Environmental and OH&S Laboratory

A division of A. D. Envirotech Australia Pty Ltd A.C.N. 093 452 950

Unit 4/10-11 Millennium Court,
Silverwater 2128
Ph: (02) 9648-6669

Analysis report: 9639-2

Customer: A. D. Envirotech Australia Pty. Ltd.
Attention: Karl Finnerty & Nick Mirsepassi

Sample Log In Details

Your reference: 9639-2
No. of Samples: 1
Date Received: 22.09.2015
Date completed instructions received: 22.09.2015
Date of analysis: 22.09-29.09.2015

Report Details

Report Date: 29.09.2015
Method number:** ESA-MP-01
ESA-MP-02
ESA-P-ORG03
ESA-P-ORG07
ESA-P-ORG08
ESA-P-ORG09
ESA-P-ORG14
ESA-P-ORG15
ESA-P-12
AS 1289.4.3.1
*ESA-P-16

Results Authorised By:

Dr Dominika Wojtalewicz (MRACI CCHEM)
Laboratory Manager

Accreditation No.14664.

Accredited for compliance with ISO/IEC 17025.

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Tests not covered by NATA are denoted with *.

Lab ID	PQL (mg/kg)	9639-C3
Sample Name		9639-WAC03
PAH		
Acenaphthene	0.3	<0.3
Acenaphthylene	0.3	<0.3
Anthracene	0.3	<0.3
Benzo[a]anthracene	0.3	<0.3
Benzo[a]pyrene	0.3	<0.3
Benzo[b]fluoranthene	0.3	<0.3
Benzo[g,h,i]perylene	0.3	<0.3
Benzo[k]fluoranthene	0.3	<0.3
Chrysene	0.3	<0.3
Dibenzo[a,h]anthracene	0.3	<0.3
Fluoranthene	0.3	<0.3
Fluorene	0.3	<0.3
Indeno(1,2,3-cd)pyrene	0.3	<0.3
Naphthalene	0.3	<0.3
Phenanthrene	0.3	<0.3
Pyrene	0.3	<0.3
p-Terphenyl-d14	surr.	137%
OCPs		
aldrin	0.1	<0.1
a-BHC	0.1	<0.1
b-BHC	0.1	<0.1
d-BHC	0.1	<0.1
g-BHC (lindane)	0.1	<0.1
cis-chlordane	0.1	<0.1
trans-chlordane	0.1	<0.1
4,4'-DDD	0.1	<0.1
4,4'-DDE	0.1	<0.1
4,4'-DDT	0.1	<0.1
dieldrin	0.1	<0.1
endosulfan I	0.2	<0.2
endosulfan II	0.2	<0.2
endosulfan sulfate	0.1	<0.1
endrin	0.2	<0.2
endrin aldehyde	0.1	<0.1
endrin ketone	0.1	<0.1
heptachlor	0.1	<0.1
heptachlor epoxide	0.1	<0.1
hexachlorobenzene	0.1	<0.1
methoxychlor	0.1	<0.1
TCMX	surr.	139%
OPPs		
chlorpyrifos	0.1	<0.1
chlorpyrifos methyl	0.1	<0.1
diazinon	0.1	<0.1
fenchlorphos	0.1	<0.1
methyl parathion	0.1	<0.1
prophos	0.1	<0.1
tributylphosphorotrithioite	0.1	<0.1
PCB		
Total PCB		<0.6
2-fluorobiphenyl	surr.	118%

New South Wales Office:
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ABN: 520 934 529 50

Lab ID	PQL (mg/kg)	9639-C3
Sample Name		9639-WAC03
TRH		
>C6-C10	35	<35
>C10-C16	50	<50
>C16-C34	100	<100
>C34-C40	100	<100
BTEX		
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Ethylbenzene	1	<1
m, p- Xylene(s)	2	<2
o-Xylene	1	<1
Fluorobenzene	surr.	94%
Metals		
Arsenic	2	9.1
Cadmium	0.3	<0.3
Chromium	5	7.0
Copper	5	41
Lead	10	61
Mercury	0.2	<0.2
Nickel	10	13
Zinc	5	89
Moisture	%	14%
pH (average for 3 measurements)		6.6
EC	[dS/m]	0.10

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ABN: 520 934 529 50

Lab ID	PQL (mg/kg)	Batch Blank 1	Batch Blank spike 1	Batch Matrix spike 1	Batch Duplicate 1-Value 1	Batch Duplicate 1-Value 2	Batch Duplicate 1
Sample Name							
PAH							
Acenaphthene	0.3	<0.3	113%	114%	<0.3	<0.3	ACCEPT
Acenaphthylene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Anthracene	0.3	<0.3	119%	119%	<0.3	<0.3	ACCEPT
Benzo[a]anthracene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Benzo[a]pyrene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Benzo[b]fluoranthene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Benzo[g,h,i]perylene	0.3	<0.3	NT	NT	0.3	<0.3	ACCEPT
Benzo[k]fluoranthene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Chrysene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Dibenzo[a,h]anthracene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Fluoranthene	0.3	<0.3	112%	115%	<0.3	<0.3	ACCEPT
Fluorene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Indeno(1,2,3-cd)pyrene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Naphthalene	0.3	<0.3	117%	119%	<0.3	<0.3	ACCEPT
Phenanthrene	0.3	<0.3	119%	120%	<0.3	<0.3	ACCEPT
Pyrene	0.3	<0.3	110%	117%	<0.3	<0.3	ACCEPT
p-Terphenyl-d14	surr.		108%	114%	143%	136%	
OCPs							
aldrin	0.1	<0.1	121%	121%	<0.1	<0.1	ACCEPT
a-BHC	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
b-BHC	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
d-BHC	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
g-BHC (lindane)	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
cis-chlordane	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
trans-chlordane	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
4,4'-DDD	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
4,4'-DDE	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
4,4'-DDT	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
dieldrin	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
endosulfan I	0.2	<0.2	NT	NT	<0.2	<0.2	ACCEPT
endosulfan II	0.2	<0.2	NT	NT	<0.2	<0.2	ACCEPT
endosulfan sulfate	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
endrin	0.2	<0.2	97%	114%	<0.2	<0.2	ACCEPT
endrin aldehyde	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
endrin ketone	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
heptachlor	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
heptachlor epoxide	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
hexachlorobenzene	0.1	<0.1	121%	122%	<0.1	<0.1	ACCEPT
methoxychlor	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
TCMX	surr.		122%	122%	144%	137%	
OPPs							
chlorpyrifos	0.1	<0.1	109%	112%	<0.1	<0.1	ACCEPT
chlorpyrifos methyl	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
diazinon	0.1	<0.1	110%	112%	<0.1	<0.1	ACCEPT
fenchlorphos	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
methyl parathion	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
prophos	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
tributylphosphorotrithioite	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
PCB							
Total PCB		<0.6	NT	NT	<0.6	<0.6	ACCEPT
2-fluorobiphenyl	surr.		107%	108%	121%	114%	

Lab ID	PQL (mg/kg)	Batch Blank 1	Batch Blank spike 1	Batch Matrix spike 1	Batch Duplicate 1-Value 1	Batch Duplicate 1-Value 2	Batch Duplicate 1
Sample Name							
TRH							
>C6-C10	35	<35	NT	NT	<35	<35	ACCEPT
>C10-C16	50	<50	108%	99%	<50	<50	ACCEPT
>C16-C34	100	<100	NT	NT	<100	<100	ACCEPT
>C34-C40	100	<100	NT	NT	<100	<100	ACCEPT
BTEX							
Benzene	0.5	<0.5	109%	115%	<0.5	<0.5	ACCEPT
Toluene	0.5	<0.5	88%	104%	<0.5	<0.5	ACCEPT
Ethylbenzene	1	<1	93%	102%	<1	<1	ACCEPT
m, p- Xylene(s)	2	<2	102%	102%	<2	<2	ACCEPT
o-Xylene	1	<1	100%	101%	<1	<1	ACCEPT
Fluorobenzene	surr.		102%	109%	94%	102%	
Metals							
Arsenic	2	<2	108%	98%	8.4	11	ACCEPT
Cadmium	0.3	<0.3	98%	108%	<0.3	<0.3	ACCEPT
Chromium	5	<5	107%	115%	21	20	ACCEPT
Copper	5	<5	98%	108%	28	26	ACCEPT
Lead	10	<10	109%	108%	120	170	ACCEPT
Mercury	0.2	<0.2	101%	103%	<0.2	<0.2	ACCEPT
Nickel	10	<10	96%	116%	<10	12	ACCEPT
Zinc	5	<5	96%	105%	100	110	ACCEPT
Moisture	%						
pH (average for 3 measurements)							
EC	[dS/m]						

New South Wales Office:
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ABN: 520 934 529 50

General Comments and Glossary

Tests not covered by NATA are denoted with *.

Samples are analysed on "as received" basis.	
Samples were delivered chilled	**Yes**
Samples were preserved in correct manner	**Yes**
Sample containers for volatile analysis were received with minimal headspace	**Yes**
Samples were analysed within holding time	**Yes**
Some samples have been subcontracted	**No**

1. All samples are tested in batches of 20.
2. All results for soil samples are reported per gram of dry soil, unless otherwise stated.
3. However surrogate standards are added to samples due to PAH and BTEX analysis and recoveries are calculated, samples' results are not corrected for standards recoveries.
4. Analysis of VOC in water samples are performed on unfiltered waters (as received), spiked with surrogate
5. If heterogenous or insufficient material provided LCS is used as matrix spike for QA/QC purposes.
6. Duplicate sample and matrix spike recoveries may not be prepared on smaller jobs, however, were analysed at a frequency
7. QA/QC samples shown within the report that states the word "BATCH"; Batch Blank, Matrix Spike and Duplicate were prepared on samples from outside of reported job.

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surr. (Surrogate Spike): Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

INS: Insufficient sample for this test
>: Greater than
LCS: Laboratory Control Sample
NT: Not tested
<: Less than
RPD: Relative Percent Difference
NA: Test not required
PQL: Practical Quantitation Limit

Laboratory Acceptance Criteria

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals, 60-140% for organics is acceptable. Matrix heterogeneity may result in matrix spike analyses falling outside these limits.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:
Results <10 times the PQL : No Limit
Results between 10-20 times the PQL : RPD must lie between 0-50%
Results >20 times the PQL : RPD must lie between 0-30%
Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

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ABN: 520 934 529 50

**Methods Number Description:

ESA-MP-01	Determination of metals by MP-AES
ESA-MP-02	Digestion of soil samples for MP-AES analysis
ESA-MP-03	Preparation of water samples for metals determination by MP-AES
ESA-MP-04	TCLP for inorganic contaminants
ESA-MP-05	Digestion of paint and dust samples for lead contect determination
ESA-MP-06	Digestion of air filters
ESA-MP-07	Digestion of swabs for determination of lead content in dust
ESA-P-ORG02	Analysis of PAHs by GC-MS
ESA-P-ORG03	Analysis of TRH and TPH by GC-FID
ESA-P-ORG04	Separatory funnel extraction of PAHs from water matrices including TCLP extracts
ESA-P-ORG05	Separatory funnel extraction of TRH and TPH from water matrices
ESA-P-ORG06	Silica gel clean up of soil and water extracts, prior analysis for STPH
ESA-P-ORG07	Extraction of BTEX and VTRX from soil matrices
ESA-P-ORG08	Analysis of soil extracts and waters by P&T GCMS
ESA-P-ORG09	Extraction of TRH from solid matrices
ESA-P-ORG14	Extraction of PCB (Aroclor) OCP OPP and PAH from soil matrices
ESA-P-ORG15	Analysis of PCB OCP OPP and PAH by GCMS
AS 1289.4.3.1	Determination of the pH value of a soil-Electrometric method
AS 1289.3.6.1	Determination of the particle size distribution of a soil - Standard method of analysis by sieving
T276	NSW RMS Test Method T 276 Foreign materials content of recycled crushed concrete
*Texture Assessment based on; Salinity Notes, Number 8, Oct 2000, ISSN 1 325-4448, "How to Texture soils & Test for Salinity"	
*ESA-P-16	Procedure for measurement of Electrical Conductivity EC
ESA-P-12	Procedure for determination of moisture

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Unit 4/10-11 Millennium Court,
Silverwater 2128

Analysis report: 9639 ASB 1

Date Received: 18.09.2015
Date Analysed: 24.09.2015
Report Date: 25.09.2015
Client: Gregory Hills Development Park
Job Location: Gregory Hills Development Park
Analytical method: Polarised Light Microscopy with dispersion staining (ADE method ABI)

Analysis performed by:

Dr Dominika Wojtalewicz (MRACI CCHEM)
Laboratory Manager/Principal Chemist
NATA approved asbestos identifier

Results Authorised By:

Dr Dominika Wojtalewicz (MRACI CCHEM)
Laboratory Manager/Principal Chemist
NATA signatory

Accreditation No.14664.
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Tests not covered by NATA are denoted with *.

Laboratory Sample No.	Sample Description/Matrix	Sample Dimensions (cm) unless stated otherwise	Result	Comments
9639-Asb1	Soil	287 grams	No Chrysotile asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Amosite asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Crocidolite asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Synthetic Mineral Fibres found	Nil
			Organic fibres found	Nil
9639-Asb2	Soil	391 grams	No Chrysotile asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Amosite asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Crocidolite asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Synthetic Mineral Fibres found	Nil
			Organic fibres found	Nil

General Comments:

All samples are analysed as received.
Sampling performed by AD Envirotech is not covered by NATA scope.
Samples are stored for period of 3 months.
Due to the difficulty of estimating the load on the swab the test is carried out for presence or absence of asbestos only.
[1] Independent confirming technique such as infrared spectroscopy, X-ray diffraction, scanning or transmission electron microscopy is advised.

Environmental and OH&S Laboratory

A division of A. D. Envirotech Australia Pty Ltd A.C.N. 093 452 950
Unit 4/10-11 Millennium Court,
Silverwater 2128

Analysis report: 9639 ASB 2

Date Received: 22.09.2015
Date Analysed: 25.09.2015
Report Date: 28.09.2015
Client: Gregpry Hills Development Park
Job Location: Gregpry Hills Development Park
Analytical method: Polarised Light Microscopy with dispersion staining (ADE method ABI)

Analysis performed by:

Dr Dominika Wojtalewicz (MRACI CCHEM)
Laboratory Manager/Principal Chemist
NATA approved asbestos identifier

Results Authorised By:

Dr Dominika Wojtalewicz (MRACI CCHEM)
Laboratory Manager/Principal Chemist
NATA signatory

Accreditation No.14664.
Accredited for compliance with ISO/IEC 17025.
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Tests not covered by NATA are denoted with *.

Laboratory Sample No.	Sample Description/Matrix	Sample Dimensions (cm) unless stated otherwise	Result	Comments
9639-Asb3	Soil	144 grams	No Chrysotile asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Amosite asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Crocidolite asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Synthetic Mineral Fibres found	Nil
			Organic fibres found	Nil

General Comments:

All samples are analysed as received.
Sampling performed by AD Envirotech is not covered by NATA scope.
Samples are stored for period of 3 months.
Due to the difficulty of estimating the load on the swab the test is carried out for presence or absence of asbestos only.
[1] Independent confirming technique such as infrared spectroscopy, X-ray diffraction, scanning or transmission electron microscopy is advised.

Environmental and OH&S Laboratory

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Unit 4/10-11 Millennium Court,
Silverwater 2128

Analysis report: 9639 ASB 3

Date Received:	23.09.2015
Date Analysed:	30.09.2015
Report Date:	30.09.2015
Client:	Gregory Hills Development Park
Job Location:	Gregory Hills Development Park
Analytical method:	Polarised Light Microscopy with dispersion staining (ADE method ABI)

Analysis performed by:

Dr Dominika Wojtalewicz (MRACI CCHEM)
Laboratory Manager/Principal Chemist
NATA approved asbestos identifier

Results Authorised By:

Dr Dominika Wojtalewicz (MRACI CCHEM)
Laboratory Manager/Principal Chemist
NATA signatory

Accreditation No.14664.
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Tests not covered by NATA are denoted with *.

Laboratory Sample No.	Sample Description/Matrix	Sample Dimensions (cm) unless stated otherwise	Result	Comments
9639-Asb4	Soil	158 grams	No Chrysotile asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Amosite asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Crocidolite asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Synthetic Mineral Fibres found	Nil
			Organic fibres found	Nil
9639-Asb5	Soil	147 grams	No Chrysotile asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Amosite asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Crocidolite asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Synthetic Mineral Fibres found	Nil
			Organic fibres found	Nil
9639-Asb6	Soil	120 grams	No Chrysotile asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Amosite asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Crocidolite asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Synthetic Mineral Fibres found	Nil
			Organic fibres found	Nil
9639-Asb7	Soil	132 grams	No Chrysotile asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Amosite asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Crocidolite asbestos found at reporting limit of 0.1 g/kg.	Nil
			No Synthetic Mineral Fibres found	Nil
			Organic fibres found	Nil

General Comments:

All samples are analysed as received.
Sampling performed by AD Envirotech is not covered by NATA scope.
Samples are stored for period of 3 months.
Due to the difficulty of estimating the load on the swab the test is carried out for presence or absence of asbestos only.
[1] Independent confirming technique such as infrared spectroscopy, X-ray diffraction, scanning or transmission electron microscopy is advised.

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Unit 4/10-11 Millennium Court,
Silverwater 2128
Ph: (02) 9648-6669

Analysis report: 9447-1

Customer: A. D. Envirotech Australia Pty. Ltd.
Attention: Karl Finnerty

Sample Log In Details

Your reference: 9447-1
No. of Samples: 1
Date Received: 10.08.2015
Date completed instructions received: 10.08.2015
Date of analysis: 10.08-13.08.2015

Report Details

Report Date: 13.08.2015
Method number:** ESA-MP-01
ESA-MP-02
ESA-P-ORG03
ESA-P-ORG07
ESA-P-ORG08
ESA-P-ORG09
ESA-P-ORG14
ESA-P-ORG15
ESA-P-12

Results Authorised By:

Dr Dominika Wojtalewicz (MRACI CCHEM)
Laboratory Manager

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The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

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Lab ID	PQL (mg/kg)	9447-C1
Sample Name		9447-WAC03
PAH		
Acenaphthene	0.3	<0.3
Acenaphthylene	0.3	<0.3
Anthracene	0.3	0.6
Benzo[a]anthracene	0.3	1.4
Benzo[a]pyrene	0.3	1.2
Benzo[b]fluoranthene	0.3	1.4
Benzo[g,h,i]perylene	0.3	0.9
Benzo[k]fluoranthene	0.3	0.5
Chrysene	0.3	1.1
Dibenzo[a,h]anthracene	0.3	<0.3
Fluoranthene	0.3	3.1
Fluorene	0.3	<0.3
Indeno(1,2,3-cd)pyrene	0.3	0.7
Naphthalene	0.3	<0.3
Phenanthrene	0.3	2.1
Pyrene	0.3	2.8
p-Terphenyl-d14	surr.	100%
OCPs		
aldrin	0.1	<0.1
a-BHC	0.1	<0.1
b-BHC	0.1	<0.1
d-BHC	0.1	<0.1
g-BHC (lindane)	0.1	<0.1
cis-chlordane	0.1	<0.1
trans-chlordane	0.1	<0.1
4,4'-DDD	0.1	<0.1
4,4'-DDE	0.1	<0.1
4,4'-DDT	0.1	<0.1
dieldrin	0.1	<0.1
endosulfan I	0.2	<0.2
endosulfan II	0.2	<0.2
endosulfan sulfate	0.1	<0.1
endrin	0.2	<0.2
endrin aldehyde	0.1	<0.1
endrin ketone	0.1	<0.1
heptachlor	0.1	<0.1
heptachlor epoxide	0.1	<0.1
hexachlorobenzene	0.1	<0.1
methoxychlor	0.1	<0.1
TCMX	surr.	95%
OPPs		
chlorpyrifos	0.1	<0.1
chlorpyrifos methyl	0.1	<0.1
diazinon	0.1	<0.1
fenchlorphos	0.1	<0.1
methyl parathion	0.1	<0.1
prophos	0.1	<0.1
tributylphosphorotrithioite	0.1	<0.1
PCB		
Total PCB		<0.6
2-fluorobiphenyl	surr.	90%

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ABN: 520 934 529 50

Lab ID	PQL (mg/kg)	9447-C1
Sample Name		9447-WAC03
TRH		
>C6-C10	35	<35
>C10-C16	50	<50
>C16-C34	100	<100
>C34-C40	100	<100
BTEX		
Benzene	0.5	<0.5
Toluene	0.5	<0.5
Ethylbenzene	1	<1
m, p- Xylene(s)	2	<2
o-Xylene	1	<1
Fluorobenzene	surr.	110%
Metals		
Arsenic	2	9.1
Cadmium	0.3	<0.3
Chromium	5	15
Copper	5	29
Lead	10	130
Mercury	0.2	0.4
Nickel	10	<10
Zinc	5	200
Moisture	%	18%

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ABN: 520 934 529 50

Lab ID	PQL (mg/kg)	Blank 1	Blank spike 1	Matrix spike 1	Duplicate 1-Value 1	Duplicate 1-Value 2	Duplicate 1
Sample Name							
PAH							
Acenaphthene	0.3	<0.3	98%	85%	<0.3	<0.3	ACCEPT
Acenaphthylene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Anthracene	0.3	<0.3	103%	90%	0.6	0.8	ACCEPT
Benzo[a]anthracene	0.3	<0.3	NT	NT	1.4	1.7	ACCEPT
Benzo[a]pyrene	0.3	<0.3	NT	NT	1.2	1.4	ACCEPT
Benzo[b]fluoranthene	0.3	<0.3	NT	NT	1.4	1.6	ACCEPT
Benzo[g,h,i]perylene	0.3	<0.3	NT	NT	0.9	0.9	ACCEPT
Benzo[k]fluoranthene	0.3	<0.3	NT	NT	0.5	0.6	ACCEPT
Chrysene	0.3	<0.3	NT	NT	1.1	1.3	ACCEPT
Dibenzo[a,h]anthracene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Fluoranthene	0.3	<0.3	95%	78%	3.1	3.5	ACCEPT
Fluorene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Indeno(1,2,3-cd)pyrene	0.3	<0.3	NT	NT	0.7	0.8	ACCEPT
Naphthalene	0.3	<0.3	101%	91%	<0.3	<0.3	ACCEPT
Phenanthrene	0.3	<0.3	97%	96%	2.1	2.2	ACCEPT
Pyrene	0.3	<0.3	98%	82%	2.8	3.1	ACCEPT
p-Terphenyl-d14	surr.		93%	84%	100%	100%	
OCPs							
aldrin	0.1	<0.1	100%	78%	<0.1	<0.1	ACCEPT
a-BHC	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
b-BHC	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
d-BHC	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
g-BHC (lindane)	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
cis-chlordane	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
trans-chlordane	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
4,4'-DDD	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
4,4'-DDE	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
4,4'-DDT	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
dieldrin	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
endosulfan I	0.2	<0.2	NT	NT	<0.2	<0.2	ACCEPT
endosulfan II	0.2	<0.2	NT	NT	<0.2	<0.2	ACCEPT
endosulfan sulfate	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
endrin	0.2	<0.2	78%	115%	<0.2	<0.2	ACCEPT
endrin aldehyde	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
endrin ketone	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
heptachlor	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
heptachlor epoxide	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
hexachlorobenzene	0.1	<0.1	110%	95%	<0.1	<0.1	ACCEPT
methoxychlor	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
TCMX	surr.		103%	87%	95%	97%	
OPPs							
chlorpyrifos	0.1	<0.1	90%	73%	<0.1	<0.1	ACCEPT
chlorpyrifos methyl	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
diazinon	0.1	<0.1	92%	79%	<0.1	<0.1	ACCEPT
fenchlorphos	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
methyl parathion	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
prophos	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
tributylphosphorotrithioite	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
PCB							
Total PCB		<0.6	NT	NT	<0.6	<0.6	ACCEPT
2-fluorobiphenyl	surr.		94%	83%	90%	92%	

Lab ID	PQL (mg/kg)	Blank 1	Blank spike 1	Matrix spike 1	Duplicate 1-Value 1	Duplicate 1-Value 2	Duplicate 1
Sample Name							
TRH							
>C6-C10	35	<35	NT	NT	<35	<35	ACCEPT
>C10-C16	50	<50	112%	105%	<50	<50	ACCEPT
>C16-C34	100	<100	NT	NT	<100	<100	ACCEPT
>C34-C40	100	<100	NT	NT	<100	<100	ACCEPT
BTEX							
Benzene	0.5	<0.5	97%	110%	<0.5	<0.5	ACCEPT
Toluene	0.5	<0.5	106%	123%	<0.5	<0.5	ACCEPT
Ethylbenzene	1	<1	96%	114%	<1	<1	ACCEPT
m, p- Xylene(s)	2	<2	86%	106%	<2	<2	ACCEPT
o-Xylene	1	<1	89%	105%	<1	<1	ACCEPT
Fluorobenzene	surr.		95%	107%	110%	99%	
Metals							
Arsenic	2	<2	89%	89%	9.1	11	ACCEPT
Cadmium	0.3	<0.3	103%	103%	<0.3	<0.3	ACCEPT
Chromium	5	<5	102%	115%	15	22	ACCEPT
Copper	5	<5	95%	107%	29	26	ACCEPT
Lead	10	<10	102%	117%	130	120	ACCEPT
Mercury	0.2	<0.2	103%	98%	0.4	0.4	ACCEPT
Nickel	10	<10	99%	121%	<10	<10	ACCEPT
Zinc	5	<5	95%	81%	200	170	ACCEPT
Moisture	%						

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General Comments and Glossary

Tests not covered by NATA are denoted with *.

