SECTOR 1 – TEST PIT LOGS

Test Pits	Location
TP101 to TP121	150 Raumati Road

SECTOR 1 – SUMMARY OF SOIL SAMPLING AND ANALYSIS

Location	Test Pit Depth (m bgl)	Laboratory Number	Sample Depth (m)	Soil Type	Analysis Suite
TP101	1.8	110964.20	0.2-0.3	Silt	HM, TPH, PAH
		110964.21	1.7-1.8	Peat	Hold Cold
TP102	2.2	110964.22	0.3-0.4	Silt	HM, TPH, PAH
		110964.23	1.4-1.5	Silt	TPH, PAH, HM
TP103	2.2	1111765.5	0.2-0.3	Silt	HM, TPH, PAH
		1111765.2	1.2-1.3	Silt	Hold Cold
		1111765.3	2.1-2.2	Silty clay	TPH, PAH, HM
TP104	1.7	1111765.4	0.2-0.3	Silt	TPH, PAH, HM
		1111765.6	1.4-1.5	Silt	HM, TPH, PAH
TP105	2.3	1111765.7	0.15-0.25	Sand	Hold Cold
		1111765.8	0.6-0.7	Gravelly silt	HM, TPH, PAH
		1111765.9	1.9-2	Silt	TPH, PAH
TP106	2	110964.18	0.3-0.4	Silt	HM, TPH, PAH
		110964.19	0.8-0.9	Silt	HM, TPH, PAH
TP107	2.4	110964.16	0.3-0.4	Sandy silt	TPH, PAH, HM
		110964.17	2.3-2.4	sand	Hold Cold
TP108	2	110964.14	0.8-0.9	Sandy silt	HM, TPH, PAH
		110964.15	1.8-1.9	Peat	Hold Cold
TP109	2	110964.11	0.1-0.2	Sandy silt	TPH, PAH, HM
		110964.12	1.0-1.1	Sandy silt	Hold Cold
		110964.13	1.6-1.7	Sandy silt	TPH, PAH, HM
		110964.24	1.9-2	Peat	Hold Cold

TP110	2.4	1111765.10	0.1-0.2	Silt	Hold Cold
		1111765.11	1.1-1.2	Gravelly silt	TPH, PAH, HM
		1111765.12	2.1-2.2	Gravelly silt	Hold Cold
TP111	2.4	1111765.13	0.4-0.5	Sand	HM, TPH, PAH
		1111765.14	1.4-1.5	Sand	Hold Cold
		1111765.15	2.3-2.4	Peat	Hold Cold
TP112	2.5	1111703.1	0.2-0.3	Silt	TPH, PAH, HM
		1111703.2	1.3-1.4	Gravelly silt	Hold Cold
		1111703.3	2.4-2.5	Sand	Hold Cold
TP113	2.1	1111703.7	0.2-0.3	Sandy silt	TPH, PAH, HM
		1111703.8	1.3-1.4	Silt	Hold Cold
		1111703.9	2-2.1	Silt	TPH, PAH, HM
TP114	2.5	1111703.4	0.1-0.2	Silt	HM, TPH, PAH
		1111703.5	1.1-1.2	Silt	Hold Cold
		1111703.6	2.4-2.5	Peat	Hold Cold
TP115	1.9	1111703.13	0.1-0.2	Silt	TPH, PAH, HM
		1111703.14	1.2-1.3	Gravelly silt	Hold Cold
		1111703.28	2.4-2.5	Peat	Hold Cold
TP116	2.8	1111703.10	0.1-0.2	Silt	TPH, PAH, HM
		1111703.11	1.2-1.3	Silt	HM, TPH, PAH
		1111703.12	2.5-2.6	Peat	Hold Cold
TP117	2.5	1111703.16	0.2-0.3	Sand	HM, TPH, PAH
		1111703.17	1.4-1.5	Sand	HM, TPH, PAH
		1111703.18	2.4-2.5	Sand	Hold Cold
TP118	2.5	1111703.23	0.2-0.3	Gravelly silt	HM, TPH, PAH
		1111703.24	0.6-0.7	Silt	HM, TPH, PAH
		1111703.25	2.1-2.2	Silt	Hold Cold
TP119	2	1111703.19	0.2-0.3	Gravelly silt	HM, TPH, PAH
		1111703.20	1.4-1.5	Sand	HM, TPH, PAH

TP120	2.5	1111703.21	0.3-0.4	Sand	HM, TPH, PAH
		1111703.22	1.3-1.4	Sand	Hold Cold
TP121	2.5	1111703.26	0.2-0.3	Sandy silt	HM, TPH, PAH
		1111703.27	1.4-1.5	Sand	Hold Cold

HM = heavy metals

TPH = total petroleum hydrocarbons

PAH = polycyclic aromatic hydrocarbons

MacKays to Peka Peka

BOREHOLE No: **TP101RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA

CIRCUIT:
COORDINATES: N 5,467,074.88 m
E 1,767,635.96 m

TEST PIT LOCATION:
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
			ML	D	SILT, some fine to coarse sand, some timber, asphalt, brick and glass; light brown; moist, non plastic.					DS1	
0.5				M	Moist.	Fill					0.5
1.0			PT	W	Fibrous PEAT; dark brown; wet, non plastic. Organic odour.	Interdune Deposits (Peat)					1.0
1.5	▽ 12/3/13									DS2	1.5
					END OF LOG @ 1.8 m						
2.0											2.0
2.5											2.5

DATE EXCAVATED:	12/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP101RB S1 0.2-0.3m
S2 13:024 TP101RB S2 1.7-1.8m
Groundwater as slow inflow at 1.8m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP102RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA

CIRCUIT:
COORDINATES: N 5,467,061.94 m
E 1,767,652.93 m

TEST PIT LOCATION:
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
0			ML	D	SILT, some fine to coarse sand, some asphalt, ceramic, brick, concrete; light brown; dry, non plastic.	Fill				DS1	0
0.5											0.5
1.0				M	Large concrete blocks.						1.0
1.5					No concrete, large tree branches.					DS2	1.5
2.0	12/3/13 ▽				END OF LOG @ 2.2 m						2.0
2.5											2.5

DATE EXCAVATED:	12/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP102RB S1 0.3-0.4m
S2 13:024 TP102RB S2 1.4-1.5m
Groundwater as slow inflow at 2.2m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP103RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA
CIRCUIT:		TEST PIT LOCATION:	
COORDINATES:	N 5,467,047.43 m	R L:	
	E 1,767,666.58 m	DATUM:	

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
0			ML	D	SILT, some fine to coarse sand; minor asphalt, concrete, brick, and plastic; dark brown; dry, non plastic.	Fill				DS1	0
0.5											0.5
1.0					Becoming medium to coarse gravelly SILT. Gravel: Rounded.					DS2	1.0
1.5											1.5
2.0	13/3/13		CL	S	Silty CLAY, some cobbles, minor plastic road markers, asphalt; grey mottled orange; saturated, high plasticity.					DS3	2.0
					END OF LOG @ 2.2 m						
2.5											2.5

DATE EXCAVATED:	13/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP103RB S1 0.2-0.3m
S2 13:024 TP103RB S2 1.2-1.3m
S3 13:024 TP103RB S3 2.1-2.2m
Groundwater as slow seep at 2.1m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP104RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA

CIRCUIT:
COORDINATES: N 5,467,026.85 m
E 1,767,661.27 m

TEST PIT LOCATION:
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
			ML	D	SILT, minor fine to coarse sand; light brown; dry, non plastic.						
					Concrete slab.					DS1	
0.5					Corrugated iron, concrete, bricks, plastic.						0.5
1.0						Fill					1.0
1.5	▽ 13/03/13									DS2	1.5
					END OF LOG @ 1.7 m						
2.0											2.0
2.5											2.5

DATE EXCAVATED:	13/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP104RB S1 0.2-0.3m
S2 13:024 TP104RB S2 1.4-1.5m
Groundwater as slow seep at 1.7m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP105RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA
CIRCUIT:		TEST PIT LOCATION:	
COORDINATES:	N 5,467,039.78 m	R L:	
	E 1,767,649.06 m	DATUM:	

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
0.0			SW	D	Fine to coarse SAND, some fine to coarse gravel; light brown; dry, non plastic. Gravel: Angular.	Fill				DS1	0.0
0.5			ML	M	Fine to coarse gravelly SILT, some clay; grey mottled orange and brown; moist, low plasticity. Gravel: Angular.					DS2	0.5
1.0			ML	D	SILT, some concrete, metal pipe, timber, plastic, wire and brick; dark brown; dry, non plastic. Stong hydrocarbon odour.						1.0
1.5											1.5
2.0				W	Becoming wet.					DS3	2.0
	13/3/13				END OF LOG @ 2.3 m						
2.5											2.5

DATE EXCAVATED:	13/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP105RB S1 0.15-0.25m
S2 13:024 TP105RB S2 0.6-0.7m
S3 13:024 TP105RB S3 1.9-2.0m
Groundwater as slow seep at 2.3m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP106RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA

CIRCUIT:
COORDINATES: N 5,467,046.54 m
E 1,767,627.8 m

TEST PIT LOCATION:
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
0.0			ML	D	SILT, some fine to coarse sand, minor asphalt; light brown speckled black; dry, non plastic. Hydrocarbon odour	Fill				DS1	0.0
0.5			ML	M	SILT, some glass, brick, ceramic and timber; dark brown; moist, non plastic. Stong hydrocarbon odour.					DS2	0.5
1.0	12/3/13				Large piece of wood, possibly a tree stump, unable to remove it from the hole.						1.0
1.5											1.5
2.0					END OF LOG @ 2 m						2.0
2.5											2.5

DATE EXCAVATED:	12/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP106RB S1 0.3-0.4m
S2 13:024 TP106RB S2 0.8-0.9m
Groundwater as slow seep at 1.9m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP107RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA

CIRCUIT:
COORDINATES: N 5,467,015.35 m
E 1,767,631.84 m

TEST PIT LOCATION:
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
0.0			ML	D	Fine to coarse sandy SILT, minor plastic; light brown; dry, non plastic.	Fill				DS1	0.0
0.5			PT	W	Fibrous PEAT; dark brown; wet, non plastic. Organic odour.						0.5
1.0					Concrete block.						1.0
1.5	12/3/13 ▽		GP	S	Coarse SAND; dark grey; saturated; non plastic.					DS2	1.5
2.0					END OF LOG @ 2.4 m						2.0
2.5											2.5

DATE EXCAVATED:	12/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP107RB S1 0.3-0.4m
S2 13:024 TP107RB S2 2.3-2.4m
Groundwater as moderate inflow at 2.3m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP108RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA

CIRCUIT:
COORDINATES: N 5,467,016.33 m
E 1,767,645.01 m

TEST PIT LOCATION:
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
0			ML	D	Fine to coarse sandy SILT; light brown; dry, non plastic.						0
0.5				M	Dark brown; moist.	Fill					0.5
					Pieces of reinforced concrete, wire, asphalt, brick.					DS1	
1.0			PT	W	Fibrous PEAT; dark brown; wet, non plastic. Organic odour.	Interdune deposits (Peat)					1.0
1.5											1.5
2.0	12/3/13 ▽				END OF LOG @ 2 m					DS2	2.0
2.5											2.5

DATE EXCAVATED:	12/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP109RB S1 0.8-0.9m
S2 13:024 TP109RB S2 1.8-1.9m
Groundwater as slow seep at 1.9m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\3321\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP109RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA

CIRCUIT:
COORDINATES: N 5,467,008.78 m
E 1,767,662.16 m

TEST PIT LOCATION:
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
0			ML	M	Fine to coarse sandy SILT, minor timber, concrete, glass and plastic; light brown; moist, non plastic.					DS1	0
0.5											0.5
1.0					Roofing iron, car engine block.	Fill				DS2	1.0
1.5					Oil can, plastic, glass. Strong suspected kerosene odour.					DS3	1.5
2.0	12/3/13 ▽		PT	S	Fibrous PEAT; dark reddish brown; saturated, non plastic. Organic odour.	ID				DS4	2.0
					END OF LOG @ 2 m						
2.5											2.5

DATE EXCAVATED:	12/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP109RB S1 0.1-0.2m
S2 13:024 TP114RB S2 1.0-1.1m
S3 13:024 TP109RB S3 1.6-1.7m
S4 13:024 TP109RB 1.9-2m
Groundwater as rapid inflow at 1.9m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

ID = Interdune deposits (Peat)

Revision 1

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

A4 Scale 1:15

MacKays to Peka Peka

BOREHOLE No: **TP110RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA
CIRCUIT:		TEST PIT LOCATION:	
COORDINATES:	N 5,466,986.54 m	R L:	
	E 1,767,654.95 m	DATUM:	

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
			ML	D	SILT, minor fine to coarse sand, minor fine to coarse gravel; light brown; dry, non plastic. Gravel: Angular.						
			OL	M	Organic SILT; dark brown; moist, non plastic. Organics: Bark.					DS1	
0.5			ML	D	Fine to coarse gravelly SILT; dark brown; dry, non plastic. Gravel: Rounded.						0.5
1.0			ML	M	Fine to coarse gravelly SILT, some fill (brick, timber, wire, concrete, plastic); bluish grey; moist, non plastic. Gravel: Rounded.	Fill				DS2	1.0
1.5											1.5
2.0										DS3	2.0
			PT	M	Fibrous PEAT; dark reddish brown; wet, non plastic. Organic odour.	ID					
2.5					END OF LOG @ 2.4 m						2.5

