 3/4" to No.4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074

WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level

Drilling Log



GROUNDWATER
TECHNOLOGY

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
Location New Plymouth, NZ Proj. No. NI034

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description
					(Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
10					
11				SC	
12		11.5		ML	SANDY SILTY CLAY: brown, firm, moist to dry. (Weathered Andesite).
13		12.79			HOLE TERMINATED AT TARGET DEPTH
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

CONFIDENTIAL

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS
	Concrete (55)	Solid (1s)
	Neat Cement (54)	Slotted PVC (3w)
	Base Course (30)	Slot. PVC High Flow (8w)
	Sluff (64)	Wire Wound PVC (16w)
	Bentonite (21)	Wire Wound Steel (15w)
	Filter Pack (7)	Saw Cut (12w)
	Pea Gravel (2)	
	Liner (33)	
	Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level



GROUNDWATER
TECHNOLOGY

Drilling Log

DowElanco (NZ) Ltd.
CONFIDENTIAL

Soil Boring **BH44**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. NI034
 Surface Elev. _____ Total Hole Depth 16.0 m Diameter _____
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 25/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
For Boring Location

COMMENTS:

See Site Plan for location. PID readings are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0		0.1		Pt	TOPSOIL
1					SILTY CLAY: light brown, moderately to highly plastic, soft moist to wet, no odour.
2	1.3	2.0			
3					
4	0.8	4.0		OL	
5	1.2	5.0			
6					
7					
8	2.7	8.0			SANDY CLAY: greyish brown, slightly plastic, soft, moist, no odour.
9	2.8	9.0		SC	
10	0.6	10.0			

DowElanco (NZ) Ltd **UNIFIED SOIL CLASSIFICATION SYSTEM**
CONFIDENTIAL

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	.76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074



WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (38)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level

Drilling Log



GROUNDWATER
 TECHNOLOGY

Soil Boring **BH44**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
10	0.6	10.0			
11					
12	0.0	12.0		SC	
13					
14				GC	CLAYEY SAND: redish brown, slightly plastic, soft, moist, no odour.
15	0.0	15.35			HOLE TERMINATED AT TARGET DEPTH
16					
17					
18					
19					
20					
21					
22					
23					
24					

UNIFIED SOIL CLASSIFICATION SYSTEM

CONFIDENTIAL

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	<u>SILTS & CLAYS</u> LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4	76.2 to 4.75
	3" to 3/4" 3/4" to No. 4	76.2 to 19.1 19.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200	4.75 to 0.074
	No. 4 to No. 10	4.75 to 2.00
	No. 10 to No. 40 No. 40 to No. 200	2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
 Sluff (64)	 Wire Wound PVC (16w)
 Bentonite (21)	 Wire Wound Steel (15w)
 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

∇ Initial Water Level
∇ Static Water Level

Drilling Log



Soil Boring **BH44**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034
 Surface Elev. _____ Total Hole Depth 16.0 m Diameter _____
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core Laskey Sampler
 Drill Co. Brown Brothers Method Hollow Stem Auger
 Driller Nigel Bishop Log By Kurt Harris Date 25/10/95 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:

See Site Plan for location. PID readings
 are maximums only following stabilisation.

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description
					(Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0		0.1		Pt	TOPSOIL
1					SILTY CLAY: light brown, moderately to highly plastic, soft moist to wet, no odour.
2	1.3	2.0			
3					
4	0.8	4.0		OL	
5	1.2	5.0			
6					
7					
8	2.7	8.0			SANDY CLAY: greyish brown, slightly plastic, soft, moist, no odour.
9	2.8	9.0		SC	
10	0.8	10.0			

UNIFIED SOIL CLASSIFICATION SYSTEM

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












CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
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		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
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GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
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SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074



WELL CONSTRUCTION MATERIALS

 Asphalt (68)	SCREENS
 Concrete (55)	 Solid (1s)
 Neat Cement (54)	 Slotted PVC (3w)
 Base Course (30)	 Slot. PVC High Flow (8w)
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 Filter Pack (7)	 Saw Cut (12w)
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level

Drilling Log

Soil Boring **BH44**



GROUNDWATER
TECHNOLOGY

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
Location New Plymouth, NZ Proj. No. N1034