Samples are analysed on "as received" basis.

Samples were delivered chilled	**Yes**
Samples were preserved in correct manner	**Yes**
Sample containers for volatile analysis were received with minimal headspace	**Yes**
Samples were analysed within holding time	**Yes**
Some samples have been subcontracted	**No**

1. All samples are tested in batches of 20.
2. All results for soil samples are reported per gram of dry soil, unless otherwise stated.
3. However surrogate standards are added to samples due to PAH and BTEX analysis and recoveries are calculated, samples' results are not corrected for standards recoveries.
4. Analysis of VOC in water samples are performed on unfiltered waters (as received), spiked with surrogate
5. If heterogenous or insufficient material provided LCS is used as matrix spike for QA/QC purposes.
6. Duplicate sample and matrix spike recoveries may not be prepared on smaller jobs, however, were analysed at a frequency
7. QA/QC samples shown within the report that states the word "BATCH"; Batch Blank, Matrix Spike and Duplicate were prepared on samples from outside of reported job.

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surr. (Surrogate Spike): Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

INS: Insufficient sample for this test
>: Greater than
LCS: Laboratory Control Sample
NT: Not tested
<: Less than
RPD: Relative Percent Difference
NA: Test not required
PQL: Practical Quantitation Limit

Laboratory Acceptance Criteria

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals, 60-140% for organics is acceptable. Matrix heterogeneity may result in matrix spike analyses falling outside these limits.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:
Results <10 times the PQL : No Limit
Results between 10-20 times the PQL : RPD must lie between 0-50%
Results >20 times the PQL : RPD must lie between 0-30%
Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

Accreditation No.14664.
Accredited for compliance with ISO/IEC 17025.
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

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**Methods Number Description:

ESA-MP-01	Determination of metals by MP-AES
ESA-MP-02	Digestion of soil samples for MP-AES analysis
ESA-MP-03	Preparation of water samples for metals determination by MP-AES
ESA-MP-04	TCLP for inorganic contaminants
ESA-MP-05	Digestion of paint and dust samples for lead contect determination
ESA-MP-06	Digestion of air filters
ESA-MP-07	Digestion of swabs for determination of lead content in dust
ESA-P-ORG02	Analysis of PAHs by GC-MS
ESA-P-ORG03	Analysis of TRH and TPH by GC-FID
ESA-P-ORG04	Separatory funnel extraction of PAHs from water matrices including TCLP extracts
ESA-P-ORG05	Separatory funnel extraction of TRH and TPH from water matrices
ESA-P-ORG06	Silica gel clean up of soil and water extracts, prior analysis for STPH
ESA-P-ORG07	Extraction of BTEX and VTRX from soil matrices
ESA-P-ORG08	Analysis of soil extracts and waters by P&T GCMS
ESA-P-ORG09	Extraction of TRH from solid matrices
ESA-P-ORG14	Extraction of PCB (Aroclor) OCP OPP and PAH from soil matrices
ESA-P-ORG15	Analysis of PCB OCP OPP and PAH by GCMS
AS 1289.4.3.1	Determination of the pH value of a soil-Electrometric method
AS 1289.3.6.1	Determination of the particle size distribution of a soil - Standard method of analysis by sieving
T276	NSW RMS Test Method T 276 Foreign materials content of recycled crushed concrete
*Texture Assessment based on; Salinity Notes, Number 8, Oct 2000, ISSN 1 325-4448, "How to Texture soils & Test for Salinity"	
*ESA-P-16	Procedure for measurement of Electrical Conductivity EC
ESA-P-12	Procedure for determination of moisture

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Environmental and OH&S Laboratory

A division of A. D. Envirotech Australia Pty Ltd A.C.N. 093 452 950

Unit 4/10-11 Millennium Court,
Silverwater 2128
Ph: (02) 9648-6669

Analysis report: 9447-2

Customer: A. D. Envirotech Australia Pty. Ltd.
Attention: Karl Finnerty

Sample Log In Details

Your reference: 9447-2
No. of Samples: 2
Date Received: 13.08.2015
Date completed instructions received: 13.08.2015
Date of analysis: 13.08-18.08.2015

Report Details

Report Date: 18.08.2015
Method number:** ESA-MP-01
ESA-MP-02
ESA-P-ORG03
ESA-P-ORG07
ESA-P-ORG08
ESA-P-ORG09
ESA-P-ORG14
ESA-P-ORG15
ESA-P-12
AS 1289.4.3.1
*ESA-P-16

Results Authorised By:

Dr Dominika Wojtalewicz (MRACI CCHEM)
Laboratory Manager

Accreditation No.14664.

Accredited for compliance with ISO/IEC 17025.

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Tests not covered by NATA are denoted with *.

Lab ID	PQL (mg/kg)	9447-C2	9447-C3
Sample Name		9447-WAC01	9447-WAC02
PAH			
Acenaphthene	0.3	<0.3	<0.3
Acenaphthylene	0.3	<0.3	<0.3
Anthracene	0.3	<0.3	<0.3
Benzo[a]anthracene	0.3	<0.3	<0.3
Benzo[a]pyrene	0.3	<0.3	<0.3
Benzo[b]fluoranthene	0.3	<0.3	<0.3
Benzo[g,h,i]perylene	0.3	<0.3	<0.3
Benzo[k]fluoranthene	0.3	<0.3	<0.3
Chrysene	0.3	<0.3	<0.3
Dibenzo[a,h]anthracene	0.3	<0.3	<0.3
Fluoranthene	0.3	<0.3	<0.3
Fluorene	0.3	<0.3	<0.3
Indeno(1,2,3-cd)pyrene	0.3	<0.3	<0.3
Naphthalene	0.3	<0.3	<0.3
Phenanthrene	0.3	<0.3	<0.3
Pyrene	0.3	<0.3	<0.3
p-Terphenyl-d14	surr.	135%	139%
OCPs			
aldrin	0.1	<0.1	<0.1
a-BHC	0.1	<0.1	<0.1
b-BHC	0.1	<0.1	<0.1
d-BHC	0.1	<0.1	<0.1
g-BHC (lindane)	0.1	<0.1	<0.1
cis-chlordane	0.1	<0.1	<0.1
trans-chlordane	0.1	<0.1	<0.1
4,4'-DDD	0.1	<0.1	<0.1
4,4'-DDE	0.1	<0.1	<0.1
4,4'-DDT	0.1	<0.1	<0.1
dieldrin	0.1	<0.1	<0.1
endosulfan I	0.2	<0.2	<0.2
endosulfan II	0.2	<0.2	<0.2
endosulfan sulfate	0.1	<0.1	<0.1
endrin	0.2	<0.2	<0.2
endrin aldehyde	0.1	<0.1	<0.1
endrin ketone	0.1	<0.1	<0.1
heptachlor	0.1	<0.1	<0.1
heptachlor epoxide	0.1	<0.1	<0.1
hexachlorobenzene	0.1	<0.1	<0.1
methoxychlor	0.1	<0.1	<0.1
TCMX	surr.	124%	125%
OPPs			
chlorpyrifos	0.1	<0.1	<0.1
chlorpyrifos methyl	0.1	<0.1	<0.1
diazinon	0.1	<0.1	<0.1
fenchlorphos	0.1	<0.1	<0.1
methyl parathion	0.1	<0.1	<0.1
prophos	0.1	<0.1	<0.1
tributylphosphorotrithioite	0.1	<0.1	<0.1
PCB			
Total PCB		<0.6	<0.6
2-fluorobiphenyl	surr.	105%	109%

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ABN: 520 934 529 50

Lab ID	PQL (mg/kg)	9447-C2	9447-C3
Sample Name		9447-WAC01	9447-WAC02
TRH			
>C6-C10	35	<35	<35
>C10-C16	50	<50	<50
>C16-C34	100	<100	<100
>C34-C40	100	370	220
BTEX			
Benzene	0.5	<0.5	<0.5
Toluene	0.5	<0.5	<0.5
Ethylbenzene	1	<1	<1
m, p- Xylene(s)	2	<2	<2
o-Xylene	1	<1	<1
Fluorobenzene	surr.	116%	111%
Metals			
Arsenic	2	14	14
Cadmium	0.3	<0.3	<0.3
Chromium	5	9.5	14
Copper	5	33	14
Lead	10	20	<10
Mercury	0.2	<0.2	<0.2
Nickel	10	12	<10
Zinc	5	44	<5
Moisture	%	16%	16%
pH (average for 3 measurements)		5.2	7.1
EC	[dS/m]	0.32	0.55

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ABN: 520 934 529 50

Lab ID	PQL (mg/kg)	Batch Blank 1	Batch Blank spike 1	Batch Matrix spike 1	Batch Duplicate 1-Value 1	Batch Duplicate 1-Value 2	Batch Duplicate 1
Sample Name							
PAH							
Acenaphthene	0.3	<0.3	116%	115%	<0.3	<0.3	ACCEPT
Acenaphthylene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Anthracene	0.3	<0.3	119%	118%	<0.3	<0.3	ACCEPT
Benzo[a]anthracene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Benzo[a]pyrene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Benzo[b]fluoranthene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Benzo[g,h,i]perylene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Benzo[k]fluoranthene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Chrysene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Dibenzo[a,h]anthracene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Fluoranthene	0.3	<0.3	116%	114%	<0.3	<0.3	ACCEPT
Fluorene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Indeno(1,2,3-cd)pyrene	0.3	<0.3	NT	NT	<0.3	<0.3	ACCEPT
Naphthalene	0.3	<0.3	112%	115%	<0.3	<0.3	ACCEPT
Phenanthrene	0.3	<0.3	109%	113%	<0.3	<0.3	ACCEPT
Pyrene	0.3	<0.3	122%	122%	<0.3	<0.3	ACCEPT
p-Terphenyl-d14	surr.		117%	116%	139%	135%	
OCPs							
aldrin	0.1	<0.1	123%	124%	<0.1	<0.1	ACCEPT
a-BHC	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
b-BHC	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
d-BHC	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
g-BHC (lindane)	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
cis-chlordane	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
trans-chlordane	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
4,4'-DDD	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
4,4'-DDE	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
4,4'-DDT	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
dieldrin	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
endosulfan I	0.2	<0.2	NT	NT	<0.2	<0.2	ACCEPT
endosulfan II	0.2	<0.2	NT	NT	<0.2	<0.2	ACCEPT
endosulfan sulfate	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
endrin	0.2	<0.2	95%	73%	<0.2	<0.2	ACCEPT
endrin aldehyde	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
endrin ketone	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
heptachlor	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
heptachlor epoxide	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
hexachlorobenzene	0.1	<0.1	122%	110%	<0.1	<0.1	ACCEPT
methoxychlor	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
TCMX	surr.		120%	120%	132%	127%	
OPPs							
chlorpyrifos	0.1	<0.1	108%	111%	<0.1	<0.1	ACCEPT
chlorpyrifos methyl	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
diazinon	0.1	<0.1	110%	113%	<0.1	<0.1	ACCEPT
fenchlorphos	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
methyl parathion	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
prophos	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
tributylphosphorotrithioite	0.1	<0.1	NT	NT	<0.1	<0.1	ACCEPT
PCB							
Total PCB		<0.6	NT	NT	<0.6	<0.6	ACCEPT
2-fluorobiphenyl	surr.		97%	99%	107%	103%	

Lab ID	PQL (mg/kg)	Batch Blank 1	Batch Blank spike 1	Batch Matrix spike 1	Batch Duplicate 1-Value 1	Batch Duplicate 1-Value 2	Batch Duplicate 1
Sample Name							
TRH							
>C6-C10	35	<35	NT	NT	<35	<35	ACCEPT
>C10-C16	50	<50	96%	90%	<50	<50	ACCEPT
>C16-C34	100	<100	NT	NT	<100	<100	ACCEPT
>C34-C40	100	<100	NT	NT	<100	<100	ACCEPT
BTEX							
Benzene	0.5	<0.5	99%	115%	<0.5	<0.5	ACCEPT
Toluene	0.5	<0.5	115%	137%	<0.5	<0.5	ACCEPT
Ethylbenzene	1	<1	105%	128%	<1	<1	ACCEPT
m, p- Xylene(s)	2	<2	100%	123%	<2	<2	ACCEPT
o-Xylene	1	<1	96%	118%	<1	<1	ACCEPT
Fluorobenzene	surr.		100%	115%	98%	102%	
Metals							
Arsenic	2	<2	99%	98%	13	15	ACCEPT
Cadmium	0.3	<0.3	103%	103%	<0.3	<0.3	ACCEPT
Chromium	5	<5	101%	111%	17	15	ACCEPT
Copper	5	<5	94%	100%	18	22	ACCEPT
Lead	10	<10	100%	112%	29	43	ACCEPT
Mercury	0.2	<0.2	98%	96%	<0.2	<0.2	ACCEPT
Nickel	10	<10	98%	111%	<10	<10	ACCEPT
Zinc	5	<5	91%	119%	15	28	ACCEPT
Moisture	%						
pH (average for 3 measurements)							
EC	[dS/m]						

Lab ID	PQL (mg/kg)	Batch Duplicate 2-Value 1	Batch Duplicate 2-Value 2	Batch Duplicate 2
Sample Name				
PAH				
Acenaphthene	0.3	<0.3	<0.3	ACCEPT
Acenaphthylene	0.3	<0.3	<0.3	ACCEPT
Anthracene	0.3	<0.3	<0.3	ACCEPT
Benzo[a]anthracene	0.3	0.3	<0.3	ACCEPT
Benzo[a]pyrene	0.3	<0.3	<0.3	ACCEPT
Benzo[b]fluoranthene	0.3	<0.3	<0.3	ACCEPT
Benzo[g,h,i]perylene	0.3	<0.3	<0.3	ACCEPT
Benzo[k]fluoranthene	0.3	<0.3	<0.3	ACCEPT
Chrysene	0.3	<0.3	<0.3	ACCEPT
Dibenzo[a,h]anthracene	0.3	<0.3	<0.3	ACCEPT
Fluoranthene	0.3	<0.3	<0.3	ACCEPT
Fluorene	0.3	<0.3	<0.3	ACCEPT
Indeno(1,2,3-cd)pyrene	0.3	<0.3	<0.3	ACCEPT
Naphthalene	0.3	<0.3	<0.3	ACCEPT
Phenanthrene	0.3	<0.3	<0.3	ACCEPT
Pyrene	0.3	0.4	0.4	ACCEPT
p-Terphenyl-d14	surr.	129%	124%	
OCPs				
aldrin	0.1	<0.1	<0.1	ACCEPT
a-BHC	0.1	<0.1	<0.1	ACCEPT
b-BHC	0.1	<0.1	<0.1	ACCEPT
d-BHC	0.1	<0.1	<0.1	ACCEPT
g-BHC (lindane)	0.1	<0.1	<0.1	ACCEPT
cis-chlordane	0.1	<0.1	<0.1	ACCEPT
trans-chlordane	0.1	<0.1	<0.1	ACCEPT
4,4'-DDD	0.1	<0.1	<0.1	ACCEPT
4,4'-DDE	0.1	<0.1	<0.1	ACCEPT
4,4'-DDT	0.1	<0.1	<0.1	ACCEPT
dieldrin	0.1	<0.1	<0.1	ACCEPT
endosulfan I	0.2	<0.2	<0.2	ACCEPT
endosulfan II	0.2	<0.2	<0.2	ACCEPT
endosulfan sulfate	0.1	<0.1	<0.1	ACCEPT
endrin	0.2	<0.2	<0.2	ACCEPT
endrin aldehyde	0.1	<0.1	<0.1	ACCEPT
endrin ketone	0.1	<0.1	<0.1	ACCEPT
heptachlor	0.1	<0.1	<0.1	ACCEPT
heptachlor epoxide	0.1	<0.1	<0.1	ACCEPT
hexachlorobenzene	0.1	<0.1	<0.1	ACCEPT
methoxychlor	0.1	<0.1	<0.1	ACCEPT
TCMX	surr.	120%	120%	
OPPs				
chlorpyrifos	0.1	<0.1	<0.1	ACCEPT
chlorpyrifos methyl	0.1	<0.1	<0.1	ACCEPT
diazinon	0.1	<0.1	<0.1	ACCEPT
fenchlorphos	0.1	<0.1	<0.1	ACCEPT
methyl parathion	0.1	<0.1	<0.1	ACCEPT
prophos	0.1	<0.1	<0.1	ACCEPT
tributylphosphorotrithioite	0.1	<0.1	<0.1	ACCEPT
PCB				
Total PCB		<0.6	<0.6	ACCEPT
2-fluorobiphenyl	surr.	99%	95%	

Lab ID	PQL (mg/kg)	Batch Duplicate 2-Value 1	Batch Duplicate 2-Value 2	Batch Duplicate 2
Sample Name				
TRH				
>C6-C10	35	<35	<35	ACCEPT
>C10-C16	50	160	160	ACCEPT
>C16-C34	100	740	600	ACCEPT
>C34-C40	100	1300	970	ACCEPT
BTEX				
Benzene	0.5	<0.5	<0.5	ACCEPT
Toluene	0.5	<0.5	<0.5	ACCEPT
Ethylbenzene	1	<1	<1	ACCEPT
m, p- Xylene(s)	2	<2	<2	ACCEPT
o-Xylene	1	<1	<1	ACCEPT
Fluorobenzene	surr.	104%	108%	
Metals				
Arsenic	2	7.1	6.8	ACCEPT
Cadmium	0.3	<0.3	<0.3	ACCEPT
Chromium	5	5.9	<5	ACCEPT
Copper	5	280	220	ACCEPT
Lead	10	29	26	ACCEPT
Mercury	0.2	<0.2	<0.2	ACCEPT
Nickel	10	12	12	ACCEPT
Zinc	5	33	26	ACCEPT
Moisture	%			
pH (average for 3 measurements)				
EC	[dS/m]			

General Comments and Glossary

Tests not covered by NATA are denoted with *.

Samples are analysed on "as received" basis.

Samples were delivered chilled	**Yes**
Samples were preserved in correct manner	**Yes**
Sample containers for volatile analysis were received with minimal headspace	**Yes**
Samples were analysed within holding time	**Yes**
Some samples have been subcontracted	**No**

1. All samples are tested in batches of 20.
2. All results for soil samples are reported per gram of dry soil, unless otherwise stated.
3. However surrogate standards are added to samples due to PAH and BTEX analysis and recoveries are calculated, samples' results are not corrected for standards recoveries.
4. Analysis of VOC in water samples are performed on unfiltered waters (as received), spiked with surrogate
5. If heterogenous or insufficient material provided LCS is used as matrix spike for QA/QC purposes.
6. Duplicate sample and matrix spike recoveries may not be prepared on smaller jobs, however, were analysed at a frequency
7. QA/QC samples shown within the report that states the word "BATCH"; Batch Blank, Matrix Spike and Duplicate were prepared on samples from outside of reported job.

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surr. (Surrogate Spike): Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

INS: Insufficient sample for this test
>: Greater than
LCS: Laboratory Control Sample
NT: Not tested
<: Less than
RPD: Relative Percent Difference
NA: Test not required
PQL: Practical Quantitation Limit

Laboratory Acceptance Criteria

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals, 60-140% for organics is acceptable. Matrix heterogeneity may result in matrix spike analyses falling outside these limits.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:
Results <10 times the PQL : No Limit
Results between 10-20 times the PQL : RPD must lie between 0-50%
Results >20 times the PQL : RPD must lie between 0-30%
Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

Accreditation No.14664.
Accredited for compliance with ISO/IEC 17025.
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Tests not covered by NATA are denoted with *.