DATE EXCAVATED:	13/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP110RB S1 0.1-0.2m
S2 13:024 TP110RB S2 1.1-1.2m
S3 13:024 TP110RB S3 2.1-2.2m
ID = Interdune deposits (Peat)

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP111RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA

CIRCUIT:
COORDINATES: N 5,466,992.94 m
E 1,767,639.07 m

TEST PIT LOCATION:
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
			SW	D	Fine to coarse SAND, minor fine to coarse gravel, minor fill (plastic); light brown, non plastic. Gravel: Angular.						
					Asphalt.					DS1	
0.5											0.5
					Reinforced concrete, timber, wire. Faint hydrocarbon odour.	Fill					
1.0											1.0
1.5										DS2	1.5
	13/03/13		PT	M	Fibrous PEAT; dark blackish brown; wet, non plastic. Organic odour.	ID				DS3	
2.0											2.0
					END OF LOG @ 2.4 m						
2.5											2.5

DATE EXCAVATED:	13/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP111RB S1 0.4-0.5m
S2 13:024 TP115RB S2 1.5-1.6m
S3 13:024 TP111RB S3 2.3-2.4m
Groundwater as slow seep at 2.3m
ID = Interdune deposits (Peat)

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP112RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA

CIRCUIT:
COORDINATES: N 5,466,995.98 m
E 1,767,619.68 m

TEST PIT LOCATION:
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
			ML	D	SILT, minor fine to coarse sand; light brown; dry, non plastic.					DS1	
0.5			ML	M	Fine to coarse gravelly SILT, some clay, minor concrete and timber; light grey; moist, low plasticity. Gravel: Rounded.						0.5
1.0						Fill				DS2	1.0
1.5											1.5
2.0					Timber.						2.0
			SW	W	Fine to coarse SAND; dark grey; wet, non plastic.					DS3	
2.5					END OF LOG @ 2.5 m						2.5

DATE EXCAVATED:	13/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP112RB S1 0.2-0.3m
S2 13:024 TP112RB S2 1.3-1.4m
S3 13:024 TP112RB S3 2.4-2.5m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP113RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA

CIRCUIT:
COORDINATES: N 5,466,974.19 m
E 1,767,611.38 m

TEST PIT LOCATION:
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
			ML	D	Sandy SILT; light brown; dry, non plastic.	Fill				DS1	
0.5			MH	M	SILT, some clay; greyish brown; moist, high plasticity.						0.5
1.0											1.0
				M	FILL (concrete, plastic, asphalt, timber); dark brown; moist, non plastic.					DS2	
1.5											1.5
2.0	▽ 13/3/13									DS3	2.0
					END OF LOG @ 2.1 m						
2.5											2.5

DATE EXCAVATED:	13/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP113RB S1 0.2-0.3m
S2 13:024 TP113RB S2 1.3-1.4m
S3 13:024 TP115RB S3 2.0-2.1m
Groundwater as slow seep at 2.1m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP114RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT: MacKays to Peka Peka Expressway — JOB NUMBER: 3320901/1000/013

SITE LOCATION: 150 Raumati Road, Paraparaumu — CLIENT: NZTA

CIRCUIT:

COORDINATES: N 5,466,970.13 m — TEST PIT LOCATION:

E 1,767,635.59 m — R L:

DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
0.0			ML	D	SILT, some fine to coarse gravel, minor concrete; light brown; dry, non plastic. Gravel: Angular.	Fill				DS1	0.0
0.5											0.5
1.0			OL	M	Organic SILT; blackish brown; moist, non plastic. Organics: Amorphous.	Interdune deposits (Peat)				DS2	1.0
1.5											1.5
2.0	13/3/13 ▽		PT	W	Fibrous PEAT; dark brown; wet, non plastic. Organic odour.					DS3	2.0
2.5					END OF LOG @ 2.5 m						2.5

DATE EXCAVATED: 13/3/13 — CONTRACTOR: Goodman Contractors Ltd

LOGGED BY: KMW — EQUIPMENT: 12 tonne Kobelco

SHEAR VANE No: — METHOD: Excavation

COMMENTS:
S1 13:024 TP114RB S1 0.1-0.2m
S2 13:024 TP114RB S2 1.1-1.2m
S3 13:024 TP115RB S3 2.4-2.5m
Groundwater as slow seep at 2.4m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP115RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA
CIRCUIT:		TEST PIT LOCATION:	
COORDINATES:	N 5,466,960.5 m	R L:	
	E 1,767,656.81 m	DATUM:	

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
			ML	D	Fine to coarse sandy SILT; light brown; dry, non plastic.					DS1	
0.5			ML	D	SILT, some fine to coarse sand, minor concrete; brown; dry, non plastic.	Fill					0.5
1.0			ML	M	Fine to coarse gravelly SILT, some clay; bluish grey; moist, low plasticity. Gravel: Rounded.					DS2	1.0
1.5			PT	W	Fibrous PEAT; dark brown; wet, non plastic. Organic odour.	ID					1.5
2.0					END OF LOG @ 1.9 m						2.0
2.5											2.5

DATE EXCAVATED:	13/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP115RB S1 0.1-0.2m
S2 13:024 TP115RB S2 1.2-1.3m
ID = Interdune deposits (Peat)

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP116RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT: MacKays to Peka Peka Expressway — JOB NUMBER: 3320901/1000/013

SITE LOCATION: 150 Raumati Road, Paraparaumu — CLIENT: NZTA

CIRCUIT:

COORDINATES: N 5,466,945.87 m
E 1,767,649.25 m

TEST PIT LOCATION:
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
0.0			ML	D	SILT, some fine to coarse gravel; light brown; dry, non plastic. Gravel: Angular.					DS1	0.0
0.5			SW	M	Fine to coarse SAND, some fine to coarse gravel, minor concrete; dark grey; moist, non plastic. Gravel: Angular.						0.5
1.0			ML	M	SILT, some fine to coarse sand, minor concrete and brick; dark brown; moist, non plastic.	Fill				DS2	1.0
1.5					Asphalt, plastic bags.						1.5
2.0											2.0
2.5	13/03/13		PL	W	Fibrous PEAT; dark brown; wet, non plastic. Organic odour.	ID				DS3	2.5
					END OF LOG @ 2.8 m						

DATE EXCAVATED: 13/3/13 — CONTRACTOR: Goodman Contractors Ltd

LOGGED BY: KMW — EQUIPMENT: 12 tonne Kobelco

SHEAR VANE No: — METHOD: Excavation

COMMENTS:
S1 13:024 TP116RB S1 0.2-0.3m
S2 13:024 TP116RB S2 1.3-1.4m
S3 13:024 TP116RB S3 2.5-2.6m
Groundwater as slow seep at 2.7m
ID = Interdune deposits (Peat)

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP117RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA

CIRCUIT:
COORDINATES: N 5,466,943.74 m
E 1,767,627.72 m

TEST PIT LOCATION:
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
			GM	D	Silty fine to coarse GRAVEL, minor fine to coarse sand; light brown; dry, non plastic. Gravel: Angular.	Fill					
			SW	D	Fine to coarse SAND, some fine to coarse gravel; dark brown; dry, non plastic. Gravel: Angular.					DS1	
0.5					Pieces of timber, wire, tree branches, plastic and metal.						0.5
1.0											1.0
			SW	M	Fine to coarse SAND; dark grey; moist, non plastic.					DS2	
1.5											1.5
2.0											2.0
										DS3	
2.5					END OF LOG @ 2.5 m						2.5

DATE EXCAVATED:	13/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP117RB S1 0.2-0.3m
S2 13:024 TP117RB S2 1.4-1.5m
S3 13:024 TP117RB S3 2.4-2.5m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\3321\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP118RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA

CIRCUIT:
TEST PIT LOCATION:
COORDINATES: N 5,466,951.55 m
E 1,767,608.46 m
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
			ML	D	Fine to coarse gravelly SILT; light brown; dry, non plastic. Gravel: Angular.					DS1	
			ML	M	SILT, some fine to coarse sand; dark brown; moist, non plastic.						
0.5					Fence post, wire, timber.					DS2	0.5
1.0						Fill					1.0
1.5											1.5
2.0					Metal.					DS3	2.0
2.5					END OF LOG @ 2.5 m						2.5

DATE EXCAVATED:	13/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP118RB S1 0.2-0.3m
S2 13:024 TP118RB S2 0.6-0.7m
S3 13:024 TP118RB S3 2.1-2.2m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

A4 Scale 1:15

MacKays to Peka Peka

BOREHOLE No: **TP119RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT: MacKays to Peka Peka Expressway — JOB NUMBER: 3320901/1000/013

SITE LOCATION: 150 Raumati Road, Paraparaumu — CLIENT: NZTA

CIRCUIT:

COORDINATES: N 5,466,927.95 m
E 1,767,605.34 m

TEST PIT LOCATION:

R L:

DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
0.0			ML	D	Fine to coarse gravelly SILT; light brown; dry, non plastic. Gravel: Angular.					DS1	0.0
0.5											0.5
1.0				D	LANDFILL MATERIAL (timber, brick, metal, household refuse, car parts), some fine to coarse sand, some silt; light brown; dry, non plastic.	Fill				DS2	1.0
1.5											1.5
2.0					END OF LOG @ 2 m						2.0
2.5											2.5

DATE EXCAVATED: 13/3/13 — CONTRACTOR: Goodman Contractors Ltd

LOGGED BY: KMW — EQUIPMENT: 12 tonne Kobelco

SHEAR VANE No: — METHOD: Excavation

COMMENTS:
S1 13:024 TP119RB S1 0.2-0.3m
S2 13:024 TP119RB S2 1.4-1.5m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\3321\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP120RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA

CIRCUIT:
COORDINATES: N 5,466,922.99 m
E 1,767,623.74 m

TEST PIT LOCATION:
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
0.0			GM	D	Silty fine to coarse GRAVEL, some fine to coarse sand; light brown; dry, non plastic. Gravel: Angular.	Fill					0.0
			SW	M	Fine to coarse SAND; yellowish brown; dry, non plastic.	Holocene Sand					
					Silty fine to coarse SAND; dark grey.					DS1	
					Fine to coarse SAND; yellowish brown.						
0.5											0.5
1.0										DS2	1.0
1.5											1.5
2.0											2.0
2.5					END OF LOG @ 2.5 m						2.5

DATE EXCAVATED:	13/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP120RB S1 0.3-0.4m
S2 13:024 TP120RB S2 1.3-1.4m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\3321\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP121RB**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	150 Raumati Road, Paraparaumu	CLIENT:	NZTA

CIRCUIT:
COORDINATES: N 5,466,921.8 m
E 1,767,643.95 m

TEST PIT LOCATION:
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
0			ML	D	Fine to coarse sandy SILT, some fill (asphalt, concrete, metal, timber, brick); light brown; dry, non plastic.	**Fill**				DS1	0
0.5											0.5
1.0											1.0
1.5			SW	D	Fine to coarse SAND; light brown; dry, non plastic.	**Holocene Sand**				DS2	1.5
2.0				M	Becoming moist, dark brown.						2.0
2.5					END OF LOG @ 2.5 m						2.5

DATE EXCAVATED:	13/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP121RB S1 0.2-0.3m
S2 13:024 TP121RB S2 1.4-1.5m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\3321\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\150 RAUMATI ROAD.GPJ BECA.GDT 16/4/13