Depth (m)	PID (ppm)	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
					10
11					
12	0.0	12.0		SC	
13					
14					CLAYEY SAND: redish brown, slightly plastic, soft, moist, no odour.
15				GC	
16	0.0	15.35			HOLE TERMINATED AT TARGET DEPTH
17					
18					
19					
20					
21					
22					
23					
24					

UNIFIED SOIL CLASSIFICATION SYSTEM

CONFIDENTIAL

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No.200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO.4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO.4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No.200 SIEVE SIZE	<u>SILTS & CLAYS</u> <u>LL < 50</u>	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> <u>LL > 50</u>	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No.4 3" to 3/4" 3/4" to No.4	.76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No.4 to No.200 No.4 to No.10 No.10 to No.40 No.40 to No.200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No.200	Below No.0.074

WELL CONSTRUCTION MATERIALS

	Asphalt (68)	SCREENS
	Concrete (55)	Solid (1s)
	Neat Cement (54)	Slotted PVC (3w)
	Base Course (30)	Slot. PVC High Flow (8w)
	Sluff (64)	Wire Wound PVC (16w)
	Bentonite (21)	Wire Wound Steel (15w)
	Filter Pack (7)	Saw Cut (12w)
	Pea Gravel (2)	
	Liner (33)	
	Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

∇ Initial Water Level
▼ Static Water Level

Drilling Log

Monitoring Well **A1**



GROUNDWATER
TECHNOLOGY

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034B
 Surface Elev. _____ Total Hole Depth 4.0 m Diameter 50 mm mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core _____
 Drill Co. _____ Method Hand Auger 1
 Driller Dave Morton Log By Dave Morton Date 3/5/96 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
For Boring Location

COMMENTS:

See Site Plan for location. PID readings are maximums only following stabilisation

Depth (m)	Well Completion	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0				SM	SILTY SANDY LOAM: dark brown to black, many roots and worms present.
				SW	SANDY LOAM: dark brown to black. Well graded and well sorted. Friable to very friable and dry.
1				SC	SANDY CLAY: light brown, slightly plastic, firm. No odours.
				SW	SAND: dark brown black, loose, dry sand. Becoming moist with depth to a sandy loam.
2		A1a		SW	
				SW	SANDY LOAM: grey brown with minor clay proportion. Well graded.
3				SW	SANDY LOAM: grey and black. Slightly moist at first but becoming drier with depth grading to fine to medium loose sand.
4		A1b			HOLE TERMINATED AT TARGET DEPTH
5					
6					
7					
8					

UNIFIED SOIL CLASSIFICATION SYSTEM

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.75 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

- | | |
|------------------|--------------------------|
| Asphalt (68) | SCREENS |
| Concrete (55) | Solid (1s) |
| Neat Cement (54) | Slotted PVC (3w) |
| Base Course (30) | Slot. PVC High Flow (8w) |
| Sluff (64) | Wire Wound PVC (16w) |
| Bentonite (21) | Wire Wound Steel (15w) |
| Filter Pack (7) | Saw Cut (12w) |
| Pea Gravel (2) | |
| Liner (33) | |
| Geocloth (36) | |

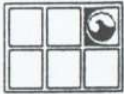
SAMPLE TYPES

- SS - Split Spoon
- CC - Continuous Core
- CG - Cuttings Grab

SYMBOLS

- Initial Water Level
- Static Water Level

Drilling Log



GROUNDWATER
 TECHNOLOGY

Monitoring Well **A2**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034B
 Surface Elev. _____ Total Hole Depth 4.0 m Diameter 50 mm mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core _____
 Drill Co. _____ Method Hand Auger 1
 Driller Dave Morton Log By Dave Morton Date 3/5/96 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:
 See Site Plan for location. PID readings
 are maximums only following stabilisation

Depth (m)	Well Completion	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0				SM	SILTY SANDY LOAM: dark brown. Many roots and worms present.
0.5				SW	SANDY LOAM: dark brown to black. Well graded and well sorted. Friable to loose, becoming moist with depth.
1.5				SC	CLAYEY SAND: dark brown. Slightly plastic and moist. No odours.
2.5		A2a		SW	SAND: dark brown to black, loose, dry sand. Becoming moist with depth. Grading into a grey and black sandy loam, slightly moist at first but becoming drier with depth grading to fine to medium loose sand.
4.0		A2b			HOLE TERMINATED AT TARGET DEPTH
5					
6					
7					
8					