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**Methods Number Description:

ESA-MP-01	Determination of metals by MP-AES
ESA-MP-02	Digestion of soil samples for MP-AES analysis
ESA-MP-03	Preparation of water samples for metals determination by MP-AES
ESA-MP-04	TCLP for inorganic contaminants
ESA-MP-05	Digestion of paint and dust samples for lead contect determination
ESA-MP-06	Digestion of air filters
ESA-MP-07	Digestion of swabs for determination of lead content in dust
ESA-P-ORG02	Analysis of PAHs by GC-MS
ESA-P-ORG03	Analysis of TRH and TPH by GC-FID
ESA-P-ORG04	Separatory funnel extraction of PAHs from water matrices including TCLP extracts
ESA-P-ORG05	Separatory funnel extraction of TRH and TPH from water matrices
ESA-P-ORG06	Silica gel clean up of soil and water extracts, prior analysis for STPH
ESA-P-ORG07	Extraction of BTEX and VTRX from soil matrices
ESA-P-ORG08	Analysis of soil extracts and waters by P&T GCMS
ESA-P-ORG09	Extraction of TRH from solid matrices
ESA-P-ORG14	Extraction of PCB (Aroclor) OCP OPP and PAH from soil matrices
ESA-P-ORG15	Analysis of PCB OCP OPP and PAH by GCMS
AS 1289.4.3.1	Determination of the pH value of a soil-Electrometric method
AS 1289.3.6.1	Determination of the particle size distribution of a soil - Standard method of analysis by sieving
T276	NSW RMS Test Method T 276 Foreign materials content of recycled crushed concrete
*Texture Assessment based on; Salinity Notes, Number 8, Oct 2000, ISSN 1 325-4448, "How to Texture soils & Test for Salinity"	
*ESA-P-16	Procedure for measurement of Electrical Conductivity EC
ESA-P-12	Procedure for determination of moisture

Accreditation No.14664.

Accredited for compliance with ISO/IEC 17025.

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APPENDIX IV – GREGORY HILLS FMP

Fill Management Protocol

Prepared for:

Gregory Hills Corporate Park Pty Ltd

Proposed Commercial Subdivision
Lot 701, DP1154772, Gregory Hills Drive
Gledswood Hills NSW

6908 / FMP1
v1. final
29th November 2013

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FILL MANAGEMENT PROTOCOL

ADE Report No. 6908 / FMP1 / v1 final

Date of Report:	29.11.2013
Client:	Gregory Hills Corporate Park Pty Ltd
Site Address:	Proposed Commercial Subdivision, Lot 701 DP1154772, Gregory Hills Drive, Gledswood Hills NSW

1. INTRODUCTION

This document provides a protocol for the assessment of imported fill (the Protocol) to Lot 701 DP1154772, Gregory Hills Drive, Gledswood Hills (the Site). This document was commissioned by Mr Richard Harris of Gregory Hills Corporate Park Pty Ltd. The Protocol is applicable for assessing the suitability of soil/rock materials to be imported onto the Site as part of a commercial/industrial redevelopment.

It is understood that the proposed development will include a commercial/industrial subdivision with associated infrastructure (stormwater, sewer, power etc). The proposed redevelopment would also include the construction of supporting roadways. The development will require the importation of material from outside sources.

The purpose of the Protocol is to set out the requirements for imported materials with respect to contamination, geotechnical and salinity issues. Application of this Protocol to all soil/ rock materials to be imported onto the Site will provide a consistent approach to the management of materials with respect to their suitability for use as part of the development works.

It is understood that the Site proposes to accept approximately 330,000 m^3 of material classified as virgin excavated natural material (VENM) or materials classified under either a general or specific resource recovery exemption.

ADE considers that it is the responsibility of Gregory Hills Corporate Park or their nominated representative to ensure compliance with this Protocol. It is recommended that the filling material suppliers are issued with a copy of this Protocol. The suppliers will be requested to provide supporting information/ evidence to verify that the subject material complies with this Protocol, and that the required documentation (including appropriate supporting documentation) is supplied and is complete and correct. Gregory Hills Corporate Park has the right to make the final decision on the suitability or otherwise of any material for importation onto the Site.

1.1. Site Details

The Site is identified as Lot 701 in DP1154772, located on the corner of Camden Valley Way and Gregory Hills Drive in the suburb of Gledswood Hills. The site has an irregular shape and covers an area of some 29 ha. The Site location and boundaries are shown on Drawing 1, Appendix F.

Reference to the 1:100 000 Wollongong – Port Hacking Geological Series Sheet indicates that the site is underlain by Bringelly Shale of the Wianamatta Group of Triassic age which, in the vicinity of the site, includes an unnamed, fine to medium grained quartz-lithic sandstone member. The Bringelly Shale typically comprises shale, siltstone, claystone and laminite with coal bands, all of which weather to form clays of high plasticity.

McNally (2005) describes some general features of the hydrogeology of Western Sydney which are relevant to this Site. The shale terrain of much of Western Sydney is known for saline groundwater, resulting either from the release of connate salt in shales of marine origin or from the accumulation of windblown sea salt. Seasonal groundwater level changes of 1 – 2 m can occur in a shallow regolith aquifer or a deeper shale aquifer due to natural influences.

Former groundwater investigations undertaken by Douglas Partners (DP) in the Camden area and previous studies of areas underlain by the Wianamatta Group and Quaternary river alluvium indicate that:

- The shales have a very low intrinsic permeability, hence groundwater flow is likely to be dominated by fracture flow with resultant low yields (typically < 1 L/s) in bores; and

- The groundwater in the Wianamatta Group is typically brackish to saline with total dissolved solids (TDS) in the range 4000 – 5000 mg/L (but with cases of TDS up to 31750 mg/L being reported). The dominant ions are typically sodium and chloride and the water being generally unsuitable for livestock or irrigation.

Review of the Wollongong-Port Hacking 1:100,000 Soils Landscape Sheet indicates that the Site is located within an area that is mapped as the Blacktown Soil Landscape. The Blacktown group of soil landscape form on gently undulating rises on Wianamatta Group shales and Hawkesbury shale with local relief of up to 30 m. The types of soils encountered are typically yellow podzolic soils and soloths and brown podzolic soils. The typical limitations of this soil group include moderate reactivity and highly plastic sub soil, low soil fertility and poor soil drainage.

2. CONTAMINATION ISSUES

2.1. Relevant Legislation and Guidelines

Importation of materials onto the Site must fully abide by the provisions of relevant NSW environmental legislation, including, inter alia, the *Contaminated Land Management Act* (1997) and *Protection of the Environment Operations Act* (1997).

The following environmental guidelines are considered to be relevant:

- DECCW Waste Classification Guidelines (2008), December 2009 Revision;
- NSW EPA Contaminated Sites *Guidelines for the NSW Site Auditor Scheme* (2006) [The Auditors Guidelines];
- NEPC (1999). National Environmental Protection (Assessment of Site Contamination) Measure 1999, 2013 Revision. Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater;
- Australian and New Zealand Environment and Conservation Council/National Health and Medical Research Council (ANZECC/NHMRC): Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (1992), Environmental Soil Quality Guidelines Background A [ANZECC A];
- *Guidelines on Resource Recovery Exemption (Land Application of Waste Materials as Fill)* EPA Feb 2011;
- Protection of the Environment Operations (Waste) Regulation (2005) – General Exemption Under Part 6, Clause 51 and 51A - The excavated natural material exemption 2012;
- Any specific exemption issued under the Protection of the Environment Operations (Waste) Regulation (2005) by the NSW EPA;
- Camden Council "Imported Fill Condition"; and
- Camden Council Engineering Construction Specification (2009).

2.2. Imported Material Acceptance Criteria

Materials imported to the Site must satisfy the minimum requirements detailed below. All materials to be imported must be accompanied by appropriate reports from qualified environmental/geotechnical consultants verifying the status of the material with respect to contamination, salinity and relevant geotechnical parameters. The Forms included in Appendix A and B must be completed, and approved by Gregory Hills Corporate Park and the Environmental Consultant prior to acceptance of the material.

- All imported soil/rock material must be verified to be either **VIRGIN EXCAVATED NATURAL MATERIAL (VENM)** (imported natural materials), **EXCAVATED NATURAL MATERIAL (ENM)** (as defined under NSW EPA) Waste Classification Guidelines 2009 or materials classified under a specific exemption granted by the EPA. All source sites are subject to approval by Gregory Hills Corporate Park on a case by case basis.

- For specific purposes other certified materials such as quarry run materials and gravels will be acceptable provided that the materials are accompanied with supporting certification documentation to demonstrate their source and suitability.

- Recycled products (such as recycled concrete) are not considered suitable from a contamination risk standpoint as the quality of the materials can be difficult to guarantee.

- All VENM material must be accompanied by a VENM validation report from a suitably qualified environmental consultant. The validation assessment should include appropriate levels of sample analyses to be conducted at the sampling density as specified in Table C1, Appendix C. As The NSW Environment Protection Authority (EPA) has no specific VENM assessment criteria, VENM material should be reviewed on the basis of the source site history, "observation" and property of the material, and with reference to relevant guidelines/thresholds viz. the published Australian Background Soil Levels (NEPM Schedule B(1) and/ or ANZECC 1992 (see extract in Table B3, Appendix B) and, with respect to organic analytes, their analytical practical quantitation limits;

- All ENM material must be verified in accordance with the sampling methodology and density specified in the *Protection of the Environment Operations (Waste) Regulation* 2005 - General Exemption Under Part 6, Clause 51 and 51A for Excavated Natural Materials. The requirements are summarised in Table C1, Appendix C. In addition, the relevant "chemical and other attributes" in the ENM material must be verified to comply with the concentration threshold values specified in Table 2 of the General Exemption for Excavated Natural Material Exemption 2012. These concentrations are reproduced in Table B2, Appendix B, with the full ENM guidelines provided in Appendix F.

- In addition to the above requirements, all materials must be validated to be suitable, from a site contamination standpoint, for use on commercial/industrial sites. In this regard, the material must meet the assessment criteria specified in the National Environmental Protection (Assessment of Site Contamination) Measure 1999, 2013 Revision, Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater, for **Commercial / Industrial Sites (HIL-D)**. For the top 0.5 m of site soils in landscape areas, the material used should comprise of ENM and VENM soils only. An extract of guideline values for common contaminants is provided in Table B1, Appendix B.

- With regard to the assessment testing, all laboratory analysis must be conducted by a laboratory that holds NATA accreditation for the test methods performed.

3. GEOTECHNICAL AND SALINITY ISSUES

3.1. Relevant Guidelines

The following geotechnical guidelines are considered relevant to the assessment of the geotechnical suitability of the imported materials:

- Australian Standards AS3798: Guidelines on Earthworks for Commercial & Residential Developments (1998) [AS3798];
- Department of Land and Water Conservation (DLWC) Site Investigations for Urban Salinity (2002);
- Camden Council "Imported Fill Condition"; and
- Camden Council Engineering Construction Specification (2009).

3.2. Geotechnical Material Acceptance Criteria

The geotechnical/engineering requirements for the imported material are as follows;

- The **maximum particle size** (mps) of the imported material must not exceed **150 mm**. The mps of greater than 150 mm is acceptable if the material can readily breakdown under normal compaction conditions (eg compaction of layers of ≤300 mm using an 8 – 10 tonne vibrating roller – this must be proven by trial prior to import);

- Imported material should have a **liquid limit** (obtained by Atterberg Limit test) of less than **50%**. Material with a Liquid Limit up to 50% will be acceptable if Shrink Swell Index test certificates show that shrink swell index is ≤2.0 (refer to Table B6, Appendix B). The number of tests conducted should be in accordance with Table C2, Appendix C.

- The imported material should have a CBR of at least 5% and should not contain any unsuitable material as listed in Section 4 of AS3798. The number of CBR tests conducted should be in accordance with Table C2, Appendix C; and

- The materials are not, or do not contain of any of the unsuitable materials as listed in Appendix D.

3.3. Salinity Acceptance Criteria

The Site is in an area of known moderate salinity (with some areas classified as very saline), therefore source sites should have a classification of moderate salinity or better. The salinity testing and selection criteria are as follows:

- The imported materials must be analysed for EC_e, pH, chlorides and sulphates in accordance with the sampling density specified in Table C3, Appendix C. The Protocol specifies variable sampling densities for materials sourced from area of known salinity and areas of no known salinity hazard;
- Imported materials should be moderately saline or better, based on ECe, the electrical conductivity of saturated pore water (Refer to Table B4, Appendix B for salinity scale);
- A stockpile will be considered non-saline to slightly saline if at least 90% of the tested samples are non-saline to slightly saline;
- Materials should be non-aggressive based on the scale given in Table B5; and
- Materials of higher salinity and aggressivity may be accepted if they can be demonstrated to be consistent with the local background conditions at the Site or an area within the Site (Refer to DP *Report on Salinity Investigation and Management Plan, Proposed Subdivision, Lot 701 in Deposited Plan 1154772, Gledswood Hills,* Project Number 76510.00 dated May 2012) or if appropriate salinity management procedures or appropriate engineering practices are in place to handle such materials. Such materials will only be accepted at the discretion of Gregory Hills Corporate Park and the environmental consultant.

4. Fill Management Protocol

Documentation required to verify the quality / status of any material for importation onto the Site includes:

1. Satisfactory completion of the "Material Suppliers Application Form" and "Material Questionnaire Form" by the material supply site (Tables A1 and A2, Appendix A);
2. Preparation and supply of all supporting documentation (eg VENM report, ENM reports, geotechnical/ salinity assessment reports conducted by a suitably qualified consultant and including NATA Laboratory Reports);
3. Completion of the "Fill Approval Checklist" (Table E1, Appendix E) by Gregory Hills Corporate Park or their representative assessing the adequacy of the documents provided in step 2;
4. Provide seven days' notice to council of the intention to commence the import of materials;

5. Collate trucking records (as per Section 5.2);
6. Records of the location of materials imported onto the Site including photographs, drawings and survey documentation (for volumes if the material is stockpiled);
7. Inspection records and description of the materials imported by site personnel (an example site record form is provided in Appendix E).

All documentation should be supplied to Gregory Hills Corporate Park or their representative for approval. All records will be kept by Gregory Hills Corporate Park for future reference.

5. APPROVAL/ASSESSMENT

Prior to acceptance of material from a source site, assessment of the source site should be undertaken to verify the general acceptability of material from that Site. In addition material tracking records and inspection of the materials imported to the site should be undertaken to verify that the materials being imported are consistent with those approved for importation.

5.1. Assessment/Approval of Source Site

Materials will be judged as suitable or otherwise by Gregory Hills Corporate Park or their representative based on the provided documentation, the apparent reliability or otherwise of the documentation and its conformance with this Protocol.

Gregory Hills Corporate Park site personnel responsible for accepting/ rejecting materials entering the site will have completed copies of the "Material Suppliers Application Form" and "Material Questionnaire Form" for materials currently being imported, and will compare each load with the material description provided by the source site.

Any materials deemed 'not to comply' or 'yet to comply' with this protocol should ***not*** be imported onto the site. If doubt arises with respect to any materials already imported onto the site, the materials shall remain stockpiled, fenced and signposted in a clearly defined area pending final assessment. If materials at the site are deemed unacceptable for use for the development works, a specific management plan for these materials should be developed by a suitably qualified consultant.

5.2. Gate Records and Check Sampling

A record of truck movements should be maintained for trucks carrying material imported to the Site providing the following information:

- The date and time of truck arrival;
- The source location of the material;
- The truck registration details;
- Material type;
- The approximate volume of material per load;
- Visual assessment of material at gate;
- Record of load acceptance/rejection;
- The approximate location of material placement (on a daily basis not per truck load); and
- The amount of material remaining to be imported based on the volume supplied in the original assessment report.

Gregory Hills Corporate Park will reject any materials entering the Site which are not deemed to be consistent with the supporting documentation, which has been previously supplied and accepted based on a visual assessment of the material at the gate. Similarly they will reject source sites which have imported to site more material than allowed for in the original assessment (a supplementary assessment may be made by the source site's consultant to allow for the additional assessment, but this must be submitted for review).

As an additional level of control it is recommended that check samples be collected at the gate. Sampling rates and analytical scope for check samples of ENM (or other material covered by a specific exemption) and VENM are provided in Table C4, Appendix C. If check samples indicate non-conformance with this protocol then further review/assessment of the source site may be required.

6. NON-COMPLIANCE

Any material imported to site that is found to be non-compliant (discovered during check testing or during general site activities) will be isolated and assessed by Gregory Hills Corporate Park or their representative. If the non-compliant material is found to be incompatible with the site it will be removed at the cost of the source site. This decision rests with Gregory Hills Corporate Park. A bond system is recommended to address such matters. The cost of remediation and validation will be borne by the source site.

7. FINAL VALIDATION OF IMPORTED FILL

At the completion of importation of the materials to the Site and prior to the commencement of constructions work a validation report should be prepared (by a suitably qualified environmental/geotechnical consultant) to ensure that all materials imported to the site meet the requirements of the Protocol. The validation report should include the following:

- A review of source site documentation;
- Copies of the completed forms from Appendix A and E;
- A review of gate keeping records (the consultant preparing the Final validation should undertake the gate keeping role);
- A review of site drawings/surveys identifying where imported materials were placed within the site;
- A review of and discussion of check sampling undertaken at the gate in accordance with Section 5.2;
- Records of non-conformances with this Protocol; and
- Assessment of the overall compliance with the Protocol.

If there are data gaps or incomplete records of gate keeping then additional check sampling of the imported materials may be required. The scope of such works would need to be determined at the time by a suitably qualified consultant.

A summary report shall be provided to Council on a monthly basis detailing both accepted and rejected sites. The final validation report will also be submitted to Camden Council to demonstrate adherence to the Protocol.

8. LIMITATIONS

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only and has been based on information provided by the client. The advice herein relates only to this project and all results, conclusions and recommendations made should be reviewed by a competent and experienced person with experience in environmental investigations, before being used for any other purpose. A.D. Envirotech Australia Pty Ltd (ADE) accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced or amended in any away without prior approval by the client or ADE and should not be relied upon by any other party, who should make their own independent enquiries.

This report does not provide an assessment of the environmental status of the site and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, ADE reserves the right to review the report in the context of the additional information.

ADE's professional opinions are based upon its professional judgment, experience, training and results from analytical data. In some cases further testing and analysis may be required, thus producing different results and/or opinions. ADE has limited investigation to the scope agreed upon with its client.

ADE has used a degree of care and skill ordinarily exercised in similar investigations by reputable members of the Environmental Industry within Australia. No other warranty, expressed or implied, is made or intended.

R. Nefodov

Ross Nefodov (Principal)
B. Appl. Sci. (Environmental)
M. PE (Civil Engineering)

APPENDIX A – FORMS FOR MATERIALS SUPPLIED TO SITE

Table A1 – Material Suppliers Application Form

Suppliers Details	
Supplier's Name:	_____ (organisation)
Supplier's Address:	_____
Suburb:	_____
Contact Person:	_____ (representative)
Position:	_____
Phone Number:	_____ Fax Number: _____
Mobile Number:	_____ Application Date: _____
Source Site Details	
Site Address:	_____
Suburb:	_____
Nearest Cross Street:	_____
Current Land Use:	_____
Previous Land Use:	_____
Surrounding Land Use:	North: _____ South: _____
	East: _____ West: _____
Material Details	
Regional Geology:	Wianamatta Shale / Narrabeen Group / Hawkesbury Sandstone / Quaternary Sediments (Please circle)
	comments:_____
General material	(Profile 1) _____(Natural/Fill)
Descriptors:	(Profile 2) _____(Natural/Fill)
	(Profile 3) _____(Natural/Fill)
Maximum Particle Size:	_____ (mm)
Estimated Volumes:	natural_____(m^3); filling_____(m^3)
	in-situ_____(m^3); Stockpiled_____(m^3)
Method of Excavation:	_____
Availability:	_____(date)
Delivery Frequency:	_____ (trucks or m^3/day)
Declaration	
Application Made By:	Name: _____ Signature: _____

Table A2 – Material Questionnaire Form Page 1 of 2

Suppliers Details			
Supplier's Name:	_____ (organisation)		
Contact Person:	_____ (representative)		
Phone Number:	_____ Date: _____		
Source Site Details			
Site Address:	_____		
Suburb:	_____		
Define Excavation Area/ location of stockpiles:	_____ _____ (attach plan and photographs)		
Environmental Details	(Please circle)		(Please circle)
Is site history information documented?	YES / NO	(are details attached?)	YES / NO
Do any contamination reports exist for this site?	YES / NO	(are all reports attached?)	YES / NO
Is a Waste Classification Report available?	YES / NO	(are all reports attached?)	YES / NO
What is the material classification?	VENM / ENM / Other		
What is the estimated volume of material:	_____		
No of samples tested:			
total:	_____		
Heavy Metals:	_____		
TRH/ BTEX::	_____		
PAH:	_____		
phenol:	_____		
PCB:	_____		
OCP:	_____		
asbestos:	_____		
TCLP heavy metals:	_____		
TCLP PAH:	_____		
Other:	_____		
Does waste classification assessment comply with:			
Table C1 (sample density)?	YES / NO		
Tables B1 and B2 (ENM or other exemption)?	YES / NO		
Tables B1 and B3 (VENM)?	YES / NO		

Table A2 – Material Questionnaire form Page 2 of 2

Geotechnical Details	(Please circle)		(Please circle)
Do any geotechnical reports exist for this site?	YES / NO	(are all reports attached?)	YES / NO
Have geotechnical tests been performed?	YES / NO	(are details attached?)	YES / NO
What is the moisture condition of the material?	_____		
Does the fill contain demolition / foreign inclusions?	YES / NO	If yes, provide details: _____	
		_____	
Does the material contain topsoil or vegetation matter?	YES / NO	(are details attached?)	YES / NO
Is the maximum particle size (mps) of the fill material less than 150 mm?	YES / NO	(are details attached?)	YES / NO
If mps is greater than 150 mm will the material breakdown under normal compaction conditions?	YES / NO	(are details attached?)	YES / NO
What is the portion of fines (<0.075mm)?	_____		
If <30% fines can the material be blended prior to delivery?	_____		
Comments:			
Is the material is clay:	YES / NO		
What is the liquid limit of the material?	_____		
what is the shrink swell index (if liquid limit>50%):	_____		
Does the liquid limit/ shrink swell comply with Table B6?	YES / NO		
Does the testing density confirm with Table C2	YES / NO		

Salinity Details	(Please circle)		(Please circle)
Has a salinity assessment been conducted?	YES / NO	(are all reports attached?)	YES / NO
Does the sampling density meet the requirements in Table C3?	YES / NO		
Are the materials non-saline to slightly saline?	YES / NO		
Comments regarding limited use of saline material:	_____		NA
Is the material non-aggressive as per Table B6?	YES / NO	(are all reports attached?)	YES / NO

Declaration

Questionnaire completed by: Name: _____ Signature: _____

APPENDIX B – THRESHOLD VALUES

Table B1 – Threshold Contaminant Values For Commercial / Industrial Landuse. Applys Screening Values to All Imported Materials (Including VENM and ENM)

Contaminant	Site Assessment Criteria (SAC) (mg/kg)	Source
TPH		NEPC (1999), 2013 Amendment. SAC derived from 'Table 1B(7) – Management Limits for TPH fractions F1-F4 in soil'. Coarse soil texture adopted.
C_6-C_{10}	700	
C_{10}-C_{16}	1,000	
C_{16}-C_{34}	3,500	
C_{34}-C_{40}	10,000	
BTEX		*Protection of the Environment Operations (Waste) Regulation (2005) – General Exemption Under Part 6, Clause 51 and 51A - The excavated natural material exemption 2012 (Refer to Appendix F)
Benzene	1	
Toluene	0.5	
Ethylbenzene	65	
Xylene	25	
Metals		NEPC (1999), 2013 Amendment. SAC derived from 'Table 1A(1) – Health investigation levels for soil contaminants'. Commercial/industrial D criteria adopted.
Arsenic	3,000	
Cadmium	900	
Chromium (VI)	3,600	
Copper	240,000	
Lead	1,500	
Mercury (inorganic)	730	
Nickel	6,000	
Zinc	400,000	
Phenols #		
Phenol	240,000	
PAHs		
Total PAHs	4,000	
Carcinogenic PAHs (as BaP TEQ)	40	
OCPs		
Aldrin + dieldrin	45	
Chlordane	530	
Endosulfan	2,000	
DDT+DDE+DDD	3,600	
Heptachlor	50	
OPPs		
Chlorpyrifos	2,000	
Other Organics #		
PCBs	7	
Asbestos	No asbestos found in soil	No current NSW EPA endorsed guideline levels were available

– Required if there is the potential for the contaminant to occur on or adjacent to the source site, as determined by a suitably qualified Environmental Engineer/Scientist/Consultant employed by the governing body at the source site.