APPENDIX D

Sector 2 – Laboratory Testing Summary Sheets, Logs and Investigation Summary

SOIL ANALYSIS RESULTS: 55 RATA ROAD

Sampling Date	13/02/2013	13/02/2013	13/02/2013	13/02/2013	13/02/2013	13/02/2013	13/02/2013	**Assessment Criteria**					
Test Pit Number	**TP215**	**TP215**	**TP216**	**TP216**	**TP217**	**TP217**	**TP217**						
Sample Number	S2	S3	S1	S2	S2	S3	S4	**Contaminated Site Assessment**				**NES Human Health Risk**	
Laboratory Number	1099950.2	1099950.3	1099950.5	1099950.6	1099950.1	1099950.11	1099950.12	**Background Levels [1]**	**Environmental Risk [2]**	**Human Health Risk**			
Sample Depth (m)	0.3 - 0.4	1.0 - 1.1	0.0 - 0.1	0.5 - 0.6	0.5 - 0.6	1.4 - 1.5	1.8 - 1.9						
Soil Type	Sand	Sand	Sand	Sand	Silt	Silt	Silt						
Heavy Metals (mg/kg dry weight)													
Arsenic	4	5	4	3	**119**	11	11	<2-7	12	500 [3]		70 [5]	
Cadmium	< 0.10	< 0.10	< 0.10	< 0.10	0.16	< 0.10	0.14	<0.1-0.1	22	100 [3]		1300 [5]	
Chromium	9	8	9	6	440	16	8	7-12	86	500 [3]		NL [5]	
Copper	8	8	11	7	146	15	13	4-10	91	5000 [3]		NL [5]	
Lead	22	9.6	22	3.9	34	42	29	4.5-180	260	1500 [3]		3300 [5]	
Mercury	-	-	-	-	< 0.10	< 0.10	< 0.10	<0.1-0.1	24	75 [3]		4200 [5]	
Nickel	6	6	5	4	12	6	5	4-9	50	3000 [3]		2000 [6]	
Zinc	57	77	48	26	104	163	95	28-79	360	35000 [3]		31000 [6]	
Polycyclic Aromatic Hydrocarbons (mg/kg dry weight)										**<1m**	**1m-4m**		
Acenaphthene	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	-	-	-		-	
Acenaphthylene	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	-	-	-		-	
Anthracene	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.002-0.005	-	-		-	
Benzo[a]anthracene	< 0.03	0.07	0.03	0.08	< 0.03	< 0.03	0.06	-	-	-		-	
Benzo[a]pyrene (BAP)	< 0.03	0.07	0.05	0.08	< 0.03	0.05	0.07	0.002-0.005	0.7	-		-	
Benzo[b]fluoranthene + Benzo[j]fluoranthene	< 0.03	0.1	0.07	0.11	< 0.03	0.08	0.11	-	-	-		-	
Benzo[g,h,i]perylene	< 0.03	0.08	0.05	0.07	< 0.03	0.09	0.07	-	-	-		-	
Benzo[k]fluoranthene	< 0.03	0.04	0.03	0.05	< 0.03	0.03	0.04	-	-	-		-	
Chrysene	< 0.03	0.06	0.03	0.09	< 0.03	< 0.03	0.06	-	-	-		-	
Dibenzo[a,h]anthracene	< 0.03	0.03	< 0.03	0.03	< 0.03	0.03	0.03	-	-	-		-	
Fluoranthene	< 0.03	0.13	0.04	0.21	< 0.03	0.04	0.15	0.002-0.005	-	-		-	
Fluorene	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	-	-	-		-	
Indeno(1,2,3-c,d)pyrene	< 0.03	0.07	0.05	0.07	< 0.03	0.08	0.07	-	-	-		-	
Naphthalene	< 0.15	< 0.13	< 0.14	< 0.14	< 0.13	< 0.14	< 0.15	0.002-0.005	-	190 (sand) [4] 210 (sandy silt) [4]	230 (sand)[4] 270 (sandy silt)[4]	-	
Phenanthrene	< 0.03	0.07	< 0.03	0.1	< 0.03	< 0.03	0.06	0.002-0.005	-	-		-	
Pyrene	< 0.03	0.12	0.04	0.17	< 0.03	0.04	0.12	0.002-0.005	-	NA (all soils)[4]	NA (all soils)[4]	-	
BaP equivalent	<0.07	0.13	0.08	0.14	<0.07	0.10	0.13	-	-	11 (all soils)[4]	25 (all soils)[4]	-	
BaP equivalent (inc. Fluoranthene)	<0.07	0.13	0.08	0.14	<0.07	0.10	0.13	-	-	-		35 [5]	
Total Petroleum Hydrocarbons in Soil (mg/kg)										**<1m**	**1m-4m**	**<1m**	**1m-4m**
C7 - C9	< 9	< 8	< 9	< 9	< 8	< 9	< 9	-	-	120 (sand)[4] 500 (sandy silt)[4]	120 (sand)[4] 500 (sandy silt)[4]	120 (sand)[4] 500 (sandy silt)[4]	120 (sand)[4] 500 (sandy silt)[4]
C10 - C14	< 20	< 20	< 20	< 20	< 20	< 20	< 20	-	-	1500 (sand)[4] 1700 (sandy silt)[4]	1900 (sand)[4] 2200 (sandy silt)[4]	1500 (sand)[4] 1700 (sandy silt)[4]	1900 (sand)[4] 2200 (sandy silt)[4]
C15 - C36	< 40	< 40	< 40	< 40	46	85	< 40	-	-	NA (all soils)[4]	NA (all soils)[4]	NA (all soils)[4]	NA (all soils)[4]
Total hydrocarbons (C7 - C36)	< 70	< 70	< 70	< 70	< 70	85	< 70	0.002-0.005	-	-	-	-	-

Annotations:

1 Determination of common pollutant background soil concentrations for the Wellington region, GWRC 2003. Values applicable to 'Main Soil Type 1 (Sand)' have been used.
2 Canadian Soil Quality Guidelines, Canadian Council of Ministers of the Environment, 2012. Values applicable to 'commercial' land use have been selected.
3 Guideline on the Investigation Levels for Soil and Groundwater, NEPC, 1999. Values applicable to 'Health Investigation Level F - commercial/industrial' have been used.
4 Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand, Ministry for the Environment, 1999. Values for 'commercial/industrial' land use have been selected.
5 Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations, 2011. Values applicable to 'commercial/industrial outdoor worker' have been used.
6 USEPA Regional Screening Level Industrial Soil Table, April 2012

Results exceeding background levels are underlined
Results exceeding environmental risk criteria are shaded in grey
Results exceeding human health risk criteria are in **bold**
NL - No Limit. Derived value exceeds 10000 mg/kg.
NA - indicates contaminant not limiting. Greater than 20000 mg/kg for TPH and 10000 mg/kg for other contaminants.

WASTE ACCEPTANCE CRITERIA: 55 RATA ROAD

Sampling Date	13/02/2013	13/02/2013	13/02/2013	13/02/2013	13/02/2013	13/02/2013	13/02/2013	**Waste Acceptance Criteria**	
Test Pit Number	**TP215**	**TP215**	**TP216**	**TP216**	**TP217**	**TP217**	**TP217**		
Sample Number	S2	S3	S1	S2	S2	S3	S4		
Laboratory Number	1099950.2	1099950.3	1099950.5	1099950.6	1099950.1	1099950.11	1099950.12	**Porirua City Council**	**Hutt City Council**
Sample Depth (m)	0.3 - 0.4	1.0 - 1.1	0.0 - 0.1	0.5 - 0.6	0.5 - 0.6	1.4 - 1.5	1.8 - 1.9	**Spicer Landfill (Class B)**	**Silverstream Landfill (Class A)**
Soil Type	Sand	Sand	Sand	Sand	Silt	Silt	Silt	**(mg/kg)**	**(mg/kg)**
Heavy Metals (mg/kg dry weight)									
Arsenic	4	5	4	3	**119**	**11**	**11**	10	100
Cadmium	< 0.10	< 0.10	< 0.10	< 0.10	0.16	< 0.10	0.14	2	20
Chromium	9	8	9	6	**440**	**16**	8	10	100
Copper	8	8	**11**	7	**146**	**15**	**13**	10	28
Lead	**22**	9.6	**22**	3.9	**34**	**42**	**29**	10	100
Mercury	-	-	-	-	< 0.10	< 0.10	< 0.10	0.4	4
Nickel	6	6	5	4	12	6	5	20	40
Zinc	**57**	**77**	**48**	**26**	**104**	**163**	**95**	20	160
Polycyclic Aromatic Hydrocarbons (mg/kg dry weight)									
Acenaphthene	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	-	-
Acenaphthylene	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	-	-
Anthracene	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	-	-
Benzo[a]anthracene	< 0.03	0.07	0.03	0.08	< 0.03	< 0.03	0.06	-	-
Benzo[a]pyrene (BAP)	< 0.03	0.07	0.05	0.08	< 0.03	0.05	0.07	30	-
Benzo[b]fluoranthene + Benzo[j]fluoranthene	< 0.03	0.1	0.07	0.11	< 0.03	0.08	0.11	-	-
Benzo[g,h,i]perylene	< 0.03	0.08	0.05	0.07	< 0.03	0.09	0.07	-	-
Benzo[k]fluoranthene	< 0.03	0.04	0.03	0.05	< 0.03	0.03	0.04	-	-
Chrysene	< 0.03	0.06	0.03	0.09	< 0.03	< 0.03	0.06	-	-
Dibenzo[a,h]anthracene	< 0.03	0.03	< 0.03	0.03	< 0.03	0.03	0.03	-	-
Fluoranthene	< 0.03	0.13	0.04	0.21	< 0.03	0.04	0.15	-	-
Fluorene	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	-	-
Indeno(1,2,3-c,d)pyrene	< 0.03	0.07	0.05	0.07	< 0.03	0.08	0.07	-	-
Naphthalene	< 0.15	< 0.13	< 0.14	< 0.14	< 0.13	< 0.14	< 0.15	20	1
Phenanthrene	< 0.03	0.07	< 0.03	0.1	< 0.03	< 0.03	0.06	-	-
Pyrene	< 0.03	0.12	0.04	0.17	< 0.03	0.04	0.12	-	-
BaP equivalent	<0.07	0.13	0.08	0.14	<0.07	0.10	0.13	30	-
BaP equivalent (inc. Fluoranthene)	<0.07	0.13	0.08	0.14	<0.07	0.10	0.13	-	-
Total Petroleum Hydrocarbons in Soil (mg/kg)									
C7 - C9	< 9	< 8	< 9	< 9	< 8	< 9	< 9	-	-
C10 - C14	< 20	< 20	< 20	< 20	< 20	< 20	< 20	-	-
C15 - C36	< 40	< 40	< 40	< 40	46	85	< 40	-	-
Total hydrocarbons (C7 - C36)	< 70	< 70	< 70	< 70	< 70	85	< 70	-	-
Materials in Borehole Log which Preclude Soils as Cleanfill?	Yes	Yes	No	No	Yes	Yes	Yes		

Annotations:

Results exceeding Spicer Landfill (Class B) waste acceptance criteria are in **bold**

Results exceeding Silverstream Landfill (Class A) waste acceptance criteria are shaded in grey

SOIL ANALYSIS RESULTS: 61 RATA ROAD

Sample Date	14-Mar-13	14-Mar-13	14-Mar-13	14-Mar-13	14-Mar-13	14-Mar-13	**Assessment Criteria**			
Test Pit Number	**TP101 RR**	**TP102 RR**	**TP103 RR**	**TP104 RR**	**TP105 RR**	**TP106 RR**				
Sample Number	S1	S1	S2	S1	S1	S1	**Contaminated Site Assessment**			**NES Human Health Risk**
Laboratory Number	1111754.1	1111754.3	1111754.6	1111754.9	1111754.12	1111754.14	**Background Levels [1]**	**Environmental Risk [2]**	**Human Health Risk**	
Sample Depth (m)	0.2-0.3	0.1-0.2	0.4-0.5	0.1-0.2	0.1-0.2	0.2-0.3				
Soil Type	Sand	Silty gravel	Sand	Silty gravel	Sand	Silty gravel				
Heavy Metals (mg/kg dry weight)										
Arsenic	4	3	4	4	6	6	<2-7	12	500 [3]	70 [5]
Cadmium	1.04	0.13	< 0.10	0.14	< 0.10	0.15	<0.1-0.1	22	100 [3]	1300 [5]
Chromium	8	11	7	12	7	12	7-12	86	500 [3]	NL [5]
Copper	22	14	13	13	7	14	4-10	91	5000 [3]	NL [5]
Lead	36	42	11.2	41	16	38	4.5-180	260	1500 [3]	3300 [5]
Nickel	6	9	5	10	5	9	4-9	50	3000 [3]	2000 [6]
Zinc	150	71	40	66	37	95	28-79	360	35000 [3]	31000 [6]
Total Petroleum Hydrocarbons (mg/kg dry weight)									**<1m**	**<1m**
C7 - C9	< 9	< 8	< 8	< 8	< 8	< 8	-	-	120 (sand)[4] 500 (sandy silt)[4]	120 (sand)[4] 500 (sandy silt)[4]
C10 - C14	< 20	< 20	< 20	< 20	< 20	< 20	-	-	1500 (sand)[4] 1700 (sandy silt)[4]	1500 (sand)[4] 1700 (sandy silt)[4]
C15 - C36	169	194	< 40	< 40	< 40	< 40	-	-	NA (sand)[4] NA (sandy silt)[4]	NA (sand)[4] NA (sandy silt)[4]
Total hydrocarbons (C7 - C36)	169	194	< 70	< 70	< 70	< 70	0.002-0.005	-	-	-

Annotations:

1 Determination of common pollutant background soil concentrations for the Wellington region, GWRC 2003. Values applicable to 'Main Soil Type 1 (Sand)' have been used.
2 Canadian Soil Quality Guidelines, Canadian Council of Ministers of the Environment, 2012. Values applicable to 'commercial' land use have been selected.
3 Guideline on the Investigation Levels for Soil and Groundwater, NEPC, 1999. Values applicable to 'Health Investigation Level F - commercial/industrial' have been used.
4 Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand, Ministry for the Environment, 1999. Values for 'commercial/industrial' land use have been selected.
5 Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations, 2011. Values applicable to 'commercial/industrial outdoor worker' have been used.
6 USEPA Regional Screening Level Industrial Soil Table, April 2012

Results exceeding background levels are underlined
Results exceeding environmental risk criteria are shaded in grey
Results exceeding human health risk criteria are in **bold**
NL - No Limit. Derived value exceeds 10000 mg/kg.
NA - indicates contaminant not limiting. Greater than 20000 mg/kg for TPH and 10000 mg/kg for other contaminants.