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	<u>SILTS & CLAYS</u> LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 10.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

Asphalt (68)	SCREENS
Concrete (55)	Solid (1s)
Neat Cement (54)	Slotted PVC (3w)
Base Course (30)	Slot. PVC High Flow (8w)
Stuff (64)	Wire Wound PVC (16w)
Bentonite (21)	Wire Wound Steel (15w)
Filter Pack (7)	Saw Cut (12w)
Pea Gravel (2)	
Liner (33)	
Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level



GROUNDWATER
TECHNOLOGY

Drilling Log

Monitoring Well **A3**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. N1034B
 Surface Elev. _____ Total Hole Depth 4.0 m Diameter 50 mm mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core _____
 Drill Co. _____ Method Hand Auger 1
 Driller Dave Morton Log By Dave Morton Date 3/5/96 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
For Boring Location

COMMENTS:

See Site Plan for location. PID readings are maximums only following stabilisation

Depth (m)	Well Completion	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-1					
0				SM	SILTY SANDY LOAM: dark brown, many roots and worms present.
0.5				CL	SILTY CLAY LOAM: brown. Moderately firm in place, slightly moist. No odours.
1					Change to a darker brown colour. Firm in place, becoming lighter again in colour with depth, moist.
2				SW	SANDY LOAM: minor proportion of clay present, slightly moist at first but becoming dry with depth grading to loamy sand.
3					Change to a grey and black sandy loam, becoming drier with depth grading to a fine to medium loose sand.
4		A3			HOLE TERMINATED AT TARGET DEPTH
5					
6					
7					
8					

UNIFIED SOIL CLASSIFICATION SYSTEM

DowElanco (NZ) Ltd.

CONFIDENTIAL

CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	GRAVELS MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	SANDS MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	SILTS & CLAYS LL < 50	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.75 76.2 to 19.1 19.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.75 to 0.074 4.75 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074

WELL CONSTRUCTION MATERIALS

Asphalt (68)	SCREENS
Concrete (55)	Solid (1s)
Neat Cement (54)	Slotted PVC (3w)
Base Course (30)	Slot. PVC High Flow (8w)
Sluff (64)	Wire Wound PVC (16w)
Bentonite (21)	Wire Wound Steel (15w)
Filter Pack (7)	Saw Cut (12w)
Pea Gravel (2)	
Liner (33)	
Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
CC - Continuous Core
CG - Cuttings Grab

SYMBOLS

Initial Water Level
 Static Water Level

GROUNDWATER
TECHNOLOGY

Drilling Log



GROUNDWATER
 TECHNOLOGY

Monitoring Well **A4**

Project DowElanco New Plymouth Owner DowElanco (NZ) Ltd.
 Location New Plymouth, NZ Proj. No. NI034B
 Surface Elev. _____ Total Hole Depth 4.0 m Diameter 50 mm mm
 Top of Casing _____ Water Level Initial _____ Static _____
 Screen: Dia _____ Length _____ Type/Size _____
 Casing: Dia _____ Length _____ Type _____
 Fill Material _____ Rig/Core _____
 Drill Co. _____ Method Hand Auger 1
 Driller Dave Morton Log By Dave Morton Date 3/5/96 Permit # _____
 Checked By David Whyte License No. _____

See Site Map
 For Boring Location

COMMENTS:
 See Site Plan for location. PID readings
 are maximums only following stabilisation

Depth (m)	Well Completion	Sample ID	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
-1					Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
0				SM	SILTY SANDY LOAM: dark brown, many roots and worms present.
1				SW	SANDY LOAM: dark brown to black, loose to slightly friable. Medium sand. Change in colour to a dark grey and black. Well graded fine sand.
2				CL	SILTY CLAY LOAM: dark brown. Very moist and firm, becoming drier with depth, no odours. Becoming firmer to a dark brown, silty clay, moist. Slightly plastic to plastic, becoming lighter in colour with depth.
3				SM	SILTY SAND: dark brown, becoming more friable with depth to a loamy sand.
4		A4		SW	SANDY LOAM: grey and black, becoming drier with depth grading to a fine to medium loose sand.
5					HOLE TERMINATED AT TARGET DEPTH
6					
7					
8					

