* – As no vapour intrusion modeling has been undertaken at GHCP, levels for BTEX in soils have been adopted as per the NSW EPA's Excavated Natural Material Exemption 2012.

Table B2 – Threshold Contaminant Values For ENM#

Column 1	Column 2	Column 3	Column 4
Chemicals and other attributes	**Maximum average concentration for characterisation** (mg/kg 'dry weight' unless otherwise specified)	**Absolute maximum concentration** (mg/kg 'dry weight' unless otherwise specified)	**Test method specified within Section**
1. Mercury	0.5	1	12.1
2. Cadmium	0.5	1	12.2
3. Lead	50	100	12.2
4. Arsenic	20	40	12.2
5. Chromium (total)	75	150	12.2
6. Copper	100	200	12.2
7. Nickel	30	60	12.2
8. Zinc	150	300	12.2
9. Electrical Conductivity	1.5 dS/m	3 dS/m	12.3
10. pH *	5 to 9	4.5 to 10	12.3
11. Total Polycyclic Aromatic Hydrocarbons (PAHs)	20	40	12.4
12. Benzo(a)pyrene	0.5	1	12.4
13. Benzene	NA	0.5	12.5
14. Toluene	NA	65	12.5
15. Ethyl-benzene	NA	25	12.5
16. Xylene	NA	15	12.5
17. Total Petroleum Hydrocarbons C_{10}-C_{36}	250	500	12.6
18. Rubber, plastic, bitumen, paper, cloth, paint and wood	0.05%	0.10%	12.7

* The ranges given for pH are for the minimum and maximum acceptable pH values in the excavated natural material.

 # Refer to Appendix F – Excavated Natural Material Exemption 2012 for full guidelines including sampling densities and testing method.

Table B3 – Reference Contaminant Values For Virgin Excavated Natural Material (VENM) Apply to Imported Natural Materials

Contaminant	NEPC[1]	ANZECC[2]
TPH C_6-C_{10} C_{10}-C_{16} C_{16}-C_{34} C_{34}-C_{40}	For all organic analytes, the analytical practical quantitation limits are used as the reference levels for VENM assessment.	
BTEX Benzene Toluene Ethylbenzene Xylene	 - - - -	 0.05-1 0.1-1 - -
Metals Arsenic (total) Cadmium Chromium (III) Copper Lead Mercury Nickel Zinc	 1-50 1 5-1000 2-100 2-200 0.03 5-500 10-300	 0.2-30 0.04-2 0.5-110 1-190 <2-200 0.001-0.1 2-400 2-180
Total Phenols #	For all organic analytes, the analytical practical quantitation limits are used as the reference levels for VENM assessment.	
PAH Total PAHs Benzo(a)Pyrene		
PCB #		
OCP/ OPP aldrin + dieldrin chlordane DDD, DDE, DDT Heptachlor Chlorprifos Methyl parathion		

Notes:

1. NEPC (1999). National Environmental Protection (Assessment of Site Contamination) Measure Schedule B(1) Guidelines on the Investigation Levels for Soil and Groundwater, Background Ranges.
2. Australian and New Zealand Environment and Conservation Council/National Health and Medical Research Council (ANZECC/NHMRC): Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (1992), Environmental Soil Quality Guidelines Background A [ANZECC A].

Required if there is the potential for the contaminant to occur on or adjacent to the source site, as determined by a suitably qualified Environmental Engineer/Scientist/Consultant employed by the governing body at the source site.

Table B4 – Salinity Scale

Salinity	Electrical conductivity (ECe)
Non Saline	<2 dS/m
Slightly Saline	2 – 4 dS/m
Moderately Saline	4 – 8 dS/m
Highly Saline	8 – 16 dS/m

Table B5 – Criteria For Non-Aggressive Soils

Soil Type	Soil Use	chlorides	sulphates	pH
high permeability	above the water table	≤0.5%	≤0.5%	≥5.5
high permeability*	below the water table	NA	NA	NA
low permeability	above the water table	≤2%	≤0.5%	≥5.5
low permeability	below the water table	≤2%	≤0.5%	≥5.5

Source: AS 2159 2009

* high permeability soils which are in groundwater (soil condition A are by definition a minimum of mildly aggressive)

Table B6 – Liquid Limit Requirements for Clays

Liquid Limit (Atterberg Test)	Assessment
<50%	Acceptable
>50%	Reject

APPENDIX C – SAMPLING DENSITIES

TABLE C1 – Sampling and Analytical Requirements for ENM and VENM [4]

Filling/ Natural	Material Quantity [4] (m^3)	Minimum Sample number/ Frequency	Minimum analyte suite to include [1,2]	Additional analysis as required [2,3]
VENM	<5000	1 per 1000 m^3 (Minimum of 3 samples)	- Heavy metals - PAH - TPH - BTEX - Phenol (If suggested by site history) - PCB (If suggested by site history) - OCP/OPPs - Asbestos - Field Oxidation and/or SPOCAS (If within area with potential Acid Sulphate Soils)	- Any contaminant considered potentially present in the material based on site information
	5000-50,000	1 per 5000 m^3 (Minimum of 8 samples)		
	>50,000	1 per 5,000 m^3 (Minimum of 8 samples)		
	For alignments of > 5 km	At least 1 per km*		
Natural material (in- situ or freshly excavated)	Any volume	As per ENM Exemption 2012 - Refer to Appendix F	Mercury, cadmium, lead, arsenic, chromium (total), copper, nickel, zinc, electrical conductivity, pH, PAHs, TPH (C_{10}- C_{36}), Rubber plastic bitumen paper cloth paint and wood.	- Asbestos/OCP/OPP plus any contaminant considered potentially present in the material based on site information
Specific Exemption	Reviewed on a case by case basis			

Notes:

1. Note not all samples necessarily require testing for all analytes.
2. Heavy metals = arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc. BTEX = benzene, toluene, ethyl benzene, total xylenes OCP = Organochlorine Pesticides (a scheduled chemical).PAH = Polycyclic Aromatic Hydrocarbons.PCB = Polychlorinated Biphenyls.TRH = Total Recoverable Hydrocarbons (including Total Petroleum Hydrocarbons).SPOCAS = Suspension Peroxide Oxidation Combined Acidity and Sulphate method.
3. Based on advice from a qualified consultant
4. Based on material volumes per site, i.e. if 5000 m3 or less from source site then frequency 1 applies, 5000-50000 from source site then frequency 2 applies etc, not on total volume being imported from all sites.

VENM = Virgin Excavated Natural Material

Composite samples mean a sample that combines 5 discrete sub-samples into a single sample for the purpose of analysis.

* Higher frequency of testing should be adopted in areas of higher contamination potential.

TABLE C2 – Sampling Requirements for CBR and Geotechnical Tests

Material	Quantity (m^3)	Minimum Sampling Frequency
Filling	<5000	1 Per 2500 m^3 1 per 250 m for alignments
	>5000	1 Per 5000 m^3 1 per 500 m for alignments
Natural	Any Volume	1 per 5000 m^2 (area) 1 per 500 m for alignments
Clays		Atterberg test - 1/1000 m^3
		Shrink swell index - 1/5000 m^3

TABLE C3 – Sampling and Analytical Requirements for Salinity

Assessment	Minimum Sample Frequency	Depth of Sample	Minimum analyte suite
Areas of no Known Salinity			
Stockpile	1 sample per 2500 m^3	-	ECe, pH, sulphates, chlorides, textural classification.
In situ	2 bores or test pits per ha or 2 bores per 1 km for alignments*	Samples at 0.2 m, 0.5 m and 1.0 m intervals or change in strata to depth of excavation or refusal.	ECe, pH, textural classification.
		Samples 0.5 m, 1.0 m and 2.0 m	Chlorides & sulphates.
Areas of Known Salinity			
Stockpile	1 sample per 1000 m^3	-	ECe, pH, sulphates, chlorides, textural classification.
In situ	2 bores or test pits per ha or 5 bores per 1 km for alignments*	Samples at 0.2 m, 0.5 m and 1.0 m intervals or change in strata to depth of excavation or refusal.	ECe, pH, textural classification.
		Samples 0.5 m, 1.0 m and 2.0 m	Chlorides & sulphates.

* Assumes alignment of 5 km or greater. Additional bores may be required for short alignments (Minimum of eight (8) boreholes for any alignment).

TABLE C4 – Sampling Requirements for Check Samples at Gate

Material	Minimum Sampling Frequency*	Analytical Requirement
Filling (Exemptions)	1 per 1000 m^3	**Contamination** - heavy metals, PAH, TRH, BTEX, phenol, PCB, OCP/OPPs, and asbestos **Salinity** – EC, pH, Chloride and sulphate **Geotechnical** – CBR (4 day soak)
Natural (VENM)	1 per 5000 m^3	**Contamination** - heavy metals, PAH, TRH, BTEX, phenol, PCB, OCP/OPPs, and asbestos **Salinity** – EC, pH, Chloride and sulphate **Geotechnical** – CBR (4 day soak)

* Sampling frequency may be increased based on visual assessment at gate.

APPENDIX D – MATERIALS GIVEN RISE TO LOAD REJECTION

Unsuitable Materials List

The following list contains materials that are unsuitable for use as fill. Any materials containing the following will be rejected. The list is not exhaustive.

- Acid sulphate soils;
- Asbestos (fibre and bonded);
- Biocides;
- Chemical storage containers;
- Contaminated material;
- Demolition rubble;
- Excessively wet soils (greater than 3% of optimal moisture content);
- Explosives;
- Fibro;
- Food waste;
- Fungicides;
- Herbicides;
- High plasticity clay;
- Household domestic waste;
- Large rock fragments;
- Liquid waste;
- Metals;
- Non-validated materials;
- Oil filters and rags;
- Paint;
- Pesticides;
- Plastics and PVC;
- Radioactive waste;
- Sanitary waste;
- Timber;
- Treated timber;
- Tyres;
- Vegetative waste; and
- All other potentially contaminating materials.

APPENDIX E – FORMS FOR RECEIVING SITE

TABLE E1 – APPROVAL CHECKLIST Page 1 of 2

Suppliers Details		
Supplier's Name:	_____ (organisation)	
Contact Person:	_____ (representative)	
Phone Number:	_____ Date: _____	
Source Site Details		
Site Address:	_____	
Suburb:	_____	
Environmental Assessment	*(Please circle)*	*(Please circle)*
Have the supplied contamination reports been reviewed?	*YES / NO*	*Satisfactory / Unsatisfactory*
Comments?	_____	
	_____	_____
	_____	_____
	_____	_____
Are the supplied Waste Classification report/s satisfactory?	*YES / NO*	*Satisfactory / Unsatisfactory*
What has the material been classified as (circle)?		
	VENM	*see below*
	Exempt Material (eg ENM)	*see below*
For VENM:	*Other*	*Satisfactory / Unsatisfactory*
has sufficient site history information been supplied?	*YES / NO*	*Satisfactory / Unsatisfactory*
does the assessment comply with Tables:		
• *C1 – Density of testing*	*YES / NO*	*Satisfactory / Unsatisfactory*
• *B1 – Site Acceptance Criteria (HIL Col 4)*	*YES / NO*	*Satisfactory / Unsatisfactory*
• *B3 – Australian Soils Natural Background*	*YES / NO*	*Satisfactory / Unsatisfactory*
For Exemptions:		
has sufficient site history information been supplied?	*YES / NO*	*Satisfactory / Unsatisfactory*
does the assessment comply with Tables:		
• *C1 – Density of testing*	*YES / NO*	*Satisfactory / Unsatisfactory*
• *B1 – Site Acceptance Criteria (HIL Col 4)*	*YES / NO*	*Satisfactory / Unsatisfactory*
• *B2 – Threshold Contaminant Concentrations*	*YES / NO*	*Satisfactory / Unsatisfactory*
ENVIRONMENTAL ASSESSMENT RESULT	*REJECTED*	*APPROVED*

TABLE E1 – APPROVAL CHECKLIST Page 2 of 2

Geotechnical Assessment	*(Please circle)*	*(Please circle)*
Are the supplied geotechnical report/s satisfactory?	*YES / NO*	*Satisfactory / Unsatisfactory*
Does the material contain any of the inclusions listed in Appendix D?	*YES / NO*	*Satisfactory / Unsatisfactory*
Are the supplied reports and test results satisfactory?	*YES / NO / NA*	
Does the liquidity limit/ shrink swell of clay materials comply with Table B4?	*YES / NO / NA*	*Satisfactory / Unsatisfactory*
Comments:	_____	_____
Does the material contain topsoil or vegetation matter?	*YES / NO*	*Satisfactory / Unsatisfactory*
Is the particle size acceptable?	*YES / NO*	*Satisfactory / Unsatisfactory*
Does the material require blending prior to use?	*YES / NO*	*Satisfactory / Unsatisfactory*
Comments:	_____	_____
Is ongoing excavation control required (eg both suitable and non suitable materials present on-site and separation required)?	*YES / NO*	*Satisfactory / Unsatisfactory*
GEOTECHNICAL ASSESSMENT RESULT	*REJECTED*	*APPROVED*
Salinity Assessment	*(Please circle)*	*(Please circle)*
Is the salinity assessment satisfactory?		*Satisfactory / Unsatisfactory*
Is the material suitable for unlimited use with regard to salinity (ie non-saline to slightly saline)?	*YES / NO*	*Satisfactory / Unsatisfactory*
Comments regarding limited use of saline material:	_____	_____
	_____	*limit use / Unsatisfactory / NA*
Is the material non-aggressive as per Table B6?	*YES / NO*	*Satisfactory / Unsatisfactory*
SALINITY ASSESSMENT RESULT	*REJECTED*	*APPROVED*
FINAL ASSESSMENT	***REJECTED***	***APPROVED***
Comments:	_____	
	_____	
Completed by:	_____	*(name)*
	_____	*(company)*
	_____	*(signature)*
	_____	*(date)*

TABLE E2 – MATERIALS ACCEPTANCE CHECKLIST

FILL ACCEPTANCE CHECKLIST	Completed By:_____ Date:_____
Material/ Suppliers Details Supplier's Name: Source Site Address:	_____ (organisation) _____ _____ _____
Materials described in application/ approval documentation:	_____ _____ _____
Description of materials arriving at site:	_____ _____ _____
Do material descriptions match?	Yes / No accept / reject
Location placed on-site: Sketch attached:	_____ Yes / No
Number of loads received:	

APPENDIX F – EXCAVATED NATURAL MATERIAL EXEMPTION 2012

Protection of the Environment Operations (Waste) Regulation 2005 – General Exemption Under Part 6, Clause 51 and 51A

The excavated natural material exemption 2012

Name

1. This exemption is to be known as 'The excavated natural material exemption 2012'.

Commencement

2. This exemption commences on 19 October 2012. 'The excavated natural material exemption 2008' which commenced 25 July 2008 is revoked from 19 October 2012.

Duration

3. This exemption is valid until revoked by the Environment Protection Authority (EPA) by notice published in the Government Gazette.

Legislation

4. Under the *Protection of the Environment Operations (Waste) Regulation 2005* (the Regulation):

4.1. Clause 51 (2) authorises the EPA to grant an exemption in relation to any matter or thing including an activity or class of activities, and

4.2. Clause 51A authorises the EPA to exempt a person from any of the following provisions in relation to an activity or class of activities relating to certain waste that is to be land applied or used as a fuel:

- the provisions of sections 47 to 49 and 88 of the *Protection of the Environment Operations Act 1997* (the Act),
- the provisions of Schedule 1 to the Act, either in total or as they apply to a particular activity, and
- the provisions of Part 3 and clauses 45 and 47 of the Regulation.

Exemption

5. In this Notice of Exemption:

5.1. The responsible person listed in Column 1 of Table 1 is exempt from the provision/s listed in Column 2 of that table but only:

- in relation to activities involving the relevant waste, and
- where the responsible person complies with the conditions referred to in Column 3 of the table, and
- in the case of a consumer, in relation to the premises where the waste is applied to land as permitted by clause 7.2.

However, this Notice of Exemption does not exempt the responsible person from the provisions specified in Column 2 where the relevant waste is received at premises that are, despite this exemption, required to be licensed for waste disposal (application to land) activities under the provisions of the Act.

5.2. Where a responsible person complies with the conditions of this Notice of Exemption, the activity referred to in Schedule 1 from which that person is exempt is taken to be a non-scheduled activity for the purposes of the Act.

Table 1

Column 1	Column 2	Column 3
Responsible person	**Provisions from which the responsible person is exempt**	**Conditions to be met by the responsible person**
Generator	section 48 of the Act in respect of clause 39 of Schedule 1 to the Act	all requirements specified in section 7 and 8
Consumer	section 48 of the Act in respect of clauses 39 and 42 of Schedule 1 to the Act section 88 of the Act clause 47 of the Regulation	all requirements specified in section 7 and 9

This Notice of Exemption is a general exemption for the purposes of clause 51(3) of the Regulation.

Definitions

6. In this Notice of Exemption:

Bgl means below ground level, referring to soil at depth beneath the ground surface.
Characterisation means sampling and testing that must be conducted on the material for the range of chemicals and other attributes listed in Column 1 of Table 2.
Composite sample means a sample that combines 5 sub-samples of equal size into a single sample for the purpose of analysis.
Consumer means a person who applies, causes, or permits the application to land of excavated natural material within the definitions of "application to land" in accordance with the Act. The consumer may be the landholder responsible for the land to which excavated natural material is applied.
Discrete sample means a sample collected and analysed individually that will not be composited.
Excavated natural material is naturally occurring rock and soil (including but not limited to materials such as sandstone, shale, clay and soil) that has:

a) been excavated from the ground, and
b) contains at least 98% (by weight) natural material, and
c) does not meet the definition of Virgin Excavated Natural Material in the Act.

Excavated natural material does not include material located in a hotspot; that has been processed; or that contains asbestos, Acid Sulfate Soils (ASS), Potential Acid Sulfate soils (PASS) or sulfidic ores.
Generator means a person who generates excavated natural material for supply to a consumer.
Hotspot means a cylindrical volume which extends through the soil profile from the ground surface to the proposed depth of excavation, where the level of any contaminant listed in Column 1 of Table 2 is greater than the absolute maximum concentration in Column 3 of Table 2.
***In situ* material** means material that exists on or below the ground level. It does not include stockpiled material.
***In situ* sampling** means sampling undertaken on *in situ* material.
Relevant waste means excavated natural material that meets the requirements of Section 7.
Stockpiled material means material that has been excavated from the ground and temporarily stored on the ground prior to use.

Systematic sampling means sampling at points that are selected at even intervals and are statistically unbiased.
Validation means ensuring that test results comply with the conditions of this exemption prior to material being supplied to a consumer.

General conditions

7. This Notice of Exemption is subject to the following conditions:

7.1. The chemical concentration or other attribute of the excavated natural material listed in Column 1 of Table 2 must not exceed any of the following:
  7.1.1. For characterisation tests, the maximum average (based on the arithmetic mean) concentration or value listed in Column 2 of Table 2, and
  7.1.2. The absolute maximum concentration or value listed in Column 3 of Table 2.
7.2. The excavated natural material can only be applied to land as engineering fill or used in earthworks.

Generator responsibilities

8. The following conditions must be met by the generator for this exemption to apply:

8.1. The generator must prepare a written sampling plan which includes information on sample preparation and storage. The plan must be kept for a period of three years;
8.2. The generator must undertake sampling and analysis of the material for Acid Sulfate Soil (ASS) and Potential Acid Sulfate Soil (PASS), in accordance with the *NSW Acid Sulfate Soil Manual*, Acid Sulfate Soils Management Advisory Council, 1998 and the updated *Laboratory Methods Guidelines version 2.1 – June 2004* where:
  8.2.1. the pH measured in the material is below 5, and/or
  8.2.2. the review of the applicable Acid Sulfate Soil Risk Maps (published by the former Department of Land and Water Conservation and available at http://www.environment.nsw.gov.au/acidsulfatesoil/riskmaps.htm) indicates the potential presence of Acid Sulfate Soils (ASS).
8.3. For stockpiled material, the generator must:
  8.3.1. undertake sampling in accordance with Australian Standard 1141.3.1-1996 *Methods for sampling and testing aggregates* – Sampling – Aggregates (or equivalent);
  8.3.2. undertake characterisation according to the requirements listed in Columns 1 and 2 of Table 3 for the range of chemicals and other attributes listed in Column 1 of Table 2; and
  8.3.3. store the excavated natural material appropriately until the characterisation test results are validated (i.e. obtained and assessed as compliant with this exemption).
8.4. For *in situ* material, the generator must:
  8.4.1. undertake characterisation for the range of chemicals and other attributes listed in Column 1 of Table 2 according to the requirements listed in Columns 1, 2, and 3 of Table 4. When the ground surface is not comprised of soil (e.g. concrete slab), samples must be taken at the depth at which the soil commences.
  8.4.2. undertake sampling at depth according to Column 1 of Table 5.
  8.4.3. collect additional soil samples (and analyse them for the range of chemicals and other attributes listed in Column 1 of Table 2), at any

depth exhibiting discolouration, staining, odour or other indicators of contamination inconsistent with soil samples collected at the depth intervals indicated in Table 5.