WASTE ACCEPTANCE CRITERIA: 61 RATA ROAD

Sample Date	14-Mar-13	14-Mar-13	14-Mar-13	14-Mar-13	14-Mar-13	14-Mar-13	**Waste Acceptance Criteria**	
Test Pit Number	**TP101 RR**	**TP102 RR**	**TP103 RR**	**TP104 RR**	**TP105 RR**	**TP106 RR**		
Sample Number	S1	S1	S2	S1	S1	S1		
Laboratory Number	1111754.1	1111754.3	1111754.6	1111754.9	1111754.12	1111754.14	**Porirua City Council**	**Hutt City Council**
Sample Depth (m)	0.2-0.3	0.1-0.2	0.4-0.5	0.1-0.2	0.1-0.2	0.2-0.3	**Spicer Landfill (Class B)**	**Silverstream Landfill (Class A)**
Soil Type	Sand	Silty gravel	Sand	Silty gravel	Sand	Silty gravel	**(mg/kg)**	**(mg/kg)**
Heavy Metals (mg/kg dry weight)								
Arsenic	4	3	4	4	6	6	10	100
Cadmium	1.04	0.13	< 0.10	0.14	< 0.10	0.15	2	20
Chromium	8	**11**	7	**12**	7	**12**	10	100
Copper	**22**	**14**	**13**	**13**	7	**14**	10	28
Lead	**36**	**42**	**11.2**	**41**	**16**	**38**	10	100
Nickel	6	9	5	10	5	9	20	40
Zinc	**150**	**71**	**40**	**66**	**37**	**95**	20	160
Total Petroleum Hydrocarbons (mg/kg dry weight)								
C7 - C9	< 9	< 8	< 8	< 8	< 8	< 8	-	-
C10 - C14	< 20	< 20	< 20	< 20	< 20	< 20	-	-
C15 - C36	169	194	< 40	< 40	< 40	< 40	-	-
Total hydrocarbons (C7 - C36)	169	194	< 70	< 70	< 70	< 70	-	-
Materials in Borehole Log which Preclude Soils as Cleanfill?	No	No	No	No	No	No		

Annotations:
Results exceeding Spicer Landfill (Class B) waste acceptance criteria are in **bold**
Results exceeding Silverstream Landfill (Class A) waste acceptance criteria are shaded in grey

SOIL ANALYSIS RESULTS: 58 KIWI ROAD (COMPOSITE SAMPLES)

Sample Date	11/02/2013	11/02/2013	11/02/2013	11/02/2013	12/02/2013	12/02/2013	11/02/2013	**Assessment Criteria**			
Hand Auger Number	**Composite 1**	**Composite 2**	**Composite 3**	**Composite 4**	**Composite 5**	**Composite 6**	**Composite 7**				
Sample Number	S1	S1	S1	S1	S1	S1	S1	**Contaminated Site Assessment**			**NES Human Health Risk**
Laboratory Number	1099401.33	1099401.34	1099401.35	1099401.36	1099944.27	1099944.28	1099401.37	**Background Levels [1]**	**Environmental Risk [2]**	**Human Health Risk [3]**	
Sample Depth (m)	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15				
Soil Type	Silty sand	Sand	Silt	Sandy silt	Sandy silt	Silt	Sandy silt				
Heavy Metals (mg/kg dry weight)											
Arsenic	14	13	13	9	5	8	13	<2-7	3	125	17.5 [4]
Cadmium	0.44	0.36	0.22	0.31	< 0.10	0.35	0.16	<0.1-0.1	5.5	25	325 [4]
Chromium	10	10	9	8	6	8	9	7-12	21.5	125	NL [4]
Copper	88	76	59	42	21	53	18	4-10	22.75	1250	NL [4]
Lead	22	26	13.7	8.9	7.7	20	8.8	4.5-180	65	375	825 [4]
Nickel	5	6	5	5	4	5	5	4-9	12.5	750	500 [5]
Zinc	93	86	79	83	50	76	68	28-79	90	8750	7750 [5]
Organochlorine Pesticides (mg/kg dry weight)											
Aldrin	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Dieldrin	< 0.010	< 0.010	< 0.010	< 0.010	0.016	< 0.010	< 0.010	-	-	-	40 [4]
Aldrin + dieldrin	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	-	-	12.5	-
alpha-BHC	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
beta-BHC	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
delta-BHC	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
gamma-BHC (Lindane)	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
cis-Chlordane	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
trans-Chlordane	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Total Chlordane [(cis+trans)*100/42]	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	-	-	62.5	-
2,4'-DDD	0.061	0.091	0.082	0.038	< 0.01	0.017	< 0.01	-	-	-	-
4,4'-DDD	0.1	0.138	0.147	0.068	0.018	0.059	< 0.01	-	-	-	-
2,4'-DDE	0.019	0.019	0.017	0.012	< 0.01	< 0.01	< 0.01	-	-	-	-
4,4'-DDE	0.48	0.42	0.42	0.54	0.082	0.42	0.036	-	-	-	-
2,4'-DDT	0.141	0.094	0.077	0.106	0.012	0.062	< 0.01	-	-	-	-
4,4'-DDT	0.79	0.54	0.44	0.56	0.046	0.31	0.054	-	-	-	-
Total DDT	1.591	1.302	1.183	1.324	0.168	0.873	0.11	-	3	250	250 [4]
Endosulfan I	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Endosulfan II	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Endosulfan sulphate	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Endrin	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Endrin Aldehyde	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010		-	-	-
Endrin ketone	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Heptachlor	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	12.5	-
Heptachlor epoxide	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Hexachlorobenzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Methoxychlor	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Organonitro&phosphorus Pesticides (mg/kg dry weight)											
All compounds	Below detection							-	-	-	-

Annotations:

Note all assessment criteria have been adjusted by dividing by the number of subsamples in each composite sample, in each case four.

1 Determination of common pollutant background soil concentrations for the Wellington region, GWRC 2003. Values applicable to 'Main Soil Type 1 (Sand)' have been used.

2 Canadian Soil Quality Guidelines, Canadian Council of Ministers of the Environment, 2012. Values applicable to 'commercial' land use have been selected.

3 Guideline on the Investigation Levels for Soil and Groundwater, NEPC, 1999. Values applicable to 'Health Investigation Level F - commercial/industrial' have been used.

4 Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations, 2011. Values applicable to 'commercial/industrial outdoor worker' have been used.

5 USEPA Regional Screening Level Industrial Soil Table, April 2012

Results exceeding background levels are underlined

Results exceeding environmental risk criteria are shaded in grey

Results exceeding human health risk criteria are in **bold**

NL - No Limit. Derived value exceeds 10000 mg/kg.

SOIL ANALYSIS RESULTS: 58 KIWI ROAD (COMPOSITE SAMPLES)

Sample Date	11/02/2013	11/02/2013	11/02/2013	12/02/2013	12/02/2013	12/02/2013	**Assessment Criteria**			
Hand Auger Number	**Composite 8**	**Composite 9**	**Composite 10**	**Composite 11**	**Composite 12**	**Composite 13**				
Sample Number	S1	S1	S1	S1	S1	S1	**Contaminated Site Assessment**			**NES Human Health Risk**
Laboratory Number	1099401.38	1099401.39	1099401.4	1099944.24	1099944.25	1099944.26	**Background Levels [1]**	**Environmental Risk [2]**	**Human Health Risk [3]**	
Sample Depth (m)	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15				
Soil Type	Sandy silt	Sandy silt	Silt	Sandy silt	Sand	Sandy silt				
Heavy Metals (mg/kg dry weight)										
Arsenic	12	6	**26**	13	6	5	<2-7	3	125	17.5 [4]
Cadmium	0.24	< 0.10	0.27	0.21	0.22	0.25	<0.1-0.1	5.5	25	325 [4]
Chromium	8	7	11	8	8	9	7-12	21.5	125	NL [4]
Copper	46	10	25	71	50	37	4-10	22.75	1250	NL [4]
Lead	13	6.6	7.1	7.7	8	8.2	4.5-180	65	375	825 [4]
Nickel	5	4	3	4	4	5	4-9	12.5	750	500 [5]
Zinc	84	36	52	70	77	80	28-79	90	8750	7750 [5]
Organochlorine Pesticides (mg/kg dry weight)										
Aldrin	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Dieldrin	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	40 [4]
Aldrin + dieldrin	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	-	-	12.5	-
alpha-BHC	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
beta-BHC	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
delta-BHC	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
gamma-BHC (Lindane)	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
cis-Chlordane	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
trans-Chlordane	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Total Chlordane [(cis+trans)*100/42]	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	-	-	62.5	-
2,4'-DDD	0.038	< 0.010	0.024	0.075	0.025	0.012	-	-	-	-
4,4'-DDD	0.072	< 0.010	0.081	0.153	0.048	0.026	-	-	-	-
2,4'-DDE	< 0.01	< 0.010	< 0.01	0.018	< 0.01	< 0.01	-	-	-	-
4,4'-DDE	0.29	< 0.010	0.166	0.23	0.159	0.156	-	-	-	-
2,4'-DDT	0.059	< 0.010	0.057	0.037	0.024	0.02	-	-	-	-
4,4'-DDT	0.34	< 0.010	0.35	0.2	0.107	0.07	-	-	-	-
Total DDT	0.804	< 0.06	0.683	0.713	0.368	0.289	-	3	250	250 [4]
Endosulfan I	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Endosulfan II	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Endosulfan sulphate	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Endrin	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Endrin Aldehyde	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010		-	-	-
Endrin ketone	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Heptachlor	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	12.5	-
Heptachlor epoxide	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Hexachlorobenzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Methoxychlor	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-	-
Organonitro&phosphorus Pesticides (mg/kg dry weight)										
All compounds	Below detection						-	-	-	-

Annotations:

Note all assessment criteria have been adjusted by dividing by the number of subsamples in each composite sample, in each case four.

1 Determination of common pollutant background soil concentrations for the Wellington region, GWRC 2003. Values applicable to 'Main Soil Type 1 (Sand)' have been used.

2 Canadian Soil Quality Guidelines, Canadian Council of Ministers of the Environment, 2012. Values applicable to 'commercial' land use have been selected.

3 Guideline on the Investigation Levels for Soil and Groundwater, NEPC, 1999. Values applicable to 'Health Investigation Level F - commercial/industrial' have been used.

4 Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations, 2011. Values applicable to 'commercial/industrial outdoor worker' have been used.

5 USEPA Regional Screening Level Industrial Soil Table, April 2012

Results exceeding background levels are underlined

Results exceeding environmental risk criteria are shaded in grey

Results exceeding human health risk criteria are in **bold**

NL - No Limit. Derived value exceeds 10000 mg/kg.

SOIL ANALYSIS RESULTS: 58 KIWI ROAD (INDIVIDUAL SAMPLES)

Sample Date	11/02/2013	11/02/2013	11/02/2013	11/02/2013	12/02/2013	12/02/2013	12/02/2013	**Assessment Criteria**			
Hand Auger Number	**Composite 10A**	**Composite 10B**	**Composite 10C**	**Composite 10D**	**HA101**	**HA122**	**HA132**				
Sample Number	S1	S1	S1	S1	S1	S1	S1	**Contaminated Site Assessment**			**NES Human Health Risk**
Laboratory Number	1099401.29	1099401.30	1099401.31	1099401.32	1099944.21	1099944.22	1099944.23	**Background Levels [1]**	**Environmental Risk [2]**	**Human Health Risk**	
Sample Depth (m)	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15				
Soil Type	Silt	Silt	Silt	Silt	Sand	Sand	Silt				
Heavy Metals (mg/kg dry weight)											
Arsenic	27	30	26	24	4	3	9	<2-7	12	500 [3]	70 [4]
Cadmium	-	-	-	-	< 0.10	< 0.10	0.59	<0.1-0.1	22	100 [3]	1300 [4]
Chromium	-	-	-	-	6	6	15	7-12	86	500 [3]	NL [4]
Copper	-	-	-	-	7	6	186	4-10	91	5000 [3]	NL [4]
Lead	-	-	-	-	6	5	39	4.5-180	260	1500 [3]	3300 [4]
Nickel	-	-	-	-	4	5	5	4-9	50	3000 [3]	2000 [5]
Zinc	-	-	-	-	32	31	210	28-79	360	35000 [3]	31000 [5]
Organochlorine Pesticides (mg/kg dry weight)											
Aldrin	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	-	-
Dieldrin	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	-	160 [4]
Aldrin + dieldrin	-	-	-	-	< 0.02	< 0.02	< 0.02	-	-	50	-
alpha-BHC	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	-	-
beta-BHC	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	-	-
delta-BHC	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	-	-
gamma-BHC (Lindane)	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	-	-
cis-Chlordane	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	-	-
trans-Chlordane	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	-	-
Total Chlordane [(cis+trans)*100/42]	-	-	-	-	< 0.04	< 0.04	< 0.04	-	-	250	-
2,4'-DDD	-	-	-	-	< 0.010	< 0.010	0.13	-	-	-	-
4,4'-DDD	-	-	-	-	< 0.010	< 0.010	0.22	-	-	-	-
2,4'-DDE	-	-	-	-	< 0.010	< 0.010	0.027	-	-	-	-
4,4'-DDE	-	-	-	-	< 0.010	< 0.010	0.86	-	-	-	-
2,4'-DDT	-	-	-	-	< 0.010	< 0.010	0.105	-	-	-	-
4,4'-DDT	-	-	-	-	< 0.010	< 0.010	0.58	-	-	-	-
Total DDT	-	-	-	-	< 0.06	< 0.06	1.922	-	12	1000	1000 [4]
Endosulfan I	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	-	-
Endosulfan II	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	-	-
Endosulfan sulphate	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	-	-
Endrin	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	-	-
Endrin Aldehyde	-	-	-	-	< 0.010	< 0.010	< 0.010		-	-	-
Endrin ketone	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	-	-
Heptachlor	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	50	-
Heptachlor epoxide	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	-	-
Hexachlorobenzene	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	-	-
Methoxychlor	-	-	-	-	< 0.010	< 0.010	< 0.010	-	-	-	-
Organonitro&phosphorus Pesticides (mg/kg dry weight)											
All compounds	-	-	-	-	Below Detection			-	-	-	-

Annotations:

1 Determination of common pollutant background soil concentrations for the Wellington region, GWRC 2003. Values applicable to 'Main Soil Type 1 (Sand)' have been used.