CLASSIFICATION CHART

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES	GTGS FILL PATTERN
COARSE GRAINED SOILS OVER 50% > No. 200 SIEVE SIZE	<u>GRAVELS</u> MORE THAN 1/2 OF COARSE FRACTION > NO. 4 SIEVE SIZE	GW	Well graded gravels or gravel-sand mixtures, little or no fines	26
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines	25
		GM	Silty gravels, gravel-sand mixtures	26=11
		GC	Clayey gravels, gravel-sand-clay mixtures	26=14
	<u>SANDS</u> MORE THAN 1/2 OF COARSE FRACTION < NO. 4 SIEVE SIZE	SW	Well graded sands or gravelly sands, little or no fines	8
		SP	Poorly graded sands or gravelly sands, little or no fines	6
		SM	Silty sands, sand-silt mixtures	9
		SC	Clayey sands, sand-clay mixtures	10
FINE GRAINED SOILS OVER 50% < No. 200 SIEVE SIZE	<u>SILTS & CLAYS</u> <u>LL < 50</u>	ML	Inorganic silty and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	11
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	14
		OL	Organic silts and organic silty clays of low plasticity	18
	<u>SILTS & CLAYS</u> <u>LL > 50</u>	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	12
		CH	Inorganic clays of high plasticity, fat clays	15
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts	35
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils	20	

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL COARSE FINE	3" to No. 4	76.2 to 4.75
	3" to 3/4" 3/4" to No. 4	76.2 to 19.1 19.1 to 4.75
SAND COARSE MEDIUM FINE	No. 4 to No. 200	4.75 to 0.074
	No. 4 to No. 10	4.75 to 2.00
	No. 10 to No. 40 No. 40 to No. 200	2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below No. 0.074


WELL CONSTRUCTION MATERIALS

SCREENS	
 Asphalt (68)	 Solid (1s)
 Concrete (55)	 Slotted PVC (3w)
 Neat Cement (54)	 Slot. PVC High Flow (8w)
 Base Course (30)	 Wire Wound PVC (16w)
 Sluff (64)	 Wire Wound Steel (15w)
 Bentonite (21)	 Saw Cut (12w)
 Filter Pack (7)	
 Pea Gravel (2)	
 Liner (33)	
 Geocloth (36)	

SAMPLE TYPES

SS - Split Spoon
 CC - Continuous Core
 CG - Cuttings Grab

SYMBOLS

 Initial Water Level
 Static Water Level

**APPENDIX B
GAUGING DATA**

GROUNDWATER TECHNOLOGY NEW ZEALAND
 GROUNDWATER MONITORING RESULTS

PROJECT: DOWELANCO
 PROJECT #: N1004
 LOCATION: NEW PLYMOUTH
 DATE: 29/9/94
 OPERATOR: C. CATHIE/C. MERCER
 METHOD: GAUGE
 EQUIP.: DEPTH TO WATER PROBE