8.4.4. segregate and exclude hotspots identified in accordance with Table 4, from material excavated for reuse under this exemption.

8.5. For both stockpiled and *in situ* material the generator must:

8.5.1. keep a written record of all characterisation test results, volume of excavated material, and detected hotspot material for a period of three years; and

8.5.2. provide a written statement of compliance to the consumer with each transaction, certifying that the excavated natural material complies with the relevant conditions of this exemption.

Consumer responsibilities

9. The following conditions must be met by the consumer for this exemption to apply:

9.1. The consumer must ensure that the excavated natural material is fit for purpose and poses minimal risk of harm to human health or the environment.

9.2. The consumer must keep records of the quantity of the excavated natural material received as well as the suppliers' name and address, for a period of three years.

9.3. The consumer must land apply the relevant waste within a reasonable period of time.

Chemical and other material property requirements

10. This Notice of Exemption only applies to excavated natural material where the chemical and other attributes listed in Column 1 of Table 2 comply with the chemical concentrations and other values listed in Column 2 and Column 3 of Table 2, when analysed according to test methods specified in Column 4 of Table 2.

Table 2

Column 1	**Column 2**	**Column 3**	**Column 4**
Chemicals and other attributes	**Maximum average concentration for characterisation** (mg/kg 'dry weight' unless otherwise specified)	**Absolute maximum concentration** (mg/kg 'dry weight' unless otherwise specified)	**Test method specified within Section**
1. Mercury	0.5	1	12.1
2. Cadmium	0.5	1	12.2
3. Lead	50	100	12.2
4. Arsenic	20	40	12.2
5. Chromium (total)	75	150	12.2
6. Copper	100	200	12.2
7. Nickel	30	60	12.2
8. Zinc	150	300	12.2
9. Electrical Conductivity	1.5 dS/m	3 dS/m	12.3
10. pH *	5 to 9	4.5 to 10	12.3
11. Total Polycyclic Aromatic Hydrocarbons	20	40	12.4

Column 1	Column 2	Column 3	Column 4
Chemicals and other attributes	**Maximum average concentration for characterisation** (mg/kg 'dry weight' unless otherwise specified)	**Absolute maximum concentration** (mg/kg 'dry weight' unless otherwise specified)	**Test method specified within Section**
(PAHs)			
12. Benzo(a)pyrene	0.5	1	12.4
13. Benzene	NA	0.5	12.5
14. Toluene	NA	65	12.5
15. Ethyl-benzene	NA	25	12.5
16. Xylene	NA	15	12.5
17. Total Petroleum Hydrocarbons C_{10}-C_{36}	250	500	12.6
18. Rubber, plastic, bitumen, paper, cloth, paint and wood	0.05%	0.10%	12.7

* The ranges given for pH are for the minimum and maximum acceptable pH values in the excavated natural material.

Sampling requirements

11. This Notice of Exemption only applies to excavated natural material sampled according to the requirements in Tables 3, 4 and 5.

11.1. Stockpiled excavated natural material must be sampled as per the requirements in Table 3.

11.1.1. Composite sampling must be undertaken for analysis of attributes 1 to 10 and 18 in Column 1 of Table 2. Discrete sampling must be undertaken for analysis of attributes 11 to 17 in Column 1 of Table 2.

11.1.2. Sampling must be undertaken in a manner that ensures all parts of the stockpile are equally accessible for representative sampling.

11.1.3. For stockpiles greater than 4,000 tonnes the number of samples described in Table 3 must be repeated.

Table 3

Sampling of Stockpiled Material		
Column 1	**Column 2**	**Column 3**
Quantity (tonnes)	**Number of samples**	**Validation**
<500	3	Required
500 – 1,000	4	
1,000 – 2,000	5	
2,000 – 3,000	7	
3,000 – 4,000	10	

11.2. *In situ* material must be sampled by collecting discrete samples as per the requirements of Tables 4 and 5.

11.2.1. Sites larger than 50,000 m^2 should be subdivided into smaller areas and sampled as per Table 4.

Table 4

***In Situ* Sampling at surface**				
Column 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**
Size of *in situ* area (m^2)	**Number of systematic sampling points recommended**	**Distance between two sampling points** (m)	**Diameter of the hot spot that can be detected with 95% confidence** (m)	**Validation**
500	5	10.0	11.8	Required
1000	6	12.9	15.2	
2000	7	16.9	19.9	
3000	9	18.2	21.5	
4000	11	19.1	22.5	
5000	13	19.6	23.1	
6000	15	20.0	23.6	
7000	17	20.3	23.9	
8000	19	20.5	24.2	
9000	20	21.2	25.0	
10,000	21	21.8	25.7	
15,000	25	25.0	28.9	
20,000	30	25.8	30.5	
25,000	35	26.7	31.5	
30,000	40	27.5	32.4	
35,000	45	27.9	32.9	
40,000	50	28.3	33.4	
45,000	52	29.3	34.6	
50,000	55	30.2	35.6	

Table 4 has been taken from NSW EPA 1995, *Contaminated Sites Sampling Design Guidelines*, NSW Environment Protection Authority.

Table 5

***In Situ* Sampling at Depth**	
Column 1	**Column 2**
Sampling Requirements *	**Validation**
1 soil sample at 1.0 m bgl from each surface sampling point followed by 1 soil sample for every metre thereafter. From 1.0 m bgl, sample at the next metre interval until the proposed depth of excavation of the material is reached. If the proposed depth of excavation is between 0.5 to 0.9 m after the last metre interval, sample at the base of the proposed depth of excavation.	Required if the depth of excavation is equal to or greater than 1.0 m bgl

* Refer to Notes for examples

Test method

12. All testing must be undertaken by analytical laboratories accredited by the National Association of Testing Authorities (NATA), or equivalent. All chemicals and other attributes listed in Column 1 of Table 2 must be measured in accordance with the test methods specified below:

12.1. Test methods for measuring the mercury concentration.
- 12.1.1. Particle size reduction & sample splitting may be required.
- 12.1.2. Analysis using USEPA SW-846 Method 7471B Mercury in solid or semisolid waste (manual cold vapour technique), or an equivalent analytical method with a detection limit < 20% of the stated absolute maximum concentration in Column 3 of Table 2 (i.e. 0.20 mg/kg dry weight).
- 12.1.3. Report as mg/kg dry weight.

12.2. Test methods for measuring chemicals 2 to 8 in Column 1 of Table 2.
- 12.2.1. Particle size reduction & sample splitting may be required.
- 12.2.2. Sample preparation by digesting using USEPA SW-846 Method 3051A Microwave assisted acid digestion of sediments, sludges, soils, and oils (or an equivalent analytical method).
- 12.2.3. Analysis using USEPA SW-846 Method 6010C Inductively coupled plasma - atomic emission spectrometry, or an equivalent analytical method with a detection limit < 10% of the stated absolute maximum concentration in Column 3 of Table 2, (e.g. 10 mg/kg dry weight for lead).
- 12.2.4. Report as mg/kg dry weight.

12.3. Test methods for measuring electrical conductivity and pH.
- 12.3.1. Sample preparation by mixing 1 part excavated natural material with 5 parts distilled water.
- 12.3.2. Analysis using Method 103 (pH) and 104 (Electrical Conductivity). *In* Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).
- 12.3.3. Report electrical conductivity in deciSiemens per metre (dS/m).

12.4. Test method for measuring Polynuclear Aromatic Hydrocarbons (PAHs) and benzo(a)pyrene.
- 12.4.1. Analysis using USEPA SW-846 Method 8100 Polynuclear Aromatic Hydrocarbons (or an equivalent analytical method).
- 12.4.2. Calculate the sum of all 16 PAHs for total PAHs.
- 12.4.3. Report total PAHs as mg/kg dry weight.
- 12.4.4. Report benzo(a)pyrene as mg/kg.

12.5. Test method for measuring benzene, toluene, ethylbenzene and xylenes (BTEX).
- 12.5.1. Method 501 (Volatile Alkanes and Monocyclic Aromatic Hydrocarbons). In Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).
- 12.5.2. Report BTEX as mg/kg.

12.6. Test method for measuring Total Petroleum Hydrocarbons (TPH).

12.6.1. Method 506 (Petroleum Hydrocarbons). In Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).

12.6.2. Report as mg/kg dry weight.

12.7. Test method for measuring rubber, plastic, bitumen, paper, cloth, paint and wood.

12.7.1. NSW Roads & Traffic Authority Test Method T276 Foreign Materials Content of Recycled Crushed Concrete (or an equivalent method).

12.7.2. Report as percent.

Exemption Granted

Christopher McElwain
Manager Waste and Resource Strategy
Environment Protection Authority
by delegation

Notes

The EPA may amend or revoke this exemption at any time. It is the responsibility of the generator and the consumer to ensure that they comply with all relevant requirements of the most current exemption. The current version of an exemption will be available on the EPA website: www.epa.nsw.gov.au.

In gazetting this general exemption, the EPA is exempting the relevant waste from the specific requirements of the Act and Regulations as stated in this exemption. The EPA is not in any way endorsing the use of this substance or guaranteeing that the substance will confer benefit.

The use of exempted material remains subject to other relevant environmental regulations within the Act and Regulations. For example, a person who pollutes land (s142A) or water (s120), or does not meet the special requirements for asbestos waste (clause 42), regardless of having an exemption, is guilty of an offence and subject to prosecution.

For the purposes of arrangements between a generator and a consumer, a 'transaction' is taken to mean the contractual agreement between the two parties which specifies the exchange of waste material from one party to another. A 'statement of compliance' must be in writing and be provided with each transaction.

The conditions set out in this exemption are designed to minimise the risk of potential harm to the environment, human health or agriculture, however, neither this exemption nor these conditions guarantee that the environment, human health or agriculture will not be harmed.

The consumer should assess whether or not the exempted material is fit for the purpose for which the material is proposed to be used and whether this use will cause harm. The consumer may need to seek expert engineering or technical advice.

This exemption does not apply to any material received at premises that are required to be licensed for waste disposal (application to land) activities under the provisions of the Act. This exemption does not remove the need for a site at which processing occurs to be licensed, if required under Schedule 1 of the Act.

This exemption does not alter the requirements of any other relevant legislation that must be met in utilising this material, including for example, the need to prepare a Material Safety Data Sheet (MSDS).

Regardless of any exemption provided by the EPA, the person who causes or permits the application of the substance to land must ensure that the action is lawful and consistent with the development consent requirements of the land.
All records required to be kept under this exemption must be made available to authorised officers of the EPA upon request.

Failure to comply with the conditions of this Notice of Exemption may constitute an offence under clause 51 of the Regulation and the responsible person will be required to comply with the normal regulatory provisions.

Examples

In situ sampling at depth

Example 1.
If the proposed depth of ENM excavation is between 1 m bgl and 1.4 m bgl, then:

- 1 sample on surface (as per the requirements of Table 4).
- 1 sample at 1 m bgl.
- No further depth sampling after 1 m bgl, unless required under section 8.4.3.

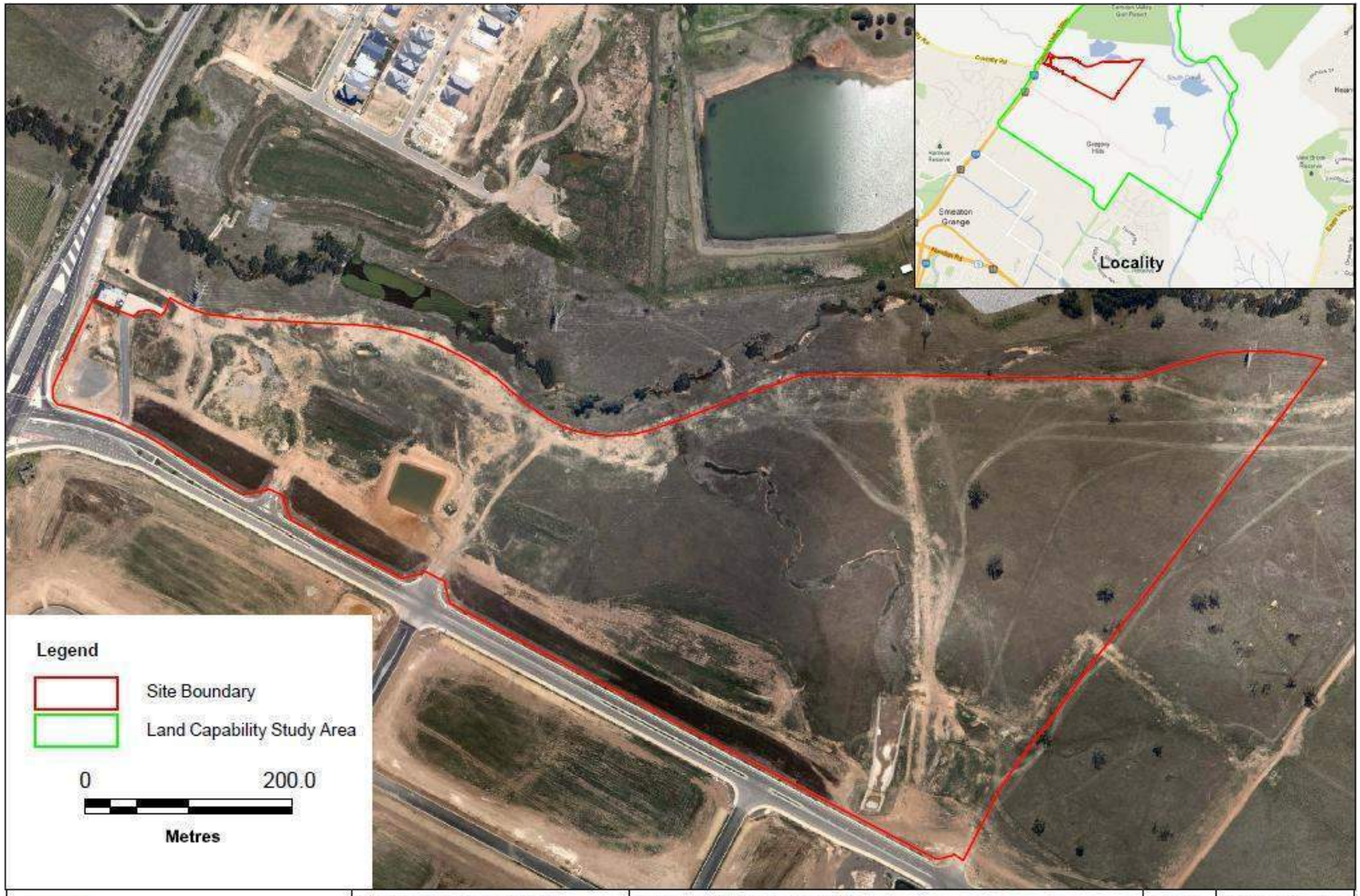
Example 2.
If the proposed depth of ENM excavation is at 1.75 m bgl, then:

- 1 sample on surface (as per the requirements of Table 4).
- 1 sample at 1 m bgl.
- 1 sample at 1.75 m bgl.
- No further depth sampling after 1.75 m bgl, unless required under section 8.4.3.

Example 3.
If the proposed depth of ENM excavation is at 2.25 m bgl, then:

- 1 sample on surface (as per the requirements of Table 4).
- 1 sample at 1 m bgl.
- 1 sample at 2 m bgl.
- No further depth sampling after 2 m bgl, unless required under section 8.4.3.

APPENDIX G – DRAWING 1



Douglas Partners Geotechnics / Environment / Groundwater	CLIENT: Gregory Hills Corporate Park	TITLE: Site Boundary, Site Locality Phase 2 Contamination Assessment Lot 701, Deposited Plan 1154772, Gregory Hills Drive, Gledswood Hills	PROJECT No: 76510.01
	OFFICE: Campbelltown DRAWN BY: BAH		DRAWING No: 1
	SCALE: As shown DATE: 09.01.2012	MGA	REVISION: A

Review of imported soil materials and validation sampling for Lot 832 and 833

Lot 832 and 833, DP1154772, Gregory Hills Drive, Gledswood Hills NSW

Prepared for: Gregory Hills Corporate Park Pty Ltd

9203 / ENV1.
V3. final
28th January, 2016

ADE CONSULTING GROUP
SOLUTIONS THROUGH INNOVATION

Review of imported soil materials and validation sampling for Lot 832 and 833 of the Gregory Hills Development Park

Lot 832 and 833, DP1154772, Gregory Hills Drive, Gledswood Hills NSW

Prepared for:
Gregory Hills Corporate Park Pty Ltd

Version	Details	Date
V3 final	Prepared by Karl Finnerty	28th January, 2016

1 INTRODUCTION

1.1 General

A.D. Envirotech Australia Pty Ltd (ADE) was commissioned by Gregory Hills Corporate Park Pty Ltd (hereafter referred to as 'the client') to undertake validation (gate check) sampling and a desktop review of soil materials imported into the proposed Lot 832 and 833 of the Gregory Hills Corporate Park, DP1154772, Gregory Hills Drive, Gregory Hills NSW (GHCP). ADE onsite records indicate that all earthworks within Lot 832 and 833 were completed from between the period of November, 2014 and April, 2015. The results presented within this report are inclusive of all material entering the site within this period.

This document outlines the results for soil sampling and validation testing carried out within the proposed commercial subdivision and has been completed in accordance with ADE Report 'Fill Management Protocol, Ref: 6908.Lot 701, DP1154772, Gregory Hills Drove, Gledswood Hills NSW.FMP1 v1 final', dated 29th November 2013 (GHCP FMP).

No one section, or part of a section, of this report should be taken as giving an overall idea of this report. Each section must be read in conjunction with the whole of this report, including its appendices and attachments.

1.2 Objectives

The objective of the works was to ensure the materials imported into the aforementioned lots comply with relevant NSW environmental legislation (refer to Section 1.4 'Relevant Legislation and Guidelines') and to satisfy the minimum requirements outlined in the GHCP FMP with regards to contamination and salinity assessment.

1.3 Scope of Work

The scope of works as requested by the client involved the following:

- Review of analytical and waste classification reports (or equivalent) accompanying soil materials from a source site prior to approval for import into GHCP, with respect to contamination, salinity and aggressivity;
- Completion of a Safety, Health & Environment and Safe Work Method Statement (SMWS) prior to undertaking field works;
- Visual inspection of imported material during gate check sampling;
- Gate check sampling comprised of:
    - Collection of discrete soil samples for contamination assessment (heavy metals, polycyclic aromatic hydrocarbons (PAHs), total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylene (BTEX), phenols, polychlorinated biphenyls (PCBs), organochlorine pesticides (OCPs) and organophosphate pesticides (OPPs);
    - Collection of discrete soil samples for salinity and aggressivity assessment (electrical conductivity (ECe), pH, chlorides and sulphates);
    - Collection of discrete soil samples for analysis for the presence of asbestos containing materials (ACM); and
- Preparation of a report outlining the details and results for the works carried out within the aforementioned lots.

1.4 Relevant Legislation and Guidelines

Importation of materials into the GHCP must abide by the provisions of relevant NSW environmental legislation including, but not limited to, the *Contaminated Land Management Act* (1997) and *Protection of the Environment Operations Act* (1997).

The following environmental guidelines are considered to be relevant:

- DECCW Waste Classification Guidelines (2008),December2009Revision;
- NSWEPA Contaminated Sites *Guidelines for the NSW Site Auditor Scheme* (2006) [The Auditors Guidelines];
- NEPC (1999). National Environmental Protection (Assessment of Site Contamination) Measure 1999, 2013 Revision. Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater;
- Australian and New Zealand Environment and Conservation Council/National Health and Medical Research Council (ANZECC/NHMRC): Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (1992), Environmental Soil Quality Guidelines Background A [ANZECC A];
- *Guidelines on Resource Recovery Exemption (Land Application of Waste Materials as Fill)* EPA Feb 2011;
- Protection of the Environment Operations (Waste) Regulation (2005)–General Exemption Under Part 6, Clause 51 and51A- The excavated natural material exemption 2012;
- Any specific exemption issued under the Protection of the Environment Operations (Waste) Regulation (2005) by the NSW EPA; and
- Camden Council "Imported Fill Condition".

2 REVIEW OF WASTE CLASSIFICATION REPORTS AND FILL SUITABLILITY

As per the scope of works issued to ADE by the client provided, a desktop review of waste classification reports (or equivalent) accompanying soil materials from a source site was undertaken to determine if contamination, salinity and aggressivity characteristics of the soils met the requirements of the GHCP FMP.

Prior to the 19th of January 2013, Douglas Partners Pty Ltd was engaged by the client to undertake the review and approval of soils prior to importation into GHCP. As of the 19th of January 2013, ADE was commissioned by the client to undertake the review and approval role. A register of the desktop reviews undertaken, and materials granted approval for import into GHCP by both DP and ADE is provided in Appendix I – Register of Reviews and Waste Classifications. The waste classifications certificates and any associated reviews are available on request.

3 SAMPLING PLAN AND METHODOLOGY

ADE was advised by the client that each truck and trailer carries a total of 11 m^3 of soil material (following placement, rolling and compaction). A summary of the number of truck and trailers at GHCP as per the source site from the 1stof January 2015 to the 31stof May 2015, is provided in 'Appendix II – Summary of Imported Soil Materials'.

One (1) sample was collected per 90 truck and trailers (truck and dog) or per 1000 m^3 of soil materials imported from each source site, as per the sampling density stipulated in the GHCP FMP 'Table C4 – Sampling requirements for check samples at gate', outlined in **Table 1**.

Table 1 - Sampling requirements of Check Samples at Gate

Material	Minimum Sampling Frequency*	Analytical Requirement
Filling (Exemptions)	1per1000 m^3	**Contamination**- heavy metals, PAH, TRH, BTEX, phenol, PCB, OCP/OPPs, and asbestos **Salinity**– EC, pH, Chloride and sulphate
Natural (VENM)	1per5000 m^3	**Contamination**- heavy metals, PAH, TRH, BTEX, phenol, PCB, OCP/OPPs, and asbestos **Salinity**– EC, pH, Chloride and sulphate

Gate check samples were analysed for contamination assessment, salinity, aggressivity and asbestos to determine if the materials meet the minimum 'acceptance' requirements as per the GHCP FMP. Further information regarding the assessment criteria used to determine whether soils were provided approval for imported is detailed in 'Section 4 – Desktop Review and Gate Check Assessment Criteria'.