2 Canadian Soil Quality Guidelines, Canadian Council of Ministers of the Environment, 2012. Values applicable to 'commercial' land use have been selected.

3 Guideline on the Investigation Levels for Soil and Groundwater, NEPC, 1999. Values applicable to 'Health Investigation Level F - commercial/industrial' have been used.

4 Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations, 2011. Values applicable to 'commercial/industrial outdoor worker' have been used.

5 USEPA Regional Screening Level Industrial Soil Table, April 2012

Results exceeding background levels are underlined

Results exceeding environmental risk criteria are shaded in grey

Results exceeding human health risk criteria are in **bold**

NL - No Limit. Derived value exceeds 10000 mg/kg.

SOIL ANALYSIS RESULTS: 58 KIWI ROAD (COMPOSITE SAMPLES)

Sample Date	11/02/2013	11/02/2013	11/02/2013	11/02/2013	12/02/2013	12/02/2013	11/02/2013	**Waste Acceptance Criteria**	
Hand Auger Number	**Composite 1**	**Composite 2**	**Composite 3**	**Composite 4**	**Composite 5**	**Composite 6**	**Composite 7**		
Sample Number	S1	S1	S1	S1	S1	S1	S1	**Porirua City Council**	**Hutt City Council**
Laboratory Number	1099401.33	1099401.34	1099401.35	1099401.36	1099944.27	1099944.28	1099401.37		
Sample Depth (m)	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	**Spicer Landfill (Class B)**	**Silverstream Landfill (Class A)**
Soil Type	Silty sand	Sand	Silt	Sandy silt	Sandy silt	Silt	Sandy silt	**(mg/kg)**	**(mg/kg)**
Heavy Metals (mg/kg dry weight)									
Arsenic	**14**	**13**	**13**	9	5	8	**13**	10	100
Cadmium	0.44	0.36	0.22	0.31	< 0.10	0.35	0.16	2	20
Chromium	10	10	9	8	6	8	9	10	100
Copper	**88**	**76**	**59**	**42**	**21**	**53**	**18**	10	28
Lead	**22**	**26**	**13.7**	8.9	7.7	**20**	8.8	10	100
Nickel	5	6	5	5	4	5	5	20	40
Zinc	**93**	**86**	**79**	**83**	**50**	**76**	**68**	20	160
Organochlorine Pesticides (mg/kg dry weight)									
Aldrin	**< 0.010**	**< 0.010**	**< 0.010**	**< 0.010**	**< 0.010**	**< 0.010**	**< 0.010**	0.000016	0.02
Dieldrin	< 0.010	< 0.010	< 0.010	< 0.010	0.016	< 0.010	< 0.010	0.8	0.08
Aldrin + dieldrin	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	-	-
alpha-BHC	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
beta-BHC	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
delta-BHC	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
gamma-BHC (Lindane)	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
cis-Chlordane	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
trans-Chlordane	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Total Chlordane [(cis+trans)*100/42]	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	-	-
2,4'-DDD	0.061	0.091	0.082	0.038	< 0.01	0.017	< 0.01	-	-
4,4'-DDD	0.1	0.138	0.147	0.068	0.018	0.059	< 0.01	-	-
2,4'-DDE	0.019	0.019	0.017	0.012	< 0.01	< 0.01	< 0.01	-	-
4,4'-DDE	0.48	0.42	0.42	0.54	0.082	0.42	0.036	-	-
2,4'-DDT	0.141	0.094	0.077	0.106	0.012	0.062	< 0.01	-	-
4,4'-DDT	0.79	0.54	0.44	0.56	0.046	0.31	0.054	-	-
Total DDT	1.591	1.302	1.183	1.324	0.168	0.873	0.11	-	-
Endosulfan I	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.6	4
Endosulfan II	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Endosulfan sulphate	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Endrin	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Endrin Aldehyde	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Endrin ketone	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Heptachlor	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Heptachlor epoxide	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Hexachlorobenzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Methoxychlor	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Organonitro&phosphorus Pesticides (mg/kg dry weight)									
All compounds	Below detection							-	-

Annotations:
Results exceeding Spicer Landfill (Class B) waste acceptance criteria are in **bold**
Results exceeding Silverstream Landfill (Class A) waste acceptance criteria are shaded in grey

SOIL ANALYSIS RESULTS: 58 KIWI ROAD (COMPOSITE SAMPLES)

Sample Date	11/02/2013	11/02/2013	11/02/2013	12/02/2013	12/02/2013	12/02/2013	**Waste Acceptance Criteria**	
Hand Auger Number	**Composite 8**	**Composite 9**	**Composite 10**	**Composite 11**	**Composite 12**	**Composite 13**		
Sample Number	S1	S1	S1	S1	S1	S1	**Porirua City Council**	**Hutt City Council**
Laboratory Number	1099401.38	1099401.39	1099401.4	1099944.24	1099944.25	1099944.26		
Sample Depth (m)	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	0-0.15	**Spicer Landfill (Class B)**	**Silverstream Landfill (Class A)**
Soil Type	Sandy silt	Sandy silt	Silt	Sandy silt	Sand	Sandy silt	**(mg/kg)**	**(mg/kg)**
Heavy Metals (mg/kg dry weight)								
Arsenic	**12**	6	**26**	**13**	6	5	10	100
Cadmium	0.24	< 0.10	0.27	0.21	0.22	0.25	2	20
Chromium	8	7	**11**	8	8	9	10	100
Copper	**46**	10	**25**	**71**	**50**	**37**	10	28
Lead	**13**	6.6	7.1	7.7	8	8.2	10	100
Nickel	5	4	3	4	4	5	20	40
Zinc	**84**	**36**	**52**	**70**	**77**	**80**	20	160
Organochlorine Pesticides (mg/kg dry weight)								
Aldrin	**< 0.010**	**< 0.010**	**< 0.010**	**< 0.010**	**< 0.010**	**< 0.010**	0.000016	0.02
Dieldrin	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.8	0.08
Aldrin + dieldrin	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	-	-
alpha-BHC	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
beta-BHC	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
delta-BHC	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
gamma-BHC (Lindane)	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
cis-Chlordane	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
trans-Chlordane	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Total Chlordane [(cis+trans)*100/42]	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	-	-
2,4'-DDD	0.038	< 0.010	0.024	0.075	0.025	0.012	-	-
4,4'-DDD	0.072	< 0.010	0.081	0.153	0.048	0.026	-	-
2,4'-DDE	< 0.01	< 0.010	< 0.01	0.018	< 0.01	< 0.01	-	-
4,4'-DDE	0.29	< 0.010	0.166	0.23	0.159	0.156	-	-
2,4'-DDT	0.059	< 0.010	0.057	0.037	0.024	0.02	-	-
4,4'-DDT	0.34	< 0.010	0.35	0.2	0.107	0.07	-	-
Total DDT	0.804	< 0.06	0.683	0.713	0.368	0.289	-	-
Endosulfan I	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.6	4
Endosulfan II	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Endosulfan sulphate	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Endrin	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Endrin Aldehyde	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Endrin ketone	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Heptachlor	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Heptachlor epoxide	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Hexachlorobenzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Methoxychlor	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-
Organonitro&phosphorus Pesticides (mg/kg dry weight)								
All compounds	Below detection						-	-

Annotations:
Results exceeding Spicer Landfill (Class B) waste acceptance criteria are in **bold**
Results exceeding Silverstream Landfill (Class A) waste acceptance criteria are shaded in grey

SOIL ANALYSIS RESULTS: 58 KIWI ROAD (INDIVIDUAL SAMPLES)

Sample Date	12/02/2013	12/02/2013	12/02/2013	**Waste Acceptance Criteria**	
Hand Auger Number	**HA101**	**HA122**	**HA132**		
Sample Number	S1	S1	S1	**Porirua City Council**	**Hutt City Council**
Laboratory Number	1099944.21	1099944.22	1099944.23		
Sample Depth (m)	0-0.15	0-0.15	0-0.15	**Spicer Landfill (Class B)**	**Silverstream Landfill (Class A)**
Soil Type	Sand	Sand	Silt	**(mg/kg)**	**(mg/kg)**
Heavy Metals (mg/kg dry weight)					
Arsenic	4	3	9	10	100
Cadmium	< 0.10	< 0.10	0.59	2	20
Chromium	6	6	**15**	10	100
Copper	7	6	**186**	10	28
Lead	6	5	**39**	10	100
Nickel	4	5	5	20	40
Zinc	**32**	**31**	**210**	20	160
Organochlorine Pesticides (mg/kg dry weight)					
Aldrin	< 0.010	< 0.010	< 0.010	0.000016	0.02
Dieldrin	< 0.010	< 0.010	< 0.010	0.8	0.08
Aldrin + dieldrin	< 0.02	< 0.02	< 0.02	-	-
alpha-BHC	< 0.010	< 0.010	< 0.010	-	-
beta-BHC	< 0.010	< 0.010	< 0.010	-	-
delta-BHC	< 0.010	< 0.010	< 0.010	-	-
gamma-BHC (Lindane)	< 0.010	< 0.010	< 0.010	-	-
cis-Chlordane	< 0.010	< 0.010	< 0.010	-	-
trans-Chlordane	< 0.010	< 0.010	< 0.010	-	-
Total Chlordane [(cis+trans)*100/42]	< 0.04	< 0.04	< 0.04	-	-
2,4'-DDD	< 0.010	< 0.010	0.13	-	-
4,4'-DDD	< 0.010	< 0.010	0.22	-	-
2,4'-DDE	< 0.010	< 0.010	0.027	-	-
4,4'-DDE	< 0.010	< 0.010	0.86	-	-
2,4'-DDT	< 0.010	< 0.010	0.105	-	-
4,4'-DDT	< 0.010	< 0.010	0.58	-	-
Total DDT	< 0.06	< 0.06	1.922	-	-
Endosulfan I	< 0.010	< 0.010	< 0.010	0.6	4
Endosulfan II	< 0.010	< 0.010	< 0.010	-	-
Endosulfan sulphate	< 0.010	< 0.010	< 0.010	-	-
Endrin	< 0.010	< 0.010	< 0.010	-	-
Endrin Aldehyde	< 0.010	< 0.010	< 0.010	-	-
Endrin ketone	< 0.010	< 0.010	< 0.010	-	-
Heptachlor	< 0.010	< 0.010	< 0.010	-	-
Heptachlor epoxide	< 0.010	< 0.010	< 0.010	-	-
Hexachlorobenzene	< 0.010	< 0.010	< 0.010	-	-
Methoxychlor	< 0.010	< 0.010	< 0.010	-	-
Organonitro&phosphorus Pesticides (mg/kg dry weight)					
All compounds	Below Detection			-	-

Annotations:
Results exceeding Spicer Landfill (Class B) waste acceptance criteria are in **bold**
Results exceeding Silverstream Landfill (Class A) waste acceptance criteria are shaded in grey