WELL ID	WELL DEPTH (m)	T.O.C. ELEV. (m)	DEPTH WATER	DEPTH PETRO (m)	PETRO THICK (m)	PETRO GRAV.	HYDRO EQUIV. (m)	CORR. DTW (m)	CORR. WAT.ELEV. (m)
1	5.940	62.397	1.802	0.000	NA	NA	NA	1.802	60.595
2	13.640	63.859	9.600	0.000	NA	NA	NA	9.600	54.259
3	18.040	68.110	14.114	0.000	NA	NA	NA	14.114	53.996
3a		68.117		0.000	NA	NA	NA		
3b	5.090	67.940	3.106	0.000	NA	NA	NA	3.106	64.834
4	18.140	67.920	14.105	0.000	NA	NA	NA	14.105	53.815
5	16.57	68.012	14.183	0.000	NA	NA	NA	14.183	53.829
6	23.24	68.115	19.946	0.000	NA	NA	NA	19.946	48.169
7	6.49	68.01	2.327	0.000	NA	NA	NA	2.327	65.683
8	6.19	67.835	1.886	0.000	NA	NA	NA	1.886	65.949
9	5.84	69.75	3.78	0.000	NA	NA	NA	3.780	65.970
11a	5.56	69.973	4.325	0.000	NA	NA	NA	4.325	65.648
12	25.31	73.786	22.067	0.000	NA	NA	NA	22.067	51.719
14	26.09	73.94	23.303	0.000	NA	NA	NA	23.303	50.637
15		68.839	23.902	0.000	NA	NA	NA	23.902	44.937
16	27.56	75.486	25.362	0.000	NA	NA	NA	25.362	50.124
16a	29.6	74.331	24.231	0.000	NA	NA	NA	24.231	50.100
17	26.68	74.428	24.257	0.000	NA	NA	NA	24.257	50.171
19	27.23	73.3	23.868	0.000	NA	NA	NA	23.868	49.432
20	26.94	72.945	25.652	0.000	NA	NA	NA	25.652	47.293
21	7.94	63.263	2.802	0.000	NA	NA	NA	2.802	60.461
22	21.78	64.798	14.778	0.000	NA	NA	NA	14.778	50.020
23	5.76	67.991	2.328	0.000	NA	NA	NA	2.328	65.663
24	6.45	67.69	1.818	0.000	NA	NA	NA	1.818	65.872
27	25.76	73.34	21.602	0.000	NA	NA	NA	21.602	51.738
28	26.36	72.5	24.265	0.000	NA	NA	NA	24.265	48.235
30	24.45	73.84	22.724	0.000	NA	NA	NA	22.724	51.116
31	26.23	73.685	23.854	0.000	NA	NA	NA	23.854	49.831
32	26.43	69.91	25.967	0.000	NA	NA	NA	25.967	43.943
33	23.3	71.764	20.022	0.000	NA	NA	NA	20.022	51.742
34	27.97	71.154	DRY	0.000	NA	NA	NA		
36	25.010	70.224	22.040	0.000	NA	NA	NA	22.040	48.184
37	26.44	71.483	23.029	0.000	NA	NA	NA	23.029	48.454
39	26.39	71.355	22.525	0.000	NA	NA	NA	22.525	48.830
40	26.44	71.725	20.649	0.000	NA	NA	NA	20.649	51.076

GROUNDWATER TECHNOLOGY NEW ZEALAND
 GROUNDWATER MONITORING RESULTS

PROJECT: DOWELANCO
 PROJECT #: N1034
 LOCATION: NEW PLYMOUTH
 DATE: 20/10/95
 OPERATOR: W. Sharp
 METHOD: GAUGE
 EQUIP.: Interface Probe