3.1 Equipment Decontamination

ADE's standard decontamination procedures were undertaken before collecting each of the samples to avoid the possibility of cross-contamination. The soil sampling equipment and items likely to come into contact with soil samples were thoroughly washed, followed by rinsing with phosphate-free detergent and deionised water before the collection of samples. Due care was taken with the disposal of any washings and residues from such cleaning operations.

3.2 Documentation

A field observation log was kept by sampling personnel. Details recorded in the log included:

- Sample number; soil profile notes; sampling method; sample identification; sample description; and sample point measurements.

A comprehensive master sample register was maintained. As samples were received, they were given a unique sequential number from the sample register into which details from the labels were entered. Before packing and dispatch of samples for analysis, a Chain of Custody form was completed. This form recorded details of the individual samples being dispatched and the type of analysis required for each sample.

3.3 Sampling

Soils were collected using a clean hand trowel. Field activities were conducted by an experienced environmental scientist. The samples were placed in sterile glass jars with Teflon lined lids.

Each sample jar was well protected by packaging material. Ice packs were inserted in the cooler box to maintain the samples at a temperature below approximately 4^0C. The original Chain of Custody form was enclosed in the cooler box that was then sealed and dispatched to a NATA accredited analytical laboratory.

4 DESKTOP REVIEW AND GATE CHECK ASSESSMENT CRITERIA

4.1 Desktop Review

As per the GHCP FMP, the following requirements detailed below must be satisfied for the materials to be deemed suitable for import:

- "All imported soil/rock material must be verified to be either Virgin Excavated Natural Material (VENM) i.e. imported natural materials, Excavated Natural Materials (ENM) as defined under NSW EPA Waste Classification Guidelines2009 or materials classified under a specific exemption granted by the EPA. All source sites are subject to approval by Gregory Hills Corporate Park on a case by case basis."

- "For specific purposes other certified materials such as quarry run materials and gravels will be acceptable provided that the materials are accompanied with supporting certification documentation to demonstrate their source and suitability."

- "Recycled products (such as recycled concrete) are not considered suitable from a contamination risk standpoint as the quality of the materials can be difficult to guarantee."

- "All VENM material must be accompanied by a VENM validation report from a suitably qualified environmental consultant. The validation assessment should include appropriate levels of sample analyses to be conducted at the sampling density as specified in Table C1, Appendix C. As The NSW Environment Protection Authority (EPA) has no specific VENM assessment criteria, VENM material should be reviewed on the basis of the source site history, "observation" and property of the material, and with reference to relevant guidelines/thresholds viz. the published Australian Background Soil Levels (NEPMSchedule B(1) and/or ANZECC 1992 (see extract in Table B3, Appendix B) and, with respect to organic analytes, their analytical practical quantitation limits."

- "All ENM material must be verified in accordance with the sampling methodology and density specified in the *Protection of the Environment Operations (Waste) Regulation* 2005 - General Exemption Under Part6, Clause51 and 51A for Excavated Natural Materials. The requirements are summarized in Table C1, Appendix C. In addition, the relevant "chemical and other attributes" in the ENM material must be verified to comply with the concentration threshold values specified in Table 2 of the General Exemption for Excavated Natural Material Exemption 2012. These concentrations are reproduced in Table B2, Appendix B, with the full ENM guidelines provided in Appendix F."

- "In addition to the above requirements, all materials must be validated to be suitable, from a site contamination standpoint, for use on commercial/industrial sites. In this regard, the material must meet the assessment criteria specified in the National Environmental Protection (Assessment of Site Contamination) Measure 1999, 2013 Revision, Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater, for Commercial/ Industrial Sites (HIL-D). For the top 0.5m of site soils in landscape areas, the material used should comprise of ENM and VENM soils only. An extract of guideline values for common contaminants is provided in Table B1, Appendix B."

- "With regard to the assessment testing, all laboratory analysis must be conducted by a laboratory that holds NATA accreditation for the test methods performed."

A summary of soil materials deemed suitable for import into GHCP as per the above conditions is provided in 'Appendix II – Summary of Imported Soil Materials". A copy of the GHCP FMP with further information regarding the requirements for import and reference to appendix items A-F is provided in 'Appendix V – Gregory Hills FMP' of this report.

4.2 Gate Check Contamination Assessment

In regards to the contamination assessment of gate check samples, ADE was directed by the client to determine if the samples collected were below site assessment criteria as outlined in the GHCP FMP, specifically 'Table B1 - Threshold Contaminant Values for Commercial / Industrial Land use'(refer to 'Appendix V – Gregory Hills FMP').

A summary table outlining the results of the gate check samples collected for material used to fill the aforementioned lots is provided in 'Appendix III – Gate Check Sample Results' and 'Appendix IV – Analytical Reports'

4.3 Gate Check Salinity and Aggressivity Assessment

The Site is in an area of known moderate salinity (with some areas classified as very saline), therefore source sites should have a classification of moderate salinity or better. The salinity testing and selection criteria are as follows:

- The gate check samples must be analysed for EC_e, pH, chlorides and sulphates in accordance with the sampling density specified in Table C4, Appendix C of the GHCP FMP;
- Imported materials should be moderately saline or better, based on ECe, the electrical conductivity of saturated pore water (Refer to TableB4, Appendix B of the FMP for salinity scale);
- A stockpile will be considered non-saline to slightly saline if at least 90% of the tested samples are non-saline to slightly saline;
- MaterialsshouldbenonaggressivebasedonthescalegiveninTableB5;and
- Materials of higher salinity and aggressivity may be accepted if they can be demonstrated to be consistent with the local background conditions at the Site or an area within the Site (Refer to DP *Report on Salinity Investigation and Management Plan, Proposed Subdivision, Lot701 in Deposited Plan 1154772, Gledswood Hills,* Project Number 76510.00 dated May 2012) or if appropriate salinity management procedures or appropriate engineering practices are in place to handle such materials. Such materials will only be accepted at the discretion of Gregory Hills Corporate Park and the environmental consultant.

5 NON-COMPLIANCES WITH GATE CHECK CRITERIA

A summary of all non-compliances found during the filling process is as follows:

January, 2015

8622-WAC1 (Lend Lease), pH 4.9 – Addressed as per ADE Letter dated 5th February by Karl Finnerty (Refer to Appendix VI – Associated Documents). A summary of the course of action is as follows:

- The gate check sample was taken which indicated a pH level (4.9) lower than the adopted criteria (>5.5);
- The material was blended with three other sources (ETTT Project (pH 9.4), Mainland Civil (pH 8), John Holland North Strathfield Rail Underpass Project (pH 8.4));
- A review of the original waste classification report produced by Cardno dated the 8th of September, 2014 (Reference No. GDRS0176.17) shows an average pH of 5.7 for 14 samples. Please refer to Appendix IV - Associated Documents;
- The material comes from an area of 'No known occurrence' of Acid Sulphate Soils as per the Australian Soil Resource Information System (ASRIS);
- The soil is from the Luddenham soils group as per the 'Soils Landscape of the Penrith 1:100 000 Sheet' and as such is expected to have moderately acidic pH (5.0) to slightly acidic (6.5);
- The minor exceedance is not considered to be significant and the pH has likely been neutralized by the slightly alkaline soils that it has been mixed with.

February, 2015

8695-WAC6 (Rahme), pH 4.0 – Addressed as per ADE Letter dated 26th February by Clifton Thompson (Refer to Appendix VI – Associated Documents). A summary of the course of action is as follows:

- The gate check sample was taken which indicated a pH level (4) lower than the adopted criteria (>5.5);
- A review of the original waste classification report (ADE Report 7887/WAC1/v1 final, dated the 1st of August, 2014) was undertaken in which it was stated that "Considering the topography, geology and soil profile of the site, it is considered the risk of encountering naturally occurring acid sulphate soils on site is negligible". Please refer to Appendix IV - Associated Documents.
- The material comes from an area of 'No known occurrence' of Acid Sulphate Soils as per the Australian Soil Resource Information System (ASRIS);
- A further five (5) pH samples were taken for validation after the material was blended with .
- Results of the validation samples had an average pH of 8.3
- The exceedance is not considered to be significant and the pH has been neutralized.

April, 2015

Asbestos fibre cement was identified within one (1) load from the John Holland North Strathfield Rail Underpass source site on the 13th of April, 2016. The following course of action was taken:

- The material entered the GHCP;
- The material was unloaded from the truck and dog;
- The material was inspected by an experienced ADE consultant trained in occupational hygiene;
- Asbestos containing fibre cement was identified within the material;
- The ADE consultant onsite determined that the entire load (11 m^3) had the potential to be contaminated by asbestos containing materials;
- The material was isolated overnight;
- The entire load (11 m^3) was reloaded into a truck and dog at approximately 9 am on the 14th of April, 2015;
- The removal process was supervised by an ADE consultant onsite to ensure no cross contamination occurred and all potentially asbestos containing materials were removed to a satisfactory standard;
- A thorough visual inspection of the subject area was undertaken;
- The truck and dog loaded with the asbestos containing material left the GHCP at 9.10 am on the 14th of April, 2015 as per the run sheet (Please refer to Appendix VI – Associated Documents);
- The material was returned to the source site (John Holland North Strathfield Rail Underpass);
- The material was then taken to the licensed landfill Genesis operated by Dial A Dump Industries, please refer to Appendix VI – Associated Documents for the tipping receipt.

6 CONCLUSIONS

Based on the data and evidence collected in the course of the sampling and validation process, it is the opinion of A.D. Envirotech Australia Pty Ltd that all samples have yielded results within the site assessment criteria as per the FMP, with the exception of the non-conformances which have been addressed.

As such, A. D. Envirotech Australia Pty Ltd believe that the importation of fill was compliant with the Gregory Hills Corporate Park Fill Management Plan.

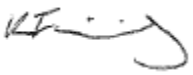
7 LIMITATIONS

This report has been prepared for the exclusive use of the client. ADE has used a degree of care and skill ordinarily exercised in similar investigations by reputable members of the environmental industry in Australia. No other warranty, expressed or implied, is made or intended. No one section or part of a section, of this report should be taken as giving an overall idea of this report. Each section must be read in conjunction with the whole of this report, including its appendixes and attachments.

Any other party should satisfy themselves that the scope of work conducted and report herein meets their specific needs. ADE cannot be held liable for third party reliance on this document, as ADE is not aware of the specific needs of the third party.

The subsurface environment can present substantial uncertainty due to it complex heterogeneity. The conclusions presented in this report are based on limited investigation of conditions at specific sampling locations chosen to be as representative as possible under the given circumstances. However, it is possible that this investigation may not have encountered all areas of contamination at the site due to the limited sampling and testing program undertaken.

ADE's professional opinions are based upon its professional judgement, experience, training and results from analytical data. In some cases further testing and analysis may be required, thus producing different results and/or opinions. ADE has limited its investigation to the scope agreed upon with its client.



Written by:
Karl Finnerty
B. Sci. (Geology)

APPENDIX I –REGISTER OF REVIEWS AND WASTE CLASSIFICATION REPORTS

Soil materials entering Gregory Hills Corporate Park Lot 832 and 833					
Date	No. of loads	Client	Source	Spoil type	Validation Report(s)
07-Nov-14	27.0	Rahme	Campbelltown	VENM	7887 WAC1 v1, 8147 WAC1 v1, 8147 WAC1 v2
10-Nov-14	40.0	Rahme	Campbelltown	VENM	7887 WAC1 v1, 8147 WAC1 v1, 8147 WAC1 v2
11-Nov-14	33.0	Rahme	Campbelltown	VENM	7887 WAC1 v1, 8147 WAC1 v1, 8147 WAC1 v2
11-Nov-14	14.0	Ace	Canterbury	ENM	8184 WAC1 v1
12-Nov-14	25.0	Rahme	Campbelltown	VENM	7887 WAC1 v1, 8147 WAC1 v1, 8147 WAC1 v2
12-Nov-14	1.0	Ace	Canterbury	ENM	8184 WAC1 v1
19-Jan-15	55.0	Lendlease	Jordan Springs	Exempt ENM	8788 MOR1 v1
19-Jan-15	3.0	Mulgoa	Epping	Exempt ENM	8171 WAC4 v1
22-Jan-15	58.0	Lendlease	Jordan Springs	Exempt ENM	8788 MOR1 v1
23-Jan-15	22.0	Mainland	Erskineville	ENM	8684 WAC1 v3, DL3336 MOR2 v1
23-Jan-15	13.0	JH NSRU	North Strathfield	Exempt ENM Clay	8698 WAC4 v1, 7159 SAL1 v1
11-Feb-15	38.5	Ace	Meadowbank	ENM	8638 WAC1 v2
12-Feb-15	26.0	Ace	Meadowbank	ENM	8638 WAC1 v2
12-Feb-15	4.0	Rahme	Campbelltown	VENM	7887 WAC1 v1, 8147 WAC1 v1, 8147 WAC1 v2
18-Feb-15	21.0	JH NSRU	North Strathfield	Exempt ENM Clay	8698 WAC4 v1, 7159 SAL1 v1
18-Feb-15	2.0	Rahme	Campbelltown	VENM	7887 WAC1 v1, 8147 WAC1 v1, 8147 WAC1 v2
24-Feb-15	28.0	Ace	Meadowbank	ENM	8638 WAC1 v2
02-Apr-15	12.0	Absolute	Wolli Creek	ENM	8937 MOR1 v1, 8936 SAL1 v1, 9057 SAL1 v1
13-Apr-15	12.0	JH NSRU	North Strathfield	Exempt ENM Clay	8514 WAC1 v1, 7159 SAL1 v1
15-Apr-15	29.0	Mulgoa	Epping	ENM	8190 WAC2 v1

Summary of Waste Classification Reports, Review and Approval for Importation to GHCP.

Review No.	Environmental Consultancy providing classification	Report Number	Report Date	ENM / VENM / Specific	Suburb	Location	Review / Memo Date	Memo. Report ID	Contam Pass / Fail	Salinity Pass / Fail	Approved	Volume (m^3)
Fill Suitability Review undertaken by Douglas Partners Pty Ltd												
1	Not provided	-	30.07.2012	VENM	Kemps Creek	Clifton Ave	27.09.2012	Not provided	Fail	Fail	No	2800 tonnes
2	Not provided	81659/3-1 SV	21.08.2012	VENM	Harrignton Grove	Oran Park Drive	27.09.2012	Not provided	Pass	Pass	Yes	4000 tonnes
3	Not provided	ES5150	21.08.2012	VENM	Five Dock	Spencer St	26.09.2012	Not provided	Fail	Fail	No	8000
4	Not provided	-	10.10.2012	VENM	Port Botany	Bumborah Point Road	16.10.2012	Not provided	Fail	Fail	No	3420 tonnes
5	Not provided	-	03.07.2012	ENM	Ryde	600 Victoria Rd	18.10.2012	Not provided	Fail	Fail	No	14000
6	Not provided	81808/1.1	18.10.2012	ENM	Guilford	West Parramatta to Guilford Transmission Zone	22.10.2012	Not provided	Fail	Fail	No	Not Provided
7	Not provided	-	25.09.2012	VENM	Villawood	Villwood Immigration Facility	03.10.2012	Not provided	Fail	Fail	No	10000
8	Not provided	E1689.1AF	24.10.2012	VENM	Bankstown	Chapel Rd	29.10.2012	Not provided	Pass	Pass	Yes	50000
9	Not provided	P6366.2 LO1	08.10.2012	VENM	Casula	Box Road	29.10.2012	Not provided	Fail	Fail	No	Not Provided
10	Not provided	-	24.10.2012	VENM	Villawood	Villawood Immigration Facility	26.10.2012	Not provided	Pass	Pass	Yes	10000
11	Not provided	-	13.09.2012	ENM	Homebush	Australia Ave, Sydney Olympic Park	04.11.2012	Not provided	Fail	Fail	No	4000 tonnes
12	Not provided	-	13.09.2012	ENM	Homebush	Australia Ave, Sydney Olympic Park	03.11.2012	Not provided	Fail	Fail	No	7200 tonnes
13	Not provided	GT1847	-	GT	Bankstown	Chaper Rd	05.11.2012	Not provided	-	-	-	-
14	Not provided	P6366.2 LO1a	05.11.2012	VENM	Casula	Box Road	16.11.2012	Not provided	Pass	Pass	Yes	2000
15	Not provided	-	14.10.2012	ENM	Blacktown	Blacktown Hospital	16.11.2012	Not provided	Pass	Pass	Yes	21000
16	Not provided	JBS 42438-5246	20.11.2012	VENM	Enfield	Punchbowl Road	04.12.2012	Not provided	Fail	Fail	No	16000
17	Not provided	RR-01_S000193	30.11.2012	ENM	Pyrmont	Cnr Pyrmont & Quarry Streets	04.12.2012	Not provided	Fail	Fail	No	450
18	Not provided	RR-02_S000194	30.11.2012	VENM	Pyrmont	Cnr Pyrmont & Quarry Streets	05.12.2012	Not provided	Fail	Pass	No	6500
19	Not provided	-	14.01.2010	ENM	Oran Park	Anglicare Site	06.12.2012	Not provided	Fail	Fail	No	8000 tonnes
20	Not provided	JBS 42438-5246 R1	05.12.2012	VENM	Enfield	Punchbowl Road	22.01.2013	Not provided	Fal	Fail	No	16000
21	Not provided	MEN1686 ENVAA	20.02.2013	VENM	Campbelltown	Macarthur Gardens	22.02.2013	Not provided	Pass	GHCP	Yes	36,000
22	Not provided	-	22.02.2013	ENM	Erskine Park	Intersection Mamre & Erskine Park Roads	27.02.2013	Not provided	Fail	Fail	No	-
23	Not provided	-	25.02.2013	ENM	Bankstown	1A Hixon Street	08.03.2013	Not provided	Fail	Fail	No	1800 tonnes
24	Not provided	E25779Klet3 & 4	15.02.2013	VENM	Carlingford	Pennant Hills Road	15.03.2013	Not provided	Fail	Fail	No	Not Provided
25	Not provided	E2587KLET	20.02.2013	VENM	Pendle Hill	123 Bungaree Road	15.03.2013	Not provided	Fail	Fail	No	Not Provided
26	Not provided	C4279-B25510FA	13.03.2013	ENM	Homebush	Sydney Olympic Park, Olympic Boulevarde	20.03.2013	Not provided	Fail	GHCP	No	12000
27	Not provided	C4279-B25510 FA	20.03.2013	ENM	Homebush	Sydney Olympic Park, Olympic Boulevarde	20.03.2013	Not provided	Pass	GHCP	Yes	4000
28	Not provided	-	27.09.2012	ENM	North Ryde	Stockpile 1, M2 Compound, Wicks Road	04.04.2013	Not provided	Fail	Fail	No	4000 tonnes
29	Not provided	12731-1AB	20.09.2012	VENM	Smeaton Grange	Camden Valley Way	22.03.2013	Not provided	Fail	Fail	No	2500
30	Not provided	GEOTLCOV23498AG-ES	9.102012	VENM	North Ryde	Cutting W-3002, M2Upgrade	04.04.2013	Not provided	Fail	GHCP	No	7000
31	Not provided	JT09553H-r1	12.03.2013	VENM	Plumpton	Jersey Road	15.04.2013	Not provided	Pass	Fail	No	10000
32	Not provided	ES5424	15.04.2013	ENM	Arncliffe	54 Bonar Street	18.04.2013	Not provided	Fail	GHCP	No	2000
33	Not provided	5820 WAC1	04.03.2013	SFL	Casula	Shepherd Street	16.05.2013	Not provided	Pass	Pass	Yes	3600
34	Not provided	G09/812-B	12.11.2012	ENM	West Hoxton	Proposed Sewerage Scheme	23.05.2013	Not provided	Fail	Fail	No	8000
35	Not provided	-	21.05.2013	ENM	Kemps Creek	Clifton Ave	23.05.2013	Not provided	Fail	Fail	No	2000 tonnes
36	Not provided	ES5474	-	VENM	Campbelltown	Santana Avenue	30.05.2013	Not provided	Pass	Pass	Yes	5000
37	Not provided	G09/823	Jan-13	ENM	Bargo	Bargo	31.05.2013	Not provided	Pass	Pass	Yes	6000 tonnes
38	Not provided	G09/824Br	Jan-13	ENM	Buxton	Buxton	30.05.2013	Not provided	Pass	Pass	Yes	3000 tonnes
39	Not provided	5820/WAC1 & 6171/ENM	12.06.2013	ENM	Casula	Lot 10	13.06.2013	Not provided	Pass	Pass	Yes	3600 tonnes
40	Not provided	5820/WAC1 & 6171/ENM	12.06.2013	ENM	Casula	Lot 11	13.06.2013	Not provided	Pass	Pass	Yes	2,400 tonnes
41	Not provided	GEOTLCOV20876CE-Al	08.04.2013	ENM	Eastwood	Midson Rd	17.06.2013	Not provided	Pass	Fail	No	4,000 tonnes
42	Not provided	GT1846-VENM01 Rev 1	24.05.2013	VENM	Catherine Fields	Site cut between Deepfields Rd and Catherine Fields Rd	24.06.2013	Not provided	Fail	Fail	No	5,000
43	Not provided	GT1846-VENM02	24.05.2013	VENM	Catherine Fields	Site cuts North St and Andrews Rd	24.06.2013	Not provided	Fail	GHCP	No	5000
44	Not provided	E1859.1. AB	19.06.2013	ENM	Blacktown	Blacktown Hospital Batch 2	21.06.2013	Not provided	Fail	Fail	No	15,000
45	Not provided	ES5475	20.05.2013	VENM	Liverpool	41-43 Lachlan St, Liverpool	05.07.2013	Not provided	Fail	Fail	No	5000
46	Not provided	G09/812B	12.11.2012	Specific	West Hoxton	West Hoxton	05.07.2013	Not provided	Fail	Pass	No	6,500
47	Not provided	G09/812B	12.11.2012	Specific	West Hoxton	West Hoxton	07.05.2013	Not provided	Pass	GHCP	Yes	4,000
48	Not provided	387520-S	09.05.2013	Salinity	Chullora	Chullora Ballast Recycling Centre Salinity	11.07.2013	Not provided	-	Pending textures	No	20,000