SOIL ANALYSIS RESULTS: 109 KAPITI ROAD

Date	11-Mar-13	11-Mar-13	11-Mar-13	11-Mar-13	11-Mar-13	11-Mar-13	11-Mar-13	11-Mar-13	11-Mar-13	11-Mar-13	**Assessment Criteria**				
Test Pit Number	**TP101**	**TP101**	**TP102**	**TP102**	**TP103**	**TP104**	**TP104**	**TP105**	**TP106**	**TP106**					
Sample Number	S1	S2	S1	S2	S1	S1	S2	S1	S1	S2	**Contaminated Site Assessment**				**NES Human Health Risk**
Laboratory Number	1110684.2	1110684.21	1110684.17	1110684.18	1110684.15	1110684.1	1110684.2	1110684.4	1110684.1	1110684.8	**Background Levels** [1]	**Environmental Risk** [2]	**Human Health Risk**		
Sample Depth (m)	0.1-0.2	1.2-1.3	0.4-0.5	1.1-1.2	0.2-0.3	0.1-0.2	0.6-0.7	0.3-0.4	0.2-03	1.0-1.1					
Soil Type	Sand	Clayey silt	Clayey silt	Clayey silt	Silt	Silt	Silt	Silt	Sandy silt	Sandy Silt					
Heavy Metals (mg/kg dry weight)															
Arsenic	4	5	5	4	5	4	5	6	5	5	<2-7	12	500 [3]		70 [5]
Cadmium	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	<0.1-0.1	22	100 [3]		1300 [5]
Chromium	6	23	19	16	14	13	20	14	12	19	7-12	86	500 [3]		NL [5]
Copper	8	22	18	16	15	12	15	16	13	18	4-10	91	5000 [3]		NL [5]
Lead	4.4	24	19.3	18.5	18.2	12.4	19.9	15.5	11.9	21	4.5-180	260	1500 [3]		3300 [5]
Nickel	3	16	13	12	11	9	13	10	9	14	4-9	50	3000 [3]		2000 [6]
Zinc	27	73	62	61	57	47	59	51	44	63	28-79	360	35000 [3]		31000 [6]
Polycyclic Aromatic Hydrocarbons (mg/kg dry weight)													**<1m**	**1m-4m**	
Acenaphthene	< 0.04	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	-	-	-		-
Acenaphthylene	< 0.04	< 0.03	< 0.03	0.07	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	-	-	-		-
Anthracene	< 0.04	< 0.03	< 0.03	0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	0.002-0.005	-	-		-
Benzo[a]anthracene	< 0.04	< 0.03	< 0.03	0.07	< 0.03	< 0.03	< 0.03	0.03	< 0.03	< 0.04	-	-	-		-
Benzo[a]pyrene (BAP)	0.04	< 0.03	< 0.03	0.22	< 0.03	< 0.03	< 0.03	0.04	< 0.03	< 0.04	0.002-0.005	0.7	-		-
Benzo[b]fluoranthene + Benzo[j]fluoranthene	0.05	< 0.03	< 0.03	0.27	< 0.03	< 0.03	< 0.03	0.06	< 0.03	< 0.04	-	-	-		-
Benzo[g,h,i]perylene	0.03	< 0.03	< 0.03	0.18	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	-	-	-		-
Benzo[k]fluoranthene	< 0.04	< 0.03	< 0.03	0.13	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	-	-	-		-
Chrysene	< 0.04	< 0.03	< 0.03	0.09	< 0.03	< 0.03	< 0.03	0.04	< 0.03	< 0.04	-	-	-		-
Dibenzo[a,h]anthracene	< 0.04	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	-	-	-		-
Fluoranthene	< 0.04	< 0.03	< 0.03	0.13	< 0.03	< 0.03	< 0.03	0.05	< 0.03	< 0.04	0.002-0.005	-	-		-
Fluorene	< 0.04	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	-	-	-		-
Indeno(1,2,3-c,d)pyrene	0.04	< 0.03	< 0.03	0.22	< 0.03	< 0.03	< 0.03	0.04	< 0.03	< 0.04	-	-	-		-
													190 (sand) [4]	230 (sand)[4]	
Naphthalene	< 0.16	< 0.14	< 0.15	< 0.13	< 0.14	< 0.14	< 0.14	< 0.15	< 0.13	< 0.16	0.002-0.005	-	210 (sandy silt) [4] 230 (silty clay)[4]	270 (sandy silt)[4] 1100 (silty clay)[4]	-
Phenanthrene	< 0.04	< 0.03	< 0.03	0.05	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	0.002-0.005	-	-		-
Pyrene	0.03	< 0.03	< 0.03	0.19	< 0.03	< 0.03	< 0.03	0.06	< 0.03	< 0.04	0.002-0.005	-	NA (all soil types)[4]	NA (all soil types)[4]	-
BaP equivalent	0.07	<0.07	<0.07	0.30	<0.07	<0.07	<0.07	0.07	<0.07	<0.05	-	-	11 (all soil types)[4]	25 (all soil types)[4]	-
BaP equivalent (inc. Fluoranthene)	0.07	<0.07	<0.07	0.31	<0.07	<0.07	<0.07	0.07	<0.07	<0.05	-	-	-		35 [5]
Total Petroleum Hydrocarbons (mg/kg dry weight)													**<1m**	**1m-4m**	**<1m**	**1m-4m**
C7 - C9	< 10	< 9	< 9	< 8	< 8	< 9	< 9	< 9	< 8	< 10	-	-	120 (sand)[4] 500 (sandy silt) 8800 (silty clay)[4]	120 (sand)[4] 500 (sandy silt) 20000 (silty clay)[4]	120 (sand)[4] 500 (sandy silt) 8800 (silty clay)[4]	120 (sand)[4] 500 (sandy silt) 20000 (silty clay)[4]
C10 - C14	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	-	-	1500 (sand)[4] 1700 (sandy silt)[4] 1900 (sandy silt)[4]	1900 (sand)[4] 2200 (sandy silt)[4] 8900 (silty sand)[4]	1500 (sand)[4] 1700 (sandy silt)[4] 1900 (sandy silt)[4]	1900 (sand)[4] 2200 (sandy silt)[4] 8900 (silty sand)[4]
C15 - C36	142	< 40	< 40	370	< 40	< 40	< 40	< 40	< 40	< 40	-	-	NA (all soil types)[4]	NA (all soil types)[4]	NA (all soil types)[4]	NA (all soil types)[4]
Total hydrocarbons (C7 - C36)	142	< 70	< 70	370	< 70	< 70	< 70	< 70	< 70	< 70	0.002-0.005	-	-	-	-	-

Annotations:
1 Determination of common pollutant background soil concentrations for the Wellington region, GWRC 2003. Values applicable to 'Main Soil Type 1 (Sand)' have been used.
2 Canadian Soil Quality Guidelines, Canadian Council of Ministers of the Environment, 2012. Values applicable to 'commercial' land use have been used.
3 Guideline on the Investigation Levels for Soil and Groundwater, NEPC, 1999. Values applicable to 'Health Investigation Level F - commercial/industrial' have been used.
4 Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand, Ministry for the Environment, 1999. Values for 'commercial/industrial' land use have been used.
5 Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations, 2011. Values applicable to 'commercial/industrial outdoor worker' have been used.
6 USEPA Regional Screening Level Industrial Soil Table, April 2012

Results exceeding background levels are underlined
Results exceeding environmental risk criteria are shaded in grey
Results exceeding human health risk criteria are in **bold**
NL - No Limit. Derived value exceeds 10000 mg/kg.
NA - indicates contaminant not limiting. Greater than 20000 mg/kg for TPH and 10000 mg/kg for other contaminants.

SOIL ANALYSIS RESULTS: 109 KAPITI ROAD

Date	11-Mar-13	11-Mar-13	12-Mar-13	12-Mar-13	12-Mar-13	11-Mar-13	11-Mar-13	12-Mar-13	12-Mar-13	**Assessment Criteria**					
Test Pit Number	**TP107**	**TP108**	**TP109**	**TP110**	**TP111**	**TP112**	**TP113**	**TP114**	**TP115**						
Sample Number	S1	S1	S1	S1	S1	S1	S1	S1	S1	**Contaminated Site Assessment**				**NES Human Health Risk**	
Laboratory Number	1110684.25	1110684.23	1110964.3	1110964.5	1110964.1	1110684.27	1110684.7	1110964.9	1110964.7	**Background Levels** [1]	**Environmental Risk** [2]	**Human Health Risk**			
Sample Depth (m)	0.2-03	0.1-0.2	0.2-0.3	0.2-0.3	0.2-0.3	0.1-0.2	0.2-0.3	0.2-0.3	0.1-0.2						
Soil Type	Sand	Sandy silt	Gravelly silt	Silt	Silt	Silty sand	Silty sand	Silty gravel	Silt						
Heavy Metals (mg/kg dry weight)															
Arsenic	2	10	4	4	4	3	2	5	4	<2-7	12	500 [3]		70 [5]	
Cadmium	< 0.10	< 0.10	< 0.10	< 0.10	0.13	< 0.10	< 0.10	< 0.10	0.11	<0.1-0.1	22	100 [3]		1300 [5]	
Chromium	5	14	14	19	19	6	6	18	18	7-12	86	500 [3]		NL [5]	
Copper	7	17	17	14	16	7	8	20	14	4-10	91	5000 [3]		NL [5]	
Lead	4.8	26	21	18	21	4.7	5.4	31	23	4.5-180	260	1500 [3]		3300 [5]	
Nickel	4	13	14	13	13	4	4	16	13	4-9	50	3000 [3]		2000 [6]	
Zinc	27	62	67	52	75	29	38	79	63	28-79	360	35000 [3]		31000 [6]	
Polycyclic Aromatic Hydrocarbons (mg/kg dry weight)												**<1m**	**1m-4m**		
Acenaphthene	< 0.04	< 0.03	0.06	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-	-		-	
Acenaphthylene	< 0.04	< 0.03	< 0.03	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-	-		-	
Anthracene	< 0.04	< 0.03	0.17	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	0.002-0.005	-	-		-	
Benzo[a]anthracene	< 0.04	< 0.03	0.69	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-	-		-	
Benzo[a]pyrene (BAP)	< 0.04	< 0.03	1.02	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	0.002-0.005	0.7	-		-	
Benzo[b]fluoranthene + Benzo[j]fluoranthene	< 0.04	< 0.03	1.29	< 0.03	< 0.04	< 0.04	< 0.03	0.03	< 0.03	-	-	-		-	
Benzo[g,h,i]perylene	< 0.04	< 0.03	0.67	< 0.03	< 0.04	< 0.04	< 0.03	0.04	< 0.03	-	-	-		-	
Benzo[k]fluoranthene	< 0.04	< 0.03	0.52	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-	-		-	
Chrysene	< 0.04	< 0.03	0.66	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-	-		-	
Dibenzo[a,h]anthracene	< 0.04	< 0.03	0.29	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-	-		-	
Fluoranthene	< 0.04	< 0.03	1.33	< 0.03	< 0.04	< 0.04	0.03	< 0.03	< 0.03	0.002-0.005	-	-		-	
Fluorene	< 0.04	< 0.03	0.03	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-	-		-	
Indeno(1,2,3-c,d)pyrene	< 0.04	< 0.03	0.64	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-	-		-	
Naphthalene	< 0.16	< 0.13	< 0.12	< 0.14	< 0.16	< 0.16	< 0.15	< 0.12	< 0.14	0.002-0.005	-	190 (sand) [4] 210 (sandy silt) [4] 230 (silty clay)[4]	230 (sand)[4] 270 (sandy silt)[4] 1100 (silty clay)[4]	-	
Phenanthrene	< 0.04	< 0.03	0.62	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	0.002-0.005	-	-		-	
Pyrene	< 0.04	< 0.03	1.13	< 0.03	< 0.04	< 0.04	0.04	0.02	< 0.03	0.002-0.005	-	NA (all soil types)[4]	NA (all soil types)[4]	-	
BaP equivalent	<0.05	<0.07	1.63	<0.07	<0.05	<0.05	0.04	0.04	<0.07	-	-	11 (all soil types)[4]	25 (all soil types)[4]	-	
BaP equivalent (inc. Fluoranthene)	<0.05	<0.07	1.64	<0.07	<0.05	<0.05	0.04	0.04	<0.07	-	-	-		35 [5]	
Total Petroleum Hydrocarbons (mg/kg dry weight)												**<1m**	**1m-4m**	**<1m**	**1m-4m**
C7 - C9	< 10	< 8	< 8	< 9	< 10	< 10	< 9	< 8	< 9	-	-	120 (sand)[4] 500 (sandy silt) 8800 (silty clay)[4]	120 (sand)[4] 500 (sandy silt) 20000 (silty clay)[4]	120 (sand)[4] 500 (sandy silt) 8800 (silty clay)[4]	120 (sand)[4] 500 (sandy silt) 20000 (silty clay)[4]
C10 - C14	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	-	-	1500 (sand)[4] 1700 (sandy silt)[4] 1900 (sandy silt)[4]	1900 (sand)[4] 2200 (sandy silt)[4] 8900 (silty sand)[4]	1500 (sand)[4] 1700 (sandy silt)[4] 1900 (sandy silt)[4]	1900 (sand)[4] 2200 (sandy silt)[4] 8900 (silty sand)[4]
C15 - C36	66	< 40	46	< 40	< 40	104	131	360	< 40	-	-	NA (all soil types)[4]	NA (all soil types)[4]	NA (all soil types)[4]	NA (all soil types)[4]
Total hydrocarbons (C7 - C36)	< 70	< 70	< 70	< 70	< 70	104	131	360	< 70	0.002-0.005	-	-	-	-	-

Annotations:
1 Determination of common pollutant background soil concentrations for the Wellington region, GWRC 2003. Values applicable to 'Main Soil Type 1 (Sand)' have been used.
2 Canadian Soil Quality Guidelines, Canadian Council of Ministers of the Environment, 2012. Values applicable to 'commercial' land use have been used.
3 Guideline on the Investigation Levels for Soil and Groundwater, NEPC, 1999. Values applicable to 'Health Investigation Level F - commercial/industrial' have been used.
4 Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand, Ministry for the Environment, 1999. Values for 'commercial/industrial' land use have been used.
5 Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations, 2011. Values applicable to 'commercial/industrial outdoor worker' have been used.
6 USEPA Regional Screening Level Industrial Soil Table, April 2012

Results exceeding background levels are underlined
Results exceeding environmental risk criteria are shaded in grey
Results exceeding human health risk criteria are in **bold**
NL - No Limit. Derived value exceeds 10000 mg/kg.
NA - indicates contaminant not limiting. Greater than 20000 mg/kg for TPH and 10000 mg/kg for other contaminants.