WELL ID	WELL DEPTH (m)	T.O.C. ELEV. (m)	DEPTH WATER (m)	DEPTH PETRO (m)	PETRO THICK (m)	PETRO GRAV.	HYDRO EQUIV. (m)	CORR. DTW (m)	CORR. WAT.ELEV. (m)
1	5.940	62.397	1.881	0.000	#N/A	NA	#N/A	1.881	60.516
2	13.640	63.859	9.309	0.000	#N/A	NA	#N/A	9.309	54.550
3	18.040	68.110	12.164	0.000	#N/A	NA	#N/A	12.164	55.946
3a	4.565	68.117	4.351	0.000	#N/A	NA	#N/A	4.351	63.766
3b	5.090	67.940	3.127	0.000	#N/A	NA	#N/A	3.127	64.813
4	18.140	67.920	12.328	0.000	#N/A	NA	#N/A	12.328	55.592
5	16.57	68.012	12.661	0.000	#N/A	NA	#N/A	12.661	55.351
6	23.24	68.115	19.128	0.000	#N/A	NA	#N/A	19.128	48.987
7	6.49	68.01	2.283	0.000	#N/A	NA	#N/A	2.283	65.727
8	6.19	67.835	1.954	0.000	#N/A	NA	#N/A	1.954	65.881
9	5.84	69.75	3.806	0.000	#N/A	NA	#N/A	3.806	65.944
11a	5.56	69.973	4.238	0.000	#N/A	NA	#N/A	4.238	65.735
12	25.31	73.786	20.754	0.000	#N/A	NA	#N/A	20.754	53.032
14	26.09	73.94	22.146	0.000	#N/A	NA	#N/A	22.146	51.794
15		68.839	22.435	0.000	#N/A	NA	#N/A	22.435	46.404
16	27.56	75.486	24.312	0.000	#N/A	NA	#N/A	24.312	51.174
16a	29.6	74.331	23.199	0.000	#N/A	NA	#N/A	23.199	51.132
17	26.68	74.428	23.204	0.000	#N/A	NA	#N/A	23.204	51.224
19	27.23	73.3	23.192	0.000	#N/A	NA	#N/A	23.192	50.108
20	26.94	72.945	25.336	0.000	#N/A	NA	#N/A	25.336	47.609
21	7.94	63.263	2.95	0.000	#N/A	NA	#N/A	2.850	60.413
22	21.78	64.798	14.29	0.000	#N/A	NA	#N/A	14.290	50.508
23	5.76	67.991	2.308	0.000	#N/A	NA	#N/A	2.308	65.683
24	6.45	67.69	1.872	0.000	#N/A	NA	#N/A	1.872	65.818
27	25.76	73.34	20.506	0.000	#N/A	NA	#N/A	20.506	52.834
28	26.36	72.5	21.264	0.000	#N/A	NA	#N/A	21.264	51.236
30	24.45	73.84	21.463	0.000	#N/A	NA	#N/A	21.463	52.377
31	26.23	73.685	22.945	0.000	#N/A	NA	#N/A	22.945	50.740
32	26.43	69.91	25.455	0.000	#N/A	NA	#N/A	25.455	44.455
33	23.3	71.764	19.13	0.000	#N/A	NA	#N/A	19.130	52.634
34	27.97	71.154	23.065	0.000	#N/A	NA	#N/A	23.065	48.089
36	25.010	70.224	18.608	0.000	#N/A	NA	#N/A	18.608	51.616
37	26.44	71.483	20.429	0.000	#N/A	NA	#N/A	20.429	51.054
39	26.39	71.355	20.76	0.000	#N/A	NA	#N/A	20.760	50.595
39j	24.000	71.900	20.900	1.000	19.900	NA	0.000	20.900	51.000
39k	25.000	72.310	23.300	2.000	21.300	NA	0.000	23.300	49.010
40	26.44	71.725	19.773	3.000	16.773	NA	0.000	19.773	51.952

GROUNDWATER TECHNOLOGY NEW ZEALAND
 GROUNDWATER MONITORING RESULTS

PROJECT: DOWELANCO
 PROJECT #: N1034
 LOCATION: NEW PLYMOUTH
 DATE: 2/11/95
 OPERATOR: W. Sharp
 METHOD: GAUGE
 EQUIP.: Interface Probe