Review No.	Environmental Consultancy providing classification	Report Number	Report Date	ENM / VENM / Specific	Suburb	Location	Review / Memo Date	Memo. Report ID	Contam Pass / Fail	Salinity Pass / Fail	Approved	Volume (m^3)
49	Not provided	26259	09.05.2013	VENM	Liverpool	Liverpol Catholic Club	18.07.2013	Not provided	Pass	Pass	Yes	2,000
50	Not provided	MAI1772 ENV AS 290 R1	23.07.2013	ENM	Erskenville	36/1A Coulson St	24.07.2013	Not provided	Pass	Pass	Yes	11,850
51	Not provided	PCA3655-2013 VENMCLASSLET01-REV2	29.07.2013	VENM	Revesby	Revesby Workers Club	31.07.2013	Not provided	Pass	Pass	Yes	1,250
52	Not provided	PCA3655-2013 VENMCLASSLET01-REV2	29.07.2013	VENM	Revesby	Revesby Workers Club	02.08.2103	Not provided	Pass	Pass	Yes	8,400
53	Not provided	420420	18.06.2013	Ballast	Chullora	Chullora Ballast Recycling Centre Event 50	02.08.2013	Not provided	Pass	Fail	No	11,368
54	Not provided	71541.07	08.07.2013	VENM	Ashfield	23 Charlotte St, Ashfield	02.08.2013	Not provided	Fail	Pass	No	5,000
55	Not provided	S000792_RR-02	02.08.2013	VENM	Campsie	60 Charlotte St Campsie	07.08.2013	Not provided	Fail	Fail	No	25,000
56	Not provided	610.11614.00000	09.08.2013	Specific (Salinity)	Blacktown	Blacktown Hospital	12.08.2013	Not provided	-	Pass	Yes	40,000 tonnes
		610.11614.00102	08.09.2013	Specific (Contamination)	Blacktown	Blacktown Hospital	12.08.2013		Pass	-		
57	Not provided	6771/1	30.05.2013	VENM	Eastern Creek	Old Wallgrove Rd, Eastern Creek NSW	13.08.2013	Not provided	Fail	Fail	No	NP
58	Not provided	6771/1	15.05.2013	VENM	Eastern Creek	Infratructure Upgrade Old Wallgrove Rd, Eastern Creek NSW	14.08.2013	Not provided	Fail	Fail	No	NP
59	Not provided	6837/1	14.08.2013	VENM	Elderslie	Herbert Creek Carrier Section 2	16.08.2013	Not provided	Fail	Pass	No	1,000 tonnes
60	Not provided	CT1846-VENM01 Rev2	15.07.2013	VENM	Catherine Fields	Site cut between Deepfields Rd and Catherine Fields Rd	19.08.2013	Not provided	Fail	Fail	No	8,000
61	Not provided	420420	07.08.2013	Ballast	Chullora	Chullora Ballast Recycling Centre Event 53	20.08.2013	Not provided	Pass	Fail	No	4,468
62	Not provided	CT1846-VENM01 Rev3	19.08.2013	VENM	Catherine Fields	Site cut between Deepfields Rd and Catherine Fields Rd	23.08.2013	Not provided	Pass	Pass	Yes	8,000
63	Not provided	688v1-1	14.08.2013	VENM	Elderslie	Herbert Creek Carrier Section 2	04.09.2013	Not provided	Pass	Pass	Yes	1,000
64	Not provided	ENV AC 315	28.08.2013	ENM	Ryde	600 Victoria Rd	05.09.2013	Not provided	Pass	Pass	Yes	4,000 tonnes
65	Not provided	420420	19.08.2013	Ballast	Chullora	Chullora Ballast Recycling Centre Event 55	06.09.013	Not provided	Pass	Fail	No	6,576
66	Not provided	SE-04-S000905	09.09.2013	ENM	Wolli Creek	Stockpiled Material, Stage 7 & 8, Discvery Point, Wolli Creek	10.09.2013	Not provided	Fail	Fail	No	8,000 tonnes
67	Not provided	ES5576	09.08.2013	VENM	Willoughby	Mowbray Place	10.09.2013	Not provided	Fail	Fail	No	NP
68	Not provided	GT1846-VENM02	24.05.2013	VENM	Catherine Fields	Site cuts North St and Andrews Rd	20.09.2013	Not provided	Fail	Fail	No	NP
69	Not provided	GT1846-VENM07	20.09.2013	VENM	Catherine Fields	Chainage 9920 - 10250 Camden Valley Way	23.09.2013	Not provided	Pass	GCHP	Yes	8,000
70	Not provided	420420	13.09.2013	Ballast	Chullora	Chullora Ballast Recycling Centre Event 57	26.09.2013	Not provided	Pass	Fail	No	9106.04 tonnes
71	Not provided	E1972 AD	14.10.2013	VENM	Yagoona	203 Auburn Rd, Yagoona NSW	16.10.2013	Not provided	Pass	Pass	Yes	5,000
72	Not provided	72597.04	18.01.2013	VENM	Wetherill Park	Stockland Shopping Centre Redevelopment, Wetherill Park	18.10.2013	Not provided	Fail	Fail	No	NP
73	Not provided	72597.04	18.01.2013	VENM	Wetherill Park	Stockland Shopping Centre Redevelopment, Wetherill Park	22.10.2013	Not provided	Pass	Fail	No	NP
74	Not provided	GT1846-VENM02	10.10.2013	VENM	Leppington	North of St Andrews Rd, Leppington NSW	14.10.2013	Not provided	Pass	GCHP	Yes	5000
75	Not provided	43218385	25.10.2013	VENM	Redfern	243-245 Wilson St, North Everleigh, Redfern NSW	04.11.2013	Not provided	Pass	Fail	No	NP
76	Not provided	E26907Klet,	02.10.2013	VENM	Darlington	Corner Abercrombie and Codrington Streets, Darlington NSW	17.10.2013	Not provided	Fail	Fail	No	NP
77	Not provided	GT1846-VENM 02 Rev3	22.10.2013	VENM	Leppington	Site cuts North St and Andrews Rd (TRF No: CVW1-S1-VENM-01)	04.11.2013	Not provided	Pass	GCHP	Yes	10,000
78	Not provided	GT1846-VENM04	04.09.2013	VENM	Catherine Fields	Northbound Site cuts between Chainage 9240 m and Chainage 9400 m, Catherine Fields NSW	07.11.2013	Not provided	Pass	GHCP	Yes	3,500
Fill Suitability Review undertaken by A.D. Envirotech Pty Ltd												
80	Ground Technologies	GT1846-VENM10	01.12.2013	VENM	Leppington	Camden Valley Way, Northbound Site Cuts between Chainage 3420m and Chaniage 5190m	04.12.2013	6959 Review of Imported Materials GHCP.Ground Technologies.v1 final	Fail	Fail	No	27,000
81	Network Geotechnics	Ref – G09-1218-A-ENM	17.12.2013	ENM	Wilton	Stockpile 'Wilton 1', within the PSP Alliance Wilton compound	13.01.2014	7055 Review of Imported Materials GHCP.Network Geotechnics.v1 final	Fail	Fail	No	1,000
82	Network Geotechnics	GT1846-VENM09	06.11.2013	VENM	Hoxton Park	Southbound embankment at retaining wall RW13	15.01.2014	7055 Review of Imported Materials GHCP.Network Geotechnics.v1 final	Pass	Fail	No	3,000
83	Alliance Geotechnical	4602/ER-1-1	21.01.2014	ENM	Homebush	Proposed Roadway Development, Murray Rose Avenue, Sydney Olympic Park	30.01.2014	7055 GHCP Suitability Review. Alliance Geotechnical (4602ER-1-1).v1 final	Fail	Fail	No	5,000
84	A.D. Envirotech	6906/WAC1/v1 final	12.12.2013	ENM	Potts Hill	Lot A', Corner of Rowe Dr and Brunker Rd, Potts Hill NSW	12.12.2013	6906 'Lot A' Corner of Brunker Rd and Rowe Dr, Potts Hill .WAC1 v1 final	Pass	Pass	Yes	3,000
85	A.D. Envirotech	6941/WAC1/v1 final	20.12.2013	VENM	Revesby	2B Brett St,. Revesby NSW	20.02.2014	7155 Review of Imported Materials GHCP.ACE Revesby.v1 final	Pass	Pass	Yes	23,000
86	A.D. Envirotech	7088/WAC1/v1 final	16.01.2014	VENM	Campbelltown	25 Mount Erin Road, Campbelltown	20.02.2014	7155 Review of Imported Materials GHCP.TerraCivil Campbelltown.v2 final	Pass	NP	Yes	1,500

Review No.	Environmental Consultancy providing classification	Report Number	Report Date	ENM / VENM / Specific	Suburb	Location	Review / Memo Date	Memo. Report ID	Contam Pass / Fail	Salinity Pass / Fail	Approved	Volume (m^3)
87	Network Geotechnics	G09-1218-A-ENM & 7096/SAL1	17.12.2013 & 16.01.2014	ENM	Wilton	Stockpile 'Wilton 1', within the PSP Alliance Wilton compound	20.02.2014	7155 Review of Imported Materials GHCP.PSP Wilton.v1 final	Pass	Pass	Yes	1,000
88	A.D. Envirotech	6968-CMT1	06.02.2014	ENM	Weatherill Park	Polding St, Weatherill Park	21.02.2014	7155 Review of Imported Materials GHCP.Mainland Civil, Wetherill Park.v1 final	Pass	Pass	Yes	2,500
89	A.D. Envirotech	6906.WAC1 / 7015.WAC1 / 7015.WAC2 / 7105.WAC1 / 7136.WAC1	12.12.2013 – 19.02.2014.	ENM	Potts Hill	Lot A, B, C, D and E, Corner of Rowe Dr and Brunker Rd, Potts Hill NSW	21.02.2014	7155 Review of Imported Materials GHCP.Chalouhi Potts Hill.v1 final	Pass	Pass	Yes	20,500
90	A.D. Envirotech	6902/WAC1/v1 final	05.02.2014	ENM	North Ryde	'TIDC Compound', Wicks Rd, North Ryde NSW	21.02.2014	7155 Review of Imported Materials GHCP.M2 Vimiera.v1 final	Pass	Pass	Yes	960
91	Alliance Geotechnical	8212-ER-1-2	21.01.2014	ENM	Auburn	Al-Faisal College; 143 Auburn Road - Auburn	26.02.2014	7155 GHCP Suitability Review. Alliance Geotechnical, 143 Auburn Rd, Auburn NSW.v1 final	Fail	Fail	No	NP
92	Douglas Partners	73315.01-A	13.02.2014	ENM	Castle Hill	Castle Hill Station, Old Northern Rd, Castle Hill NSW	12.03.2014	7245 GHCP FSR - DP. Castle Hill NSW.v1 final	Pass	Fail	No	1,200
93	A.D. Envirotech	7159/WAC2/v2 final	09.04.2014	Specific	North Strathfield	Southern Dive - Gate 1, North Strathfield NSW	09.04.2014	7155 Review of Imported Materials NSRU.v1 final	Pass	Pass	Yes	2,750
94	A.D. Envirotech	7266/WAC1/v1 final	26.03.2014	ENM	Auburn	143 Auburn Rd, Aubrun	26.03.2014	7155 Review of Imported Materials GHCP.Chalton, Auburn.v1 final	Pass	Pass	Yes	2,400
95	A.D. Envirotech	7134/WAC2/v1 final	24.02.2014	Specific	Concord West	Eastern side of rail corridor, CH14+850-CH15+070, Concord West NSW	24.02.2014	n/a	Pass	Pass	Yes	1,000
96	A.D. Envirotech	7279/WAC5/v1 final	18.03.2014	Specific	Concord West	Stockpile 108, Harrison Avenue Compound, Concord West NSW`	18.03.2014	n/a	Pass	Pass	Yes	400
97	A.D. Envirotech	7344/WAC1/v1 final, 7344/WAC2/v1 final and 7344/WAC4/v1 final	07.04.2014	Specific	Lilyfield	Lilyfield Tie-In Stockpile Yard, Stockpile 2, 4 and 5	07.04.2014	n/a	Pass	Pass	Yes	3,600
98	A.D. Envirotech	7360/WAC4/v1 final	14.04.2014	Specific	Concord West	Stockpile 115, Harrison Avenue Compound, Concord West NSW`	14.04.2014	n/a	Pass	Pass	Yes	300
99	A.D. Envirotech	7410/WAC1/v1 final	05.05.2014	Specific	Cheltenham	Stockpile on downside between CH24+500-575	05.05.2014	n/a	Pass	Pass	Yes	2,500
100	A.D. Envirotech	7470/WAC1/v1 final	12.05.2014	Specific	Macquarie Park	Wicks Rd Stockpile Area, North Pennant Hills stockpile	12.05.2014	n/a	Pass	Pass	Yes	140
101	A.D. Envirotech	7537/WAC1/v2 final	27.05.2014	Specific	Cheltenham	Rail corridor, adjacent Gate E4, down side of track adjacent stanchion H24+500, subject stockpile	27.05.2014	n/a	Pass	Pass	Yes	1,500
102	A.D. Envirotech	7523/WAC1/v2 final	27.06.2014	Specific	North Ryde	Wicks Rd stockpile area, Area 2 stockpile	27.06.2014	n/a	Pass	Pass	Yes	650
103	A.D. Envirotech	7541/WAC1/v1 final	02.06.2014	Specific	North Strathfield	Stockpile 116. adjacent to north-eastern boundary of the Railway Lane compound	02.06.2014	n/a	Pass	Pass	Yes	250
104	A.D. Envirotech	7697/WAC2/v1 final	18.06.2014	Specific	Concord West	Eastern side of rail corridor adjacent to Concord West Station, CH14+500-CH14+600, upper fill material, soil surface to 1.1 m below ground level (BGL)	18.06.2014	n/a	Pass	Pass	Yes	1,030
105	A.D. Envirotech	7749/WAC1/v1 final	01.07.2014	Specific	North Ryde	Wicks road compound, 'Cheltenham Stockpile'	01.07.2014	n/a	Pass	Pass	Yes	500
106	A.D. Envirotech	7814/WAC1/v1 final	15.07.2014	Specific	North Ryde	Wicks Road compound, 'Beecroft Stockpile'	15.07.2014	n/a	Pass	Pass	Yes	1,000
107	Aargus	VENM-ES5918	14.07.2014	VENM	Campbelltown	Lot 612 DP141214, Cnr Regents Street & Santana Road, Campbelltown NSW	21.07.2014	ES5918 / MOR / v1 final	Fail	Fail	No	2,000
108	A.D. Envirotech	7875/WAC2/v1 final	30.07.2014	Specific	North Strathfield	Stockpile 118, eastern side of the rail corridor, from approximately CH13+030 - OHWS13+098 off Gate 6	30.07.2014	n/a	Pass	Pass	Yes	2,500
109	Benviron Group	E210	25.07.2014	VENM	Ingleburn	31-35 Cumberland Rd, Ingleburn NSW	06.08.2014	7918 / MOR1 / v1 final	Pass	Pass	Yes	14,000
110	Geo-Environmental Engineering	E13006MIR-R01F	20.05.2013	VENM	Miranda	108 Parraweena Rd, Miranda	11.08.2014	7918 / MOR2 / v1 final	Fail	Fail	No	NP
111	A.D. Envirotech	6663-A2/WAC2/v2 final	22.10.2013	VENM	Epping	Down main cess, from edge of embankment to approximately 10 m towards rail corridor fence, between chainage CH24+510 to CH24+900, bedrock (sandstone) and associated yellow sandy residual soils (virgin materials)	12.08.2014	n/a	Pass	-	Yes	12,310
112	A.D. Envirotech	6663-A4/WAC2/v2 final	22.10.2013	VENM	Epping	Down main cess, from edge of embankment to approximately 10 m towards rail corridor fence, between chainage CH25+515 to CH25+690, bedrock (sandstone) and associated yellow sandy residual soils (virgin materials)	12.08.2014	n/a	Pass	-	Yes	17,280
113	A.D. Envirotech	7859/WAC1/v1 final	06.08.2014	VENM	Liverpool	69 Elizabeth St, soil materials from approximately 0.0 - 5.6 m below ground level	06.08.2014	n/a	Pass	Pass	Yes	12,000
114	A.D. Envirotech	7902/WAC2/v1 final	06.08.2014	Specific	North Strathfield	Stockpile 120, eastern side of the rail corridor, from approximately CH13+100-CH13+145, off Gate 6	06.08.2014	n/a	Pass	Pass	Yes	1,500

Review No.	Environmental Consultancy providing classification	Report Number	Report Date	ENM / VENM / Specific	Suburb	Location	Review / Memo Date	Memo. Report ID	Contam Pass / Fail	Salinity Pass / Fail	Approved	Volume (m^3)
115	A.D. Envirotech	7934/WAC1/v1 final	07.08.2014	Specific	North Strathfield	Stockpile 122, eastern side of the rail corridor, from approximately CH12+065-CH13+034, off Gate 4	07.08.2015	n/a	Pass	Pass	Yes	2,000
116	A.D. Envirotech	7991/WAC1/v1 final	20.08.2014	ENM	Miranda	108 Parraweena Rd, Miranda, in situ soil materials 0.0-1.0 m BGL	20.08.2014	n/a	Pass	Pass	Yes	1,680
117	A.D. Envirotech	7829/WAC2/v1 final	02.10.2014	Specific	Eastern Creek	Stockpile '3973-2' (Olympic Park)	02.10.2014	n/a	Pass	Pass	Yes	1,000
118	A.D. Envirotech	7829/WAC3/v1 final	02.10.2015	Specific	Eastern Creek	Stockpile '4988-3' (Holsworthy)	02.10.2015	n/a	Pass	Pass	Yes	1,000
119	A.D. Envirotech	7829/WAC1/v1 final	09.09.2014	Specific	Eastern Creek	Stockpile '5016-1' (Westmead)	09.09.2014	n/a	Pass	Pass	Yes	1,200
120	A.D. Envirotech	8147/WAC1/v1 final	03.10.2014	ENM	Campbeltown	Lot 612, Cnr Regents Street & Santana Road, Campbelltown NSW	03.10.2014	n/a	Pass	Pass	Yes	7,850
121	CSTS	BAY2149 ENV AA	13.10.2014	ENM	Breakfast Point	Peninsula Drive, Breakfast Point NSW	21.10.2014	BAY 2149 ENV AA / MOR1	Pass	Fail	No	NP
122	A.D. Envirotech	8184 / WAC1 / v1 final	03.10.2014	ENM	Cantebury	2a Charles St, Cantebury NSW	03.10.2014	n/a	Pass	Pass	Yes	1,300
123	A.D. Envirotech	8077 / WAC1 / v1 final	26.09.2014	Specific	North Ryde	Wicks road compound, adjacent to Gate 2 entrance, stockpiled material	26.09.2014	n/a	Pass	Pass	Yes	480
124	A.D. Envirotech	8107 / WAC1 / v2 final	01.10.2014	Specific	Cheltenham	Retaining wall 9 - in situ soil materials, Cheltenham NSW	01.10.2014	n/a	Pass	Pass	Yes	1000
125	A.D. Envirotech	8171 / WAC2 / v1 draft	02.10.2014	Specific	North Ryde	Cheltenham Stockpile (SP-2), Wicks Road compound	02.10.2014	n/a	Pass	Pass	Yes	150
126	A.D. Envirotech	8171 / WAC3 / v1 final	16.10.2016	Specific	North Ryde	Pennant Hills Stockpile (SP-3), Wicks Road compound	16.10.2014	n/a	Pass	Pass	Yes	250
127	A.D. Envirotech	8171 / WAC4 / v1 final	02.10.2016	Specific	North Ryde	Beecroft Stockpile (SP-4), Wicks Road compound	02.10.2014	n/a	Pass	Pass	Yes	200
128	A.D. Envirotech	8003 / WAC1 / v1 final	22.08.2014	Specific	North Strathfield	Eastern side of rail corridor off Gate 8B, stockpiled soil materials from tunnelling works	22.08.2014	n/a	Pass	Pass	Yes	27,800 tonnes
129	A.D. Envirotech	8130 / WAC1 / v1 final	23.09.2014	Specific	North Strathfield	George's Lane compound, stockpile 123	23.09.2014	n/a	Pass	Pass	Yes	1,200
130	A.D. Envirotech	8130 / WAC3 / v1 final	24.09.2014	Specific	North Strathfield	Rail corridor south of Gate 4, stockpile 125 H12+717 - H12+836	24.09.2014	n/a	Pass	Pass	Yes	1,700
131	A.D. Envirotech	8269 / WAC1 / v1 final	22.10.2014	Specific	North Strathfield	Stockpile 127, Harrison Ave compound, adjacent western perimeter fence	22.10.2014	n/a	Pass	Pass	Yes	250
132	A.D. Envirotech	8269 / WAC2 / v1 final	22.10.2014	Specific	North Strathfield	Stockpile 128, Harrison Ave compound, adjacent eastern perimeter fence	22.10.2014	n/a	Pass	Pass	Yes	750
133	A.D. Envirotech	8341 / WAC1 / v2 draft	14.11.2014	Specific	Epping	Gate N1, Beecroft Rd, Epping, Batter between CH24+138 and CH24+296	14.11.2014	n/a	Pass	Pass	Yes	1,985
134	A.D. Envirotech	8336 / WAC1 / v1 draft	14.11.2014	Specific	Beecroft	Beecroft Station, south of pedestrian underpass, stokcpile	14.11.2014	n/a	Pass	Pass	Yes	500
135	A.D. Envirotech	8345 / WAC1 / v1 final	04.11.2014	Specific	North Strathfield	NSRU compound off Railway Lane, stockpile located in western sector of compound	04.11.2014	n/a	Pass	Pass	Yes	500
136	A.D. Envirotech	8542 / WAC1 / v1 final	17.12.2014	Specific	Rhodes	Subject stockpile located within Gate 18 compound, southern sector of compound	17.12.2014	n/a	Pass	Pass	Yes	100
137	DLA Environmental	Resource Recovery Characterisation – S002440	07.01.2015	ENM	Erskineville	Stockpiled Material, Stage 7 & 8, Discvery Point, Wolli Creek	12.01.2015	Memorandum of Review - DLA Environmental ENM - S002440.MOR1 v1 final	Fail	Fail	No	
138	DLA Environmental	8684 / MOR2 / v1 final	07.01.2015	ENM	Erskinville	Eve Apartments Development	19.01.2015	8684 / MOR2 / v1 final	Pass	Pass	Yes	2500
139	A.D. Envirotech	7079 / MOR3 / v1 final	20.01.2014	VENM	North Strathfield	Queen Street, Gate 8	06.02.2015	7079 / MOR3 / v1 final	Pass	Pass	Yes	4,000
140	A.D. Envirotech	8647 / WAC1 / v1 final	02.02.2015	Specific	North Strathfield	Stockpile Material, Gate 4, Queen Street, North Strathfield	02.02.2015	n/a	Pass	Pass	Yes	25
141	A.D. Envirotech	8647 / WAC2 / v1 final	02.02.2015	Specific	North Strathfield	Stockpile Material, Gate 4, Queen Street, North Strathfield	02.02.2015	n/a	Pass	Pass	Yes	25
142	A.D. Envirotech	8638 / WAC1 / v2 final	04.02.2015	ENM	Meadowbank	Opposite 146 Bowden Street, worksite, soil materials 0.2 - 1.0 m bgl	04.02.15	n/a	Pass	Pass	Yes	5000
144	A.D. Envirotech	8684 / WAC1 / v2 final	13.02.2015	ENM	Erskinville	Eve Apartments Development	19.01.2015	n/a	Pass	Pass	Yes	1000
146	A.D. Envirotech	8752 / WAC1 / v1 final	27.02.2015	Specific	North Strathfield	Gate 18 - Harrison Ave, North Strathfield	27.02.2105	n/a	Pass	Pass	Yes	120
147	A.D. Envirotech	8698 / WAC4 / v1 final	16.02.2015	Specific	North Strathfield	Gate 2 - 4 Queen Street, North Strathfield	16.02.2015	n/a	Pass	Pass	Yes	870
148	Geotechnique	13163/1-AA	28.03.2014	ENM	Kemps Creek	Stockpile 11, Liverpool City Council Depot	04.02.2015	8695 / MOR1 / v1 final	Fail	Fail	No	2595
149	Geotechnique	13296/3-AA	17.11.2014	ENM	Kemps Creek	Stockpile 6, Liverpool City Council Depot	04.02.2015	8695 / MOR2 / v2 final	Fail	Fail	No	1920
150	Geotechnique	13296/3-AB	17.11.2014	ENM	Kemps Creek	Stockpile 7, Liverpool City Council Depot	04.02.2015	8695 / MOR3 / v1 final	Fail	Fail	No	3300
151	Douglas Partners	76606.02	19.11.2014	ENM	Campbelltown	Proposed Macarthur Square Expansion	12.02.2015	8695 / MOR4 / v1 final	Pass	Pass	Yes	TBA
152	Land and Groundwater Consulting	LG1418.01	06.02.2014	ENM	Wentworth Point	41-45 Hills Road, Wentworth Point	12.02.2015	8695 / MOR5 / v1 final	Fail	Fail	No	5000
153	Compaction and Soil Testing Services	ROU-Wk13 and ROU-Wk23	18.12.2014	Specific	Penrith	126 Andrews Road, Penrith	13.02.2015	8695 / MOR6 / v1 final	Pass	Fail	No	TBA
154	SLR Consulting Australia	610.14873 L01 20150127	27.01.2015	VENM	Cameray	2 Vale Street, Cameray	20.02.2015	8695 / MOR7 / v1 final	Fail	Fail	No	TBA
155	S&N Environmental Engineers and Contractors	Project No. 1.02	24.11.2014	VENM	Granville	2-8 East Street, Granville	20.02.2015	8695 / MOR8 / v1 final	Pass	Fail	No	30000