WASTE ACCEPTANCE CRITERIA: 109 KAPITI ROAD

Date	11-Mar-13	11-Mar-13	11-Mar-13	11-Mar-13	11-Mar-13	11-Mar-13	11-Mar-13	11-Mar-13	11-Mar-13	11-Mar-13	**Waste Acceptance Criteria**	
Test Pit Number	**TP101**	**TP101**	**TP102**	**TP102**	**TP103**	**TP104**	**TP104**	**TP105**	**TP106**	**TP106**		
Sample Number	S1	S2	S1	S2	S1	S1	S2	S1	S1	S2		
Laboratory Number	1110684.2	1110684.21	1110684.17	1110684.18	1110684.15	1110684.1	1110684.2	1110684.4	1110684.1	1110684.8	**Porirua City Council**	**Hutt City Council**
Sample Depth (m)	0.1-0.2	1.2-1.3	0.4-0.5	1.1-1.2	0.2-0.3	0.1-0.2	0.6-0.7	0.3-0.4	0.2-03	1.0-1.1	**Spicer Landfill (Class B)**	**Silverstream Landfill (Class A)**
Soil Type	Sand	Clayey silt	Clayey silt	Clayey silt	Silt	Silt	Silt	Silt	Sandy silt	Sandy Silt	**(mg/kg)**	**(mg/kg)**
Heavy Metals (mg/kg dry weight)												
Arsenic	4	5	5	4	5	4	5	6	5	5	10	100
Cadmium	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	2	20
Chromium	6	**23**	**19**	**16**	**14**	**13**	**20**	**14**	**12**	**19**	10	100
Copper	8	**22**	**18**	**16**	**15**	**12**	**15**	**16**	**13**	**18**	10	28
Lead	4.4	**24**	**19.3**	**18.5**	**18.2**	**12.4**	**19.9**	**15.5**	**11.9**	**21**	10	100
Nickel	3	16	13	12	11	9	13	10	9	14	20	40
Zinc	**27**	**73**	**62**	**61**	**57**	**47**	**59**	**51**	**44**	**63**	20	160
Polycyclic Aromatic Hydrocarbons (mg/kg dry weight)												
Acenaphthene	< 0.04	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	-	-
Acenaphthylene	< 0.04	< 0.03	< 0.03	0.07	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	-	-
Anthracene	< 0.04	< 0.03	< 0.03	0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	-	-
Benzo[a]anthracene	< 0.04	< 0.03	< 0.03	0.07	< 0.03	< 0.03	< 0.03	0.03	< 0.03	< 0.04	-	-
Benzo[a]pyrene (BAP)	0.04	< 0.03	< 0.03	0.22	< 0.03	< 0.03	< 0.03	0.04	< 0.03	< 0.04	30	-
Benzo[b]fluoranthene + Benzo[j]fluoranthene	0.05	< 0.03	< 0.03	0.27	< 0.03	< 0.03	< 0.03	0.06	< 0.03	< 0.04	-	-
Benzo[g,h,i]perylene	0.03	< 0.03	< 0.03	0.18	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	-	-
Benzo[k]fluoranthene	< 0.04	< 0.03	< 0.03	0.13	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	-	-
Chrysene	< 0.04	< 0.03	< 0.03	0.09	< 0.03	< 0.03	< 0.03	0.04	< 0.03	< 0.04	-	-
Dibenzo[a,h]anthracene	< 0.04	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	-	-
Fluoranthene	< 0.04	< 0.03	< 0.03	0.13	< 0.03	< 0.03	< 0.03	0.05	< 0.03	< 0.04	-	-
Fluorene	< 0.04	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	-	-
Indeno(1,2,3-c,d)pyrene	0.04	< 0.03	< 0.03	0.22	< 0.03	< 0.03	< 0.03	0.04	< 0.03	< 0.04	-	-
Naphthalene	< 0.16	< 0.14	< 0.15	< 0.13	< 0.14	< 0.14	< 0.14	< 0.15	< 0.13	< 0.16	20	1
Phenanthrene	< 0.04	< 0.03	< 0.03	0.05	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	-	-
Pyrene	0.03	< 0.03	< 0.03	0.19	< 0.03	< 0.03	< 0.03	0.06	< 0.03	< 0.04	-	-
BaP equivalent	0.07	<0.07	<0.07	0.30	<0.07	<0.07	<0.07	0.07	<0.07	<0.05	30	-
BaP equivalent (inc. Fluoranthene)	0.07	<0.07	<0.07	0.31	<0.07	<0.07	<0.07	0.07	<0.07	<0.05	-	-
Total Petroleum Hydrocarbons (mg/kg dry weight)												
C7 - C9	< 10	< 9	< 9	< 8	< 8	< 9	< 9	< 9	< 8	< 10	-	-
C10 - C14	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	-	-
C15 - C36	142	< 40	< 40	370	< 40	< 40	< 40	< 40	< 40	< 40	-	-
Total hydrocarbons (C7 - C36)	142	< 70	< 70	370	< 70	< 70	< 70	< 70	< 70	< 70	-	-
Materials in Borehole Log which Preclude Soils as Cleanfill?	Yes	No	Yes	No	No	No	No	No	No	No		

Annotations:
Results exceeding Spicer Landfill (Class B) waste acceptance criteria are in **bold**
Results exceeding Silverstream Landfill (Class A) waste acceptance criteria are shaded in grey

WASTE ACCEPTANCE CRITERIA: 109 KAPITI ROAD

Date	11-Mar-13	11-Mar-13	12-Mar-13	12-Mar-13	12-Mar-13	11-Mar-13	11-Mar-13	12-Mar-13	12-Mar-13	**Waste Acceptance Criteria**	
Test Pit Number	**TP107**	**TP108**	**TP109**	**TP110**	**TP111**	**TP112**	**TP113**	**TP114**	**TP115**		
Sample Number	S1	S1	S1	S1	S1	S1	S1	S1	S1		
Laboratory Number	1110684.25	1110684.23	1110964.3	1110964.5	1110964.1	1110684.27	1110684.7	1110964.9	1110964.7	**Porirua City Council**	**Hutt City Council**
Sample Depth (m)	0.2-03	0.1-0.2	0.2-0.3	0.2-0.3	0.2-0.3	0.1-0.2	0.2-0.3	0.2-0.3	0.1-0.2	**Spicer Landfill (Class B)**	**Silverstream Landfill (Class A)**
Soil Type	Sand	Sandy silt	Gravelly silt	Silt	Silt	Silty sand	Silty sand	Silty gravel	Silt	**(mg/kg)**	**(mg/kg)**
Heavy Metals (mg/kg dry weight)											
Arsenic	2	10	4	4	4	3	2	5	4	10	100
Cadmium	< 0.10	< 0.10	< 0.10	< 0.10	0.13	< 0.10	< 0.10	< 0.10	0.11	2	20
Chromium	5	**14**	**14**	**19**	**19**	6	6	**18**	**18**	10	100
Copper	7	**17**	**17**	**14**	**16**	7	8	**20**	**14**	10	28
Lead	4.8	**26**	**21**	**18**	**21**	4.7	5.4	**31**	**23**	10	100
Nickel	4	13	14	13	13	4	4	16	13	20	40
Zinc	**27**	**62**	**67**	**52**	**75**	**29**	**38**	**79**	**63**	20	160
Polycyclic Aromatic Hydrocarbons (mg/kg dry weight)											
Acenaphthene	< 0.04	< 0.03	0.06	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-
Acenaphthylene	< 0.04	< 0.03	< 0.03	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-
Anthracene	< 0.04	< 0.03	0.17	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-
Benzo[a]anthracene	< 0.04	< 0.03	0.69	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-
Benzo[a]pyrene (BAP)	< 0.04	< 0.03	1.02	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	30	-
Benzo[b]fluoranthene + Benzo[j]fluoranthene	< 0.04	< 0.03	1.29	< 0.03	< 0.04	< 0.04	< 0.03	0.03	< 0.03	-	-
Benzo[g,h,i]perylene	< 0.04	< 0.03	0.67	< 0.03	< 0.04	< 0.04	< 0.03	0.04	< 0.03	-	-
Benzo[k]fluoranthene	< 0.04	< 0.03	0.52	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-
Chrysene	< 0.04	< 0.03	0.66	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-
Dibenzo[a,h]anthracene	< 0.04	< 0.03	0.29	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-
Fluoranthene	< 0.04	< 0.03	1.33	< 0.03	< 0.04	< 0.04	0.03	< 0.03	< 0.03	-	-
Fluorene	< 0.04	< 0.03	0.03	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-
Indeno(1,2,3-c,d)pyrene	< 0.04	< 0.03	0.64	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-
Naphthalene	< 0.16	< 0.13	< 0.12	< 0.14	< 0.16	< 0.16	< 0.15	< 0.12	< 0.14	20	1
Phenanthrene	< 0.04	< 0.03	0.62	< 0.03	< 0.04	< 0.04	< 0.03	< 0.03	< 0.03	-	-
Pyrene	< 0.04	< 0.03	1.13	< 0.03	< 0.04	< 0.04	0.04	0.02	< 0.03	-	-
BaP equivalent	<0.05	<0.07	1.63	<0.07	<0.05	<0.05	0.04	0.04	<0.07	30	-
BaP equivalent (inc. Fluoranthene)	<0.05	<0.07	1.64	<0.07	<0.05	<0.05	0.04	0.04	<0.07	-	-
Total Petroleum Hydrocarbons (mg/kg dry weight)											
C7 - C9	< 10	< 8	< 8	< 9	< 10	< 10	< 9	< 8	< 9	-	-
C10 - C14	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	-	-
C15 - C36	66	< 40	46	< 40	< 40	104	131	360	< 40	-	-
Total hydrocarbons (C7 - C36)	< 70	< 70	< 70	< 70	< 70	104	131	360	< 70	-	-
Materials in Borehole Log which Preclude Soils as Cleanfill?	No	No	No	Yes	Yes	No	Yes	No	No		

Annotations:
Results exceeding Spicer Landfill (Class B) waste acceptance criteria are in **bold**
Results exceeding Silverstream Landfill (Class A) waste acceptance criteria are shaded in grey

SECTOR 2 – TEST PIT LOGS

Test Pits	Location
TP215 to TP217	55 Rata Road

SECTOR 2 – SUMMARY OF SOIL SAMPLING AND ANALYSIS

Location	Test Pit Depth (m bgl)	Laboratory Number	Sample Depth (m)	Soil Type	Analysis Suite
TP215	2.5	1099950.1	0.0	Sawdust	Hold Cold
		1099950.2	0.3	Silty sand	Heavy Metals, TPH, PAH
		1099950.3	1.0	Silty sand	Heavy Metals, TPH, PAH
		1099950.4	1.9	Peat	Hold Cold
TP216	2.5	1099950.5	0.0	Silty sand	Heavy Metals, TPH, PAH
		1099950.6	0.5	Sand	Heavy Metals, TPH, PAH
		1099950.7	1.5	Peaty sand	Hold Cold
		1099950.8	2.4	Peaty sand	Hold Cold
TP217	3	1099950.9	0.0	Gravelly silt	Hold Cold
		1099950.10	0.5	Gravelly silt	Heavy Metals, TPH, PAH
		1099950.11	1.4	Gravelly silt	Heavy Metals, TPH, PAH
		1099950.12	1.8	Gravelly silt	Heavy Metals, TPH, PAH
		1099950.13	2.9	Gravelly silt	Hold Cold

HM = heavy metals

TPH = total petroleum hydrocarbons

PAH = polycyclic aromatic hydrocarbons

MacKays to Peka Peka

BOREHOLE No: **TP215**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	55 Rata Road, Paraparaumu, Wellington	CLIENT:	New Zealand Transport Agency
CIRCUIT:		TEST PIT LOCATION:	Rata Road, Paraparaumi, Wellington
COORDINATES:	N 5,468,317.48 m	R L:	
	E 1,767,729.21 m	DATUM:	

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
					Sawdust	Fill				DS1	
			SM	M	Silty fine to coarse SAND, some fine to coarse gravel, minor fill (metal, concrete); dark brown speckled grey; moist, non-plastic. Gravel: sub-angular.						
					No fill					DS2	
0.5											0.5
1.0										DS3	1.0
1.5					Concrete Blocks						1.5
			PT	M	PEAT; blackish brown; moist, non-plastic.	Interdune Deposits (Peat)				DS4	
2.0											2.0
2.5					END OF LOG @ 2.5 m						2.5

DATE EXCAVATED:	13/2/13	CONTRACTOR:	COMMENTS:
LOGGED BY:	KMW	EQUIPMENT:	S1 13:016 TP215 0.0-0.1m S2 13:016 TP215 0.3-0.4m S3 13:016 TP215 1.0-1.1m S4 13:016 TP215 1.9-2.0m
SHEAR VANE No:		METHOD:	

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\55 RATA ROAD\55 RATA ROAD.GPJ BECA.GDT 16/4/13

A4 Scale 1:15

MacKays to Peka Peka

BOREHOLE No: **TP216**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	55 Rata Road, Paraparaumu, Wellington	CLIENT:	New Zealand Transport Agency
CIRCUIT:		TEST PIT LOCATION:	Rata Road, Paraparaumi, Wellington
COORDINATES:	N 5,468,309.86 m E 1,767,714.17 m	R L: DATUM:	