WELL ID	WELL DEPTH (m)	T.O.C. ELEV. (m)	DEPTH WATER	DEPTH PETRO (m)	PETRO THICK (m)	PETRO GRAV.	HYDRO EQUIV. (m)	CORR. DTW (m)	CORR. WAT.ELEV. (m)
1	5.940	62.397		0.000	#N/A	NA	#N/A		
2	13.640	63.859		0.000	#N/A	NA	#N/A		
3	18.040	68.110		0.000	#N/A	NA	#N/A		
3a	4.565	68.117		0.000	#N/A	NA	#N/A		
3b	5.090	67.940		0.000	#N/A	NA	#N/A		
4	18.140	67.920	12.425	0.000	#N/A	NA	#N/A	12.425	55.495
5	16.57	68.012	12.789	0.000	#N/A	NA	#N/A	12.789	55.223
6	23.24	68.115	19.153	0.000	#N/A	NA	#N/A	19.153	48.962
7	6.49	68.01	2.367	0.000	#N/A	NA	#N/A	2.367	65.643
8	6.19	67.835	2.076	0.000	#N/A	NA	#N/A	2.076	65.759
8	5.84	69.75	3.949	0.000	#N/A	NA	#N/A	3.949	65.801
11a	5.56	69.973	4.313	0.000	#N/A	NA	#N/A	4.313	65.660
12	25.31	73.786	20.44	0.000	#N/A	NA	#N/A	20.440	53.346
14	26.09	73.94	22.125	0.000	#N/A	NA	#N/A	22.125	51.815
15		68.839	22.513	0.000	#N/A	NA	#N/A	22.513	46.326
16	27.56	75.486	24.29	0.000	#N/A	NA	#N/A	24.290	51.196
16a	29.6	74.331	23.17	0.000	#N/A	NA	#N/A	23.170	51.161
17	26.68	74.428	23.18	0.000	#N/A	NA	#N/A	23.180	51.248
19	27.23	73.3		0.000	#N/A	NA	#N/A		
20	26.94	72.945	25.336	0.000	#N/A	NA	#N/A	25.336	47.609
21	7.94	63.263		0.000	#N/A	NA	#N/A		
22	21.78	64.798		0.000	#N/A	NA	#N/A		
23	5.76	67.991	2.382	0.000	#N/A	NA	#N/A	2.382	65.609
24	6.45	67.69	1.975	0.000	#N/A	NA	#N/A	1.975	65.715
27	25.76	73.34	20.507	0.000	#N/A	NA	#N/A	20.507	52.833
28	26.36	72.5	21.34	0.000	#N/A	NA	#N/A	21.340	51.160
30	24.45	73.84	21.447	0.000	#N/A	NA	#N/A	21.447	52.393
31	26.23	73.685		0.000	#N/A	NA	#N/A		
32	26.43	69.91	25.443	0.000	#N/A	NA	#N/A	25.443	44.467
33	23.3	71.764	19.116	0.000	#N/A	NA	#N/A	19.116	52.648
34	27.97	71.154	22.974	0.000	#N/A	NA	#N/A	22.974	48.180
36	25.010	70.224	18.692	0.000	#N/A	NA	#N/A	18.692	51.532
37	26.44	71.483	20.516	0.000	#N/A	NA	#N/A	20.516	50.967
39	26.39	71.355	20.813	0.000	#N/A	NA	#N/A	20.813	50.542
39j	24.000	71.900	21.425	1.000	20.425	NA			
39k	25.000	72.310	24.399	2.000	22.399	NA			
40	26.44	71.725	19.756	3.000	16.756	NA			
41	22.000	67.900	21.865	4.000	17.865	NA			
42	20.600	69.720	18.968	5.000	13.968	NA			
43	12.800	68.420	9.772	6.000	3.772	NA			

PROJECT: DOW ELANCO NEW PLYMOUTH
 LOCATION: PARITUTU ROAD, NEW PLYMOUTH
 DATE: 7/4/96 - 9/4/96
 OPERATOR: DJM
 METHOD: GAUGE
 EQUIP.: IP

WELL ID	WELL DEPTH (m)	T.O.C. ELEV. (m)	DEPTH TO WATER (m)	CORR. WAT. ELEV. (m)	WATER COLUMN (m)
3	18.040	68.110	13.645	54.465	4.395
6	23.240	68.115	21.079	47.036	2.161
15	24.683	68.839	23.478	45.361	1.205
20	26.940	72.945	25.476	47.469	1.464
22	21.780	64.798	15.843	48.955	5.937
28	26.360	72.500	23.378	49.122	2.982
32	26.430	61.910	25.695	36.215	0.735
33	23.300	71.764	19.500	52.264	3.800
34	27.970	71.154	25.552	45.602	2.418
36	25.010	70.224	21.115	49.109	3.895
37	26.440	71.483	22.209	49.274	4.231
39	26.390	71.355	21.839	49.516	4.551
39j	24.000	71.900	22.329	49.571	1.671
39k	25.000	72.310	24.845	47.465	0.155
40	26.440	71.725	20.089	51.636	6.351
41	22.660	67.900	21.997	45.903	0.663
42	20.600	69.720	19.135	50.585	1.465

NOTE: TOC = TOP OF CASING

PROJECT: DOW ELANCO NEW PLYMOUTH
LOCATION: PARITUTU ROAD, NEW PLYMOUTH
DATE: 3/5/96
OPERATOR: DJM
METHOD: GAUGE
EQUIP.: IP

<i>WELL ID</i>	<i>WELL DEPTH (m)</i>	<i>T.O.C. ELEV. (m)</i>	<i>DEPTH TO WATER (m)</i>	<i>CORR. WAT.ELEV. (m)</i>	<i>WATER COLUMN (m)</i>
19	27.145	73.300	23.428	49.872	3.717
20	26.825	72.945	25.500	47.445	1.325
41	22.660	67.900	22.015	45.885	0.645
42	21.620	69.720	19.160	50.560	2.460

NOTE: TOC = TOP OF CASING

**BORE HOLE CO-ORDINATES AND LOCATIONS
 AS SURVEYED BY BTW ASSOCIATES LTD**

BORE #	METRES WEST	METRES SOUTH	SITE LEVEL (m)	MEAN SEA LEVEL (m)	DATE OF SURVEY
1	-24.83	-507.31	62.40	47.29	June 93
2	-246.22	-504.76	63.86	48.75	June 93
3	-26.09	-431.00	68.11	53.00	June 93
3a	-25.51	-423.60	68.12	53.01	June 93
3B	-67.75	-429.33	67.94	52.83	June 93
4	-110.50	-427.78	67.92	52.81	June 93
4A	-147.76	-426.50	67.04	51.93	June 93
5	-194.10	-424.80	68.01	52.90	June 93
5A	-277.82	-421.75	67.67	52.56	June 93
6	-357.39	-418.65	68.12	53.01	June 93
7	-55.46	-310.70	68.01	52.90	June 93
8	-137.01	-311.90	67.84	52.73	June 93
9	-206.31	-312.97	69.75	54.64	June 93
10	-310.20	-288.05	67.65	52.54	June 93
10A	-326.59	-301.41	67.41	52.30	June 93
10B	-311.50	-362.12	69.91	54.80	June 93
11	-2.18	-308.29	69.08	53.97	June 93
11A	-11.25	-307.88	69.97	54.86	June 93
12	-86.91	-250.98	73.79	58.68	June 93
14	-160.78	-197.48	73.94	58.83	June 93
15	-250.73	-189.78	68.84	53.73	June 93
16	-1.81	-155.38	75.49	60.38	June 93
17	-79.41	-156.75	74.43	59.32	June 93
16A	-2.39	-152.62	74.43	59.32	June 93
19	-19.52	-37.35	73.30	58.19	June 93
20	-181.91	-60.52	72.95	57.84	June 93
21	-112.13	-504.06	63.26	48.15	June 93
22	-384.84	-505.33	64.80	49.69	Nov 93
23	-18.48	-356.00	67.99	52.88	Nov 93
24	-113.00	-358.54	67.69	52.58	Nov 93
24A	-147.29	-359.75	66.78	51.67	Nov 93
25	-193.69	-361.83	66.95	51.84	Nov 93
27	-190.78	-244.56	73.35	58.24	Nov 93
28	-242.11	-274.48	72.50	57.39	Nov 93
29	-128.39	-276.57	68.86	53.75	Nov 93
30	-27.62	-246.32	73.84	58.73	Nov 93
31	-28.74	-114.57	73.66	58.55	Nov 93
32	-214.63	-122.67	69.91	54.80	Nov 93

BORE #	METRES WEST	METRES SOUTH	SITE LEVEL (m)	MEAN SEA LEVEL (m)	DATE OF SURVEY
33	-223.49	-255.43	71.76	56.65	Oct 93
34	-255.78	-258.33	71.15	56.04	Oct 94
35	-254.62	-288.56	71.40	56.29	Oct 94
36	-234.94	-290.91	70.22	55.11	Oct 94
37	-238.89	-256.02	71.48	56.37	Oct 94
38	-249.68	-311.37	68.46	53.35	Oct 94
39	-239.83	-222.47	71.36	56.25	Oct 94
39J	-238.32	-216.88	71.90	56.79	Oct 95
39K	-249.10	-214.85	72.31	57.20	Oct 95
40	-211.86	-217.40	71.73	56.62	Oct 94
41	-78.12	-25.89	67.90	52.79	Oct 95
42	-136.67	-34.95	69.72	54.61	Oct 95
43	-290.14	-420.58	68.42	53.31	Oct 95