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
0.0			SM	M	Silty fine to coarse SAND, some fine to coarse gravel; dark brown; moist, non-plastic. Gravel: subangular.	FILL				DS1	0.0
0.5			SW	M	Fine to coarse SAND; light grey; moist, non-plastic.					DS2	0.5
1.0											1.0
1.5			SM	W	Peaty fine to coarse SAND; dark brown; wet, non-plastic. Organic odour. Peat: Fibrous.	Interdune Deposits (Peat)				DS3	1.5
2.0	▽ 13/02/2013				Groundwater as rapid inflow.					DS4	2.0
2.5					END OF LOG @ 2.5 m						2.5

DATE EXCAVATED:	13/2/13	CONTRACTOR:	
LOGGED BY:	KMW	EQUIPMENT:	
SHEAR VANE No:		METHOD:	

COMMENTS:
S1 13:016 TP216 0.0-0.1m
S2 13:016 TP216 0.5-0.6m
S3 13:016 TP216 1.5-1.6m
S4 13:016 TP216 2.4-2.5m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\55 RATA ROAD\55 RATA ROAD.GPJ BECA.GDT 16/4/13

A4 Scale 1:15

MacKays to Peka Peka

BOREHOLE No: **TP217**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	55 Rata Road, Paraparaumu, Wellington	CLIENT:	New Zealand Transport Agency
CIRCUIT:		TEST PIT LOCATION:	Rata Road, Paraparaumi, Wellington
COORDINATES:	N 5,468,331.69 m E 1,767,706.51 m	R L: DATUM:	

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
			ML	D	Fine to coarse gravelly SILT, minor cobbles, minor fill; light brown; dry, non-plastic. Gravel: sub-angular. Cobbles: rounded. Fill: Metal, plastic, timber.	FILL				DS1	
0.5					Partial drum					DS2	0.5
					No gravel, no cobbles.						
1.0											1.0
					Car engine block.					DS3	
1.5											1.5
					Building materials: corrugated iron, pink bats, timber, industrial switch box.					DS4	
2.0											2.0
2.5											2.5
										DS5	
3.0					END OF LOG @ 3 m						3.0

DATE EXCAVATED:	13/2/13	CONTRACTOR:	COMMENTS:
LOGGED BY:	KMW	EQUIPMENT:	S1 13:016 TP217 0.0-0.1m S2 13:016 TP217 0.5-0.6m S3 13:016 TP217 1.4-1.5m S4 13:016 TP217 1.8-1.9m S5 13:016 TP217 2.9-3.0m
SHEAR VANE No:		METHOD:	

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\55 RATA ROAD\55 RATA ROAD.GPJ BECA.GDT 16/4/13

A4 Scale 1:16

SECTOR 2 – TEST PIT LOGS

Test Pits	Location
TP101 to TP110	61 Rata Road

SECTOR 2 – SUMMARY OF SOIL SAMPLING AND ANALYSIS

Location	Test Pit Depth (m bgl)	Laboratory Number	Sample Depth (m)	Soil Type	Analysis Suite
TP101	1.5	1111754.1	0.2-0.3	Sand	HM, TPH
		1111754.2	1.4-1.5	Sand	Hold Cold
TP102	1.7	1111754.3	0.1-0.2	Silty gravel	HM, TPH
		1111754.4	0.6-0.7	Sand	Hold Cold
		1111754.5	1.5-1.6	Sand	Hold Cold
TP103	2	1111754.26	0.1-0.2	Silty gravel	HM, TPH
		1111754.6	0.4-0.5	Sand	HM, TPH
		1111754.7	1.4-1.5	Sand	Hold Cold
TP104	1.5	1111754.9	0.1-0.2	Silty gravel	HM, TPH
		1111754.10	0.5-0.6	Sand	Hold Cold
		1111754.11	1.3-1.4	Sand	Hold Cold
TP105	1.5	1111754.12	0.1-0.2	Sand	HM, TPH
		1111754.13	1.4-1.5	Sand	Hold Cold
TP106	2.2	1111754.14	0.2-0.3	Silty gravel	HM, TPH
		1111754.15	0.7-0.8	Sand	Hold Cold
		1111754.16	1.8-1.9	Peat	Hold Cold

HM = Heavy metals

TPH = Total Petroleum Hydrocarbons

MacKays to Peka Peka

BOREHOLE No: **TP101RR**

TEST PIT LOG

SHEET 1 of 1

PROJECT: MacKays to Peka Peka Expressway
JOB NUMBER: 3320901/1000/013
SITE LOCATION: 61 Rata Road, Paraparaumu
CLIENT: NZTA

CIRCUIT:
TEST PIT LOCATION:
COORDINATES: N 5,468,371.26 m
E 1,767,658.66 m
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
0			SW	D	Fine to coarse SAND, minor fine to coarse gravel; greyish brown; dry, non plastic. Gravel: Rounded.					DS1	0
					No gravel; light yellowish brown; moist.						
0.5											0.5
1.0											1.0
1.5					END OF LOG @ 1.5 m					DS2	1.5
2.0											2.0
2.5											2.5

DATE EXCAVATED: 14/3/13
LOGGED BY: KMW
SHEAR VANE No:
CONTRACTOR: Goodman Contractors Ltd
EQUIPMENT: 12 tonne Kobelco
METHOD: Excavation

COMMENTS:
S1 13:024 TP101RR S1 0.2-0.3m
S2 13:024 TP101RR S2 1.4-1.5m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

TEST_PIT P:\3321\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\61 RATA ROAD\RATA ROAD LOGS.GPJ BECA.GDT 16/4/13

A4 Scale 1:15

MacKays to Peka Peka

BOREHOLE No: **TP102RR**

TEST PIT LOG

SHEET 1 of 1

PROJECT: MacKays to Peka Peka Expressway — JOB NUMBER: 3320901/1000/013

SITE LOCATION: 61 Rata Road, Paraparaumu — CLIENT: NZTA

CIRCUIT:

COORDINATES: N 5,468,361.63 m — TEST PIT LOCATION:

E 1,767,650.8 m — R L:

DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
			GM	D	Silty fine to coarse GRAVEL, some fine to coarse sand; light brown; dry, non plastic. Gravel: Angular.	Fill				DS1	
			SW	M	Fine to coarse SAND; greyish brown; moist, non plastic.	Holocene Sand				DS2	
0.5											0.5
			SW	M	Some organics; dark blackish brown. Organics: branches.						
1.0					No organics; greyish brown.						1.0
1.5										DS3	1.5
					END OF LOG @ 1.7 m						
2.0											2.0
2.5											2.5

DATE EXCAVATED: 14/3/13 — CONTRACTOR: Goodman Contractors Ltd

LOGGED BY: KMW — EQUIPMENT: 12 tonne Kobelco

SHEAR VANE No: — METHOD: Excavation

COMMENTS:
S1 13:024 TP102RR S1 0.1-0.2m
S2 13:024 TP102RR S2 0.6-0.7m
S3 13:024 TP102RR S3 1.5-1.6m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\61 RATA ROAD\RATA ROAD LOGS.GPJ BECA.GDT 16/4/13

MacKays to Peka Peka

BOREHOLE No: **TP103RR**

TEST PIT LOG

SHEET 1 of 1

PROJECT:	MacKays to Peka Peka Expressway	JOB NUMBER:	3320901/1000/013
SITE LOCATION:	61 Rata Road, Paraparaumu	CLIENT:	NZTA

CIRCUIT:
COORDINATES: N 5,468,349.59 m
E 1,767,659.35 m

TEST PIT LOCATION:
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
			GM	D	Silty fine to coarse GRAVEL, some sand; light brown; dry, non plastic, Gravel: Angular.	**Fill**				DS1	
			SW	M	Fine to coarse SAND; greyish brown; moist, non plastic.	**Holocene Sand**				DS2	
0.5											0.5
1.0					Some organics; dark blackish brown. Organics: Branches.						1.0
1.5					No organics; greyish brown streaked orange.					DS3	1.5
2.0					END OF LOG @ 2 m						2.0
2.5											2.5

DATE EXCAVATED:	14/3/13	CONTRACTOR:	Goodman Contractors Ltd
LOGGED BY:	KMW	EQUIPMENT:	12 tonne Kobelco
SHEAR VANE No:		METHOD:	Excavation

COMMENTS:
S1 13:024 TP103RR S1 0.1-0.2m
S2 13:024 TP103RR S2 0.4-0.5m
S3 13:024 TP103RR S3 1.4-1.5m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\61 RATA ROAD\RATA ROAD LOGS.GPJ BECA.GDT 16/4/13

A4 Scale 1:15

MacKays to Peka Peka

BOREHOLE No: **TP104RR**

TEST PIT LOG

SHEET 1 of 1

PROJECT: MacKays to Peka Peka Expressway — JOB NUMBER: 3320901/1000/013

SITE LOCATION: 61 Rata Road, Paraparaumu — CLIENT: NZTA

CIRCUIT:

COORDINATES: N 5,468,343.49 m
E 1,767,653.89 m

TEST PIT LOCATION:
R L:
DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
0			GM	D	Silty fine to coarse GRAVEL, some sand; light brown; moist, non plastic. Gravel: Angular.	Fill				DS1	0
0.5			SW	M	Fine to coarse SAND, some organics; dark blackish brown; moist, non plastic. Organics: Branches.	Holocene Sand				DS2	0.5
1.0			PT	M	Amorphous PEAT; dark blackish brown; moist, non plastic.	ID				DS3	1.0
1.5					END OF LOG @ 1.5 m						1.5
2.0											2.0
2.5											2.5

DATE EXCAVATED: 14/3/13
LOGGED BY: KMW
SHEAR VANE No:

CONTRACTOR: Goodman Contractors Ltd
EQUIPMENT: 12 tonne Kobelco
METHOD: Excavation

COMMENTS:
S1 13:024 TP104RR S1 0.1-0.2m
S2 13:024 TP104RR S2 0.5-0.6m
S3 13:024 TP104RR S3 1.3-1.4m
ID = Interdune Deposits (Peat)

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

TEST_PIT P:\332\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\61 RATA ROAD\RATA ROAD LOGS.GPJ BECA.GDT 16/4/13

A4 Scale 1:15

MacKays to Peka Peka

BOREHOLE No: **TP105RR**

TEST PIT LOG

SHEET 1 of 1

PROJECT: MacKays to Peka Peka Expressway — JOB NUMBER: 3320901/1000/013

SITE LOCATION: 61 Rata Road, Paraparaumu — CLIENT: NZTA

CIRCUIT:

COORDINATES: N 5,468,335.34 m, E 1,767,675.28 m

TEST PIT LOCATION:

R L:

DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
0			SW	M	Fine to coarse SAND; light yellowish brown; moist, non plastic.	**Holocene Sand**				DS1	0
0.5											0.5
1.0											1.0
1.5					END OF LOG @ 1.5 m					DS2	1.5
2.0											2.0
2.5											2.5

DATE EXCAVATED: 14/3/13 — CONTRACTOR: Goodman Contractors Ltd

LOGGED BY: KMW — EQUIPMENT: 12 tonne Kobelco

SHEAR VANE No: — METHOD: Excavation

COMMENTS:
S1 13:024 TP105RR S1 0.1-0.2m
S2 13:024 TP105RR S2 1.4-1.5m

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

TEST_PIT P:\3321\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\61 RATA ROAD\RATA ROAD LOGS.GPJ BECA.GDT 16/4/13

A4 Scale 1:15

MacKays to Peka Peka

BOREHOLE No: **TP106RR**

TEST PIT LOG

SHEET 1 of 1

PROJECT: MacKays to Peka Peka Expressway — JOB NUMBER: 3320901/1000/013

SITE LOCATION: 61 Rata Road, Paraparaumu — CLIENT: NZTA

CIRCUIT:

COORDINATES: N 5,468,331.39 m — TEST PIT LOCATION:

E 1,767,657.82 m — R L:

DATUM:

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala	SV	τ (kPa)	SAMPLES	DEPTH (m)
			GM	D	Silty fine to coarse GRAVEL, minor fine to coarse sand; light grey; moist, non plastic. Gravel: Angular.	Fill				DS1	
0.5			SW	M	Fine to coarse SAND, some silt; dark brown; moist, non plastic.	Holocene Sand				DS2	0.5
1.0											1.0
1.5			PT	W	Fibrous PEAT; dark brown; wet, non plastic. Organic odour.	ID				DS3	1.5
2.0			SW	M	Fine to coarse SAND; bluish grey; moist, non plastic.	HS					2.0
					END OF LOG @ 2.2 m						
2.5											2.5

DATE EXCAVATED: 14/3/13 — CONTRACTOR: Goodman Contractors Ltd

LOGGED BY: KMW — EQUIPMENT: 12 tonne Kobelco

SHEAR VANE No: — METHOD: Excavation

COMMENTS:
S1 13:024 TP106RR S1 0.2-0.3m
S2 13:024 TP106RR S2 0.7-0.8m
S3 13:024 TP106RR S3 1.8-1.9m
ID = Interdune Deposits (Peat)
HS = Holocene Sand

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision 1

A4 Scale 1:15

TEST_PIT P:\3321\3320901\TEN\CON LAND\PHASE 1B GROUND INVESTIGATION_POST-LODGEMENT\GINT LOGS\61 RATA ROAD\RATA ROAD LOGS.GPJ BECA.GDT 16/4/13