Review No.	Environmental Consultancy providing classification	Report Number	Report Date	ENM / VENM / Specific	Suburb	Location	Review / Memo Date	Memo. Report ID	Contam Pass / Fail	Salinity Pass / Fail	Approved	Volume (m^3)
156	Geotest Services	7657-1, 7657-1b	07.01.2015	VENM	Denham Court	Zouch Road, Denham Court		8695 / MOR9 / v1 final				
157	DLA Environmental	S002624	24.02.2015	ENM	Woolooware	461 Captain Cook Drive, Woolooware	25.02.2015	8695 / MOR10 / v1 final	Pass	Fail	No	2500
158	Trace Environmental	Project No. 1.04	24.02.2015	VENM	Canterbury	5 Charles Street, Canterbury	25.02.2015	8695 / MOR11 / v1 final	Fail	Fail	No	25000
159	Geotest Services	7657/1, 7657/1b, 7657/2, 7657/2b, 7657/3, 7657/3b	11.02.2015 & 13.02.2015	VENM	Denham Court	Zouch Road, Denham Court	26.02.2015	8695 / MOR12 / v1 final	Fail	Fail	No	3000
160	Compaction and Soil Testing Services	ROU-Wk1A, ROU-Wk13 and ROU-Wk23),	23.07.2014 & 18.12.2014	Specific	Penrith	126 Andrews Road, Penrith	27.02.2015	8695 / MOR13 / v1 final	Pass	Pass	Yes	10000
161	DLA Environmental	DL 3336	15.01.2015	ENM	Erskineville	1A Coulson Street, Erskineville	19.01.2015	8622 / MOR2 / v1 final	Pass	Pass	Yes	2500
162	A.D. Envirotech	7079/WAC3/v1 final	20.01.2014	VENM	Strathfield	Gate 8, Queen Street, North Strathfield	06.02.2015	8622 / MOR3 / v1 final	Pass	Pass	Yes	4000
163	Geotechnique	13136/1-AA	28.03.2014	ENM	Kemps Creek	Liverpool City Council Western Depot, Devonshire Road, Kemps Creek	04.03.2015	8784 / MOR1 / v1 final	Pass	?	?	2595
164	Alliance Geotechnical	1753/ER-1-1	05.03.2015	VENM	Harris Park	Good Street, Harris Park	09.03.2015	8784 / MOR2 / v1 final	Fail	Fail	No	TBA
165	DLA Environmental	RR03a	27.03.2015	ENM	Wolli Creek	Discovery Point, Wolli Creek	30.03.2015	8784 / MOR3 / v1 final	Fail	Fail	No	1170
166	DLA Environmental	DL3444 / RR03	27.03.2015	ENM	Wolli Creek	Discovery Point, Wolli Creek	08.04.2015	8937 / MOR1 /v1 final	Pass	Pass	Yes	1170
167	A.D. Envirotech	8922 / WAC2 /v1 final	09.04.2015	Specific	North Strathfield	Gate 1 - Railway Lane, North Strathfield	09.04.2015	n/a	Pass	Pass	Yes	200
168	Enviromental Investigations Aust	E22430	23.02.2015	ENM	Parramatta	Buildings A, B, C, Lot 306 in DP1175644	24.04.2015	8937 / MOR3 / v1 final	Pass	Fail	No	9500

APPENDIX II – SUMMARY OF IMPORTED MATERIAL

Register of Material Entering Lot 832 and 833 as per ADE Daily Site Observation Record Sheets				
Date	ADE Job Number	Source	Gate Check Sample No.	Comments
7.11.14	8361	Rahme -VENM - Campbelltown	8361-WAC2	
10.11.14	8361	Rahme -VENM - Campbelltown	8361-WAC2	
11.11.14	8361	Rahme -VENM - Campbelltown	8361-WAC2	
11.11.14	8361	ACE - Canterbury - ENM	8361-WAC3	
12.11.14	8361	Rahme -VENM - Campbelltown	8361-WAC2	
12.11.14	8361	ACE - Canterbury - ENM	8361-WAC3	
19.01.15	8622	Jordan Springs - Lendlease - ENM Exempt	8622-WAC1	
19.01.15	8622	Epping ENM Mulgoa	8622-WAC2	
22.01.15	8622	Jordan Springs - Lendlease - ENM Exempt	8622-WAC1	
23.01.15	8622	Mainland Civil - Erskineville ENM	8622-WAC3	
23.01.15	8622	John Holland ENM	8622-WAC4	
11.02.15	8695	ACE - Meadowbank	8695-WAC5	
12.02.15	8695	ACE - Meadowbank	8695-WAC5	
12.02.15	8695	Rahme Campbelltown	8695-WAC6	
18.02.15	8695	JH NSRU	8695-WAC4	
18.02.15	8695	Rahme Campbelltown	8695-WAC6	
24.02.15	8695	ACE - Meadowbank	8695-WAC7	
02.04.15	8937	Plant Hire Wolli Creek	8695-WAC2	
13.04.15	8937	JH NSRU Clay Exempt	8695-WAC4	Asbestos fibre cement identified within one load.
15.04.15	8937	Epping ENM	8695-WAC5	

Date	John holland ENM	Epping ENM	Chalton ENM	CIVIL PLUS	ACE CANTERBURY ENM	HOLLAND. CL	Rahme VENM CAMPBELLTOWN	Dial a dump ENM east creek	holland Venm	Epping ENM exp	Total truck & dog	Total (m^3)	Compaction test at total(m3)	Total number of tests	NDT Test number	Number of retests
7/11/2014	0	0	0	0	0	4	3	0	0	0	7	77				
Total	**0**	**0**	**0**	**0**	**0**	**4**	**3**	**0**	**0**	**0**	**7**	**77**	**0**	**0**		**0**
10/11/2014	0	0	0	0	0	0	40	0	0	0	40	440				1
Total	**0**	**0**	**0**	**0**	**0**	**4**	**43**	**0**	**0**	**0**	**47**	**517**	**0**	**0**		**1**
11/11/2014	0	0	0	0	13	0	33	0	0	0	46	506	500	1	2	
Total	**0**	**0**	**0**	**0**	**13**	**4**	**76**	**0**	**0**	**0**	**93**	**1023**	**500**	**1**		**1**
12/11/2014	0	0	0	0	1	0	25	0	0	0	26	286	1000	2	3,4	1
Total	**0**	**0**	**0**	**0**	**14**	**4**	**101**	**0**	**0**	**0**	**119**	**1309**	**1500**	**3**		**2**
13/11/2014	0	7			3	0.5	28				38.5	423.5				
Total	**0**	**7**	**0**	**0**	**17**	**4.5**	**129**	**0**	**0**	**0**	**157.5**	**1732.5**	**1500**	**3**		**2**
17/11/2014	0	1	0	0	0	7	4	0	0	10	22	242				
Total	**0**	**8**	**0**	**0**	**17**	**11.5**	**133**	**0**	**0**	**10**	**179.5**	**1974.5**	**1500**	**3**		**2**
18/11/2014	0	4	0	0	0	21	7	0	0	17	49	539	500	1	6	
Total	**0**	**12**	**0**	**0**	**17**	**32.5**	**140**	**0**	**0**	**27**	**228.5**	**2513.5**	**2000**	**4**		**2**
19/11/2014	0	5	0	0	0	0	2	0	0	7	14	154	2000	4	7,8,10,11	4
Total	**0**	**17**	**0**	**0**	**17**	**32.5**	**142**	**0**	**0**	**34**	**242.5**	**2667.5**	**4000**	**8**		**6**
24/11/2014	0	15	0	0	0	9	0	0	0	5	29	319				
Total	**0**	**32**	**0**	**0**	**17**	**41.5**	**142**	**0**	**0**	**39**	**271.5**	**2986.5**	**4000**	**8**		**6**
26/11/2014	0	11	0	0	0	0	0	0	0	2	13	143				
Total	**0**	**43**	**0**	**0**	**17**	**41.5**	**142**	**0**	**0**	**41**	**284.5**	**3129.5**	**4000**	**8**		**6**

Date	John holland ENM	Epping ENM mulgoa	mainland civil Erskineville ENM	Jordan Springs Lend Lease ENM exempt	plant hire CANTERBURY ENM	HOLLAND. CL	Rahme VENM CAMPBELLTOWN	Dial a dump ENM east creek	holland Venm	Epping ENM exp mulgoa	Total truck & dog	Total (m^3)	Compaction test at total(m3)	Total number of tests	NDT Test number	Number of retests
12/01/2015																
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**
13/01/2015																
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**
14/01/2015																
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**
15/01/2015											0	0				
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**
16/01/2015	0									0	0	0				
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**
17/01/2015	0	0								0	0	0				
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**
18/01/2015	0	0								0	0	0				
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**
19/01/2015	0	3		55												
Total	**0**	**3**	**0**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**58**	**638**	**0**	**0**		**0**
20/01/2015																
Total	**0**	**3**	**0**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**58**	**638**	**0**	**0**		**0**
21/01/2015	0															
Total	**0**	**3**	**0**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**58**	**638**	**0**	**0**		**0**
22/01/2015	0															
Total	**0**	**3**	**0**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**58**	**638**	**0**	**0**		**0**
23/01/2015	13	0	22							0	35	385				
Total	**13**	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**		**0**
24/01/2015	0															
Total	**13**	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**		**0**
25/01/2015	0	0								0	0	0				
Total	**13**	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**		**0**
26/01/2015	0															
Total	**13**	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**		**0**
27/01/2015	0									0	0	0				
Total	**13**	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**		**0**
28/01/2015	0															
Total	**13**	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**		**0**
29/01/2015	0											0				
Total	**13**	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**		**0**
30/01/2015												0				
Total	**13**	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**		**0**
	0															
	13	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**		**0**
	0															
	13	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**		**0**
	13	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**		**0**

13	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**	**0**
13	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**	**0**
									0	0	0			
13	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**	**0**
0														
13	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**	**0**
13	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**	**0**
13	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**	**0**
13	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**	**0**
13	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**	**0**
13	**3**	**22**	**55**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**1023**	**0**	**0**	**0**

Date	Mainland Erskinville	JH NSRU	DADI Eastern Creek	ETTT Epping	Ace Meadowbank	Rahme Campbelltown					Total truck & dog	Total (m³)
2/02/2015	23	8	20	25							76	836
Total	**23**	**8**	**20**	**25**	**0**	**0**	**0**	**0**	**0**	**0**	**76**	**836**
6/02/2015	0	0	29	0	17						46	506
Total	**23**	**8**	**49**	**25**	**17**	**0**	**0**	**0**	**0**	**0**	**122**	**1342**
9/02/2015	0	0	25	0	20						45	495
Total	**23**	**8**	**74**	**25**	**37**	**0**	**0**	**0**	**0**	**0**	**167**	**1837**
10/02/2015	0	0	0	0	26	3					29	319
Total	**23**	**8**	**74**	**25**	**63**	**3**	**0**	**0**	**0**	**0**	**196**	**2156**
11/02/2015	0	0	0	0	48.5	0					48.5	533.5
Total	**23**	**8**	**74**	**25**	**111.5**	**3**	**0**	**0**	**0**	**0**	**244.5**	**2689.5**
12/02/2015	0	0	1	0	26	4					31	341
Total	**23**	**8**	**75**	**25**	**137.5**	**7**	**0**	**0**	**0**	**0**	**275.5**	**3030.5**
17/02/2015	17	16	0	4	1	0					38	418
Total	**40**	**24**	**75**	**29**	**138.5**	**7**	**0**	**0**	**0**	**0**	**313.5**	**3448.5**
18/02/2015	0	21	0	0	0	2					23	253
Total	**40**	**45**	**75**	**29**	**138.5**	**9**	**0**	**0**	**0**	**0**	**336.5**	**3701.5**
19/02/2015	0	0	0	0	0	2					2	22
Total	**40**	**45**	**75**	**29**	**138.5**	**11**	**0**	**0**	**0**	**0**	**338.5**	**3723.5**
23/02/2015	0	0	0	0	26	0					26	286
Total	**40**	**45**	**75**	**29**	**164.5**	**11**	**0**	**0**	**0**	**0**	**364.5**	**4009.5**
24/05/2015	0	6	0	0	28	0					34	374
Total	**40**	**51**	**75**	**29**	**192.5**	**11**	**0**	**0**	**0**	**0**	**398.5**	**4383.5**
25/02/2015											0	0
Total	**40**	**51**	**75**	**29**	**192.5**	**11**	**0**	**0**	**0**	**0**	**398.5**	**4383.5**
26/02/2015											0	0
Total	**40**	**51**	**75**	**29**	**192.5**	**11**	**0**	**0**	**0**	**0**	**398.5**	**4383.5**
27/02/2015											0	0
Total	**40**	**51**	**75**	**29**	**192.5**	**11**	**0**	**0**	**0**	**0**	**398.5**	**4383.5**
28/02/2015											0	0
Total	**40**	**51**	**75**	**29**	**192.5**	**11**	**0**	**0**	**0**	**0**	**398.5**	**4383.5**
29/02/2015											0	0
Total	**40**	**51**	**75**	**29**	**192.5**	**11**	**0**	**0**	**0**	**0**	**398.5**	**4383.5**
30/02/2015											0	0
Total	**40**	**51**	**75**	**29**	**192.5**	**11**	**0**	**0**	**0**	**0**	**398.5**	**4383.5**
31/02/2015											0	0
Total	**40**	**51**	**75**	**29**	**192.5**	**11**	**0**	**0**	**0**	**0**	**398.5**	**4383.5**

Date	Plant Hire Wolli Creek	JH NSRU clay exempt	Epping ENM	ETTT ENM Exempt	Ace Meadowbank	Rahme Campbelltown					Total truck & dog	Total (m³)	Compaction test at total	Total number of tests	NDT Test number	Number of retests
1/04/2015	3			1	28						32	352				
Total	**3**	**0**	**0**	**1**	**28**	**0**	**0**	**0**	**0**	**0**	**32**	**352**				
2/04/2015	12				-2						10	110				
Total	**15**	**0**	**0**	**1**	**26**	**0**	**0**	**0**	**0**	**0**	**42**	**462**				
13/04/2014		12	38	17.5							67.5	742.5				
Total	**15**	**12**	**38**	**18.5**	**26**	**0**	**0**	**0**	**0**	**0**	**109.5**	**1204.5**				
14/04/2014		4	14	2							20	220				
Total	**15**	**16**	**52**	**20.5**	**26**	**0**	**0**	**0**	**0**	**0**	**129.5**	**1424.5**				
15/04/2014		1	29								30	330				
Total	**15**	**17**	**81**	**20.5**	**26**	**0**	**0**	**0**	**0**	**0**	**159.5**	**1754.5**				
											0	0				
Total	**15**	**17**	**81**	**20.5**	**26**	**0**	**0**	**0**	**0**	**0**	**159.5**	**1754.5**				
											0	0				
Total	**15**	**17**	**81**	**20.5**	**26**	**0**	**0**	**0**	**0**	**0**	**159.5**	**1754.5**				
											0	0				
Total	**15**	**17**	**81**	**20.5**	**26**	**0**	**0**	**0**	**0**	**0**	**159.5**	**1754.5**				
	0	0	0	0	0						0	0				
Total	**15**	**17**	**81**	**20.5**	**26**	**0**	**0**	**0**	**0**	**0**	**159.5**	**1754.5**				
	0	0	0	0		0					0	0				
Total	**15**	**17**	**81**	**20.5**	**26**	**0**	**0**	**0**	**0**	**0**	**159.5**	**1754.5**				
	0			0		0					0	0				
Total	**15**	**17**	**81**	**20.5**	**26**	**0**	**0**	**0**	**0**	**0**	**159.5**	**1754.5**				
											0	0				
Total	**15**	**17**	**81**	**20.5**	**26**	**0**	**0**	**0**	**0**	**0**	**159.5**	**1754.5**				
											0	0				
Total	**15**	**17**	**81**	**20.5**	**26**	**0**	**0**	**0**	**0**	**0**	**159.5**	**1754.5**				
											0	0				
Total	**15**	**17**	**81**	**20.5**	**26**	**0**	**0**	**0**	**0**	**0**	**159.5**	**1754.5**				
											0	0				
Total	**15**	**17**	**81**	**20.5**	**26**	**0**	**0**	**0**	**0**	**0**	**159.5**	**1754.5**				
											0	0				
Total	**15**	**17**	**81**	**20.5**	**26**	**0**	**0**	**0**	**0**	**0**	**159.5**	**1754.5**				
											0	0				
Total	**15**	**17**	**81**	**20.5**	**26**	**0**	**0**	**0**	**0**	**0**	**159.5**	**1754.5**				
											0	0				
Total	**15**	**17**	**81**	**20.5**	**26**	**0**	**0**	**0**	**0**	**0**	**159.5**	**1754.5**				

APPENDIX III – GATE CHECK SAMPLE RESULTS

Summary of Gate Check Samples and Analytical Results - November 2014

Source Site		Assessment Criteria (mg/kg)	Rahme Campbeltown	ACE Cantebury
Sample I.D			8361-WAC2	8361-WAC3
Sampling Date			07.11.2014	11.11.2014
Heavy Metals	As	3000	19	2.5
	Cd	900	ND	ND
	Cr	3600	5.3	ND
	Cu	240000	77	47
	Pb	1500	35	46
	Hg	730	ND	ND
	Ni	6000	27	ND
	Zn	400000	77	56
PAH	B(a)P	5	ND	4.5
	Total PAH	4000	ND	41.1
	C'genic PAHs (as BaP TEQ)	40	ND	6.4
TPH	C6-C10	700	ND	ND
	C10-C16	1000	ND	ND
	C16-C34	3500	ND	130
	C34-C40	10000	ND	ND
BTEX	Benzene	1	ND	ND
	Toluene	0.5	ND	ND
	Ethylbenzene	65	ND	ND
	Xylene	25	ND	ND
OCPs	Aldrin + Dieldrin	45	ND	ND
	Chlordane	530	ND	ND
	Endosulfan	2000	ND	ND
	DDT+DDE+DDD	3600	ND	ND
	Heptachlor	50	ND	ND
OPPS	Chlorpyrifos	2000	ND	ND
Total Phenols		240000	ND	0.2
PCBs		7	ND	ND
Asbestos		No Asbestos Detected	NAD	NAD
EC			0.27	0.22
pH		>5.5	9.58	7.72
Chlorides		5000	92	61
Sulphates		5000	<10	78
Textural Classification			13.8	8.6
ECe		<8	3.68	1.91

Summary of Gate Check Samples and Analytical Results - January 2015

Source Site		Assessment Criteria (mg/kg)	LEND LEASE	ETTT	Mainland Civil	JH NSRU
Sample I.D			8622-WAC1	8622-WAC2	8622-WAC3	8622-WAC4
Sampling Date			19th Jan 2015	19th Jan 2015	23rd Jan 2015	23rd Jan 2015
Heavy Metals	As	3000	17	17	3.7	42
	Cd	900	<0.3	<0.3	<0.3	<0.3
	Cr	3600	29	<5	<5	<5
	Cu	240000	13	22	5.5	69
	Pb	1500	25	17	39	65
	Hg	730	<0.2	<0.2	<0.2	<0.2
	Ni	6000	<10	<10	<10	40
	Zn	400000	22	33	16	110
PAH	B(a)P	5	1.1	<0.3	<0.3	<0.3
	Total PAH	4000	14	<0.48	<0.48	<0.48
	C'genic PAHs (as BaP TEQ)	40	1.79	ND	ND	ND
TRH	C6-C10	700	<35	<35	<35	<35
	C10-C16	1000	<50	<50	<50	<50
	C16-C34	3500	<100	<100	<100	<100
	C34-C40	10000	<100	<100	<100	<100
BTEX	Benzene	1	<0.5	<0.5	<0.5	<0.5
	Toluene	0.5	<0.5	<0.5	<0.5	<0.5
	Ethylbenzene	65	<1	<1	<1	<1
	Xylene	25	<3	<3	<3	<3
OCPs	Aldrin + Dieldrin	45	<0.2	<0.2	<0.2	<0.2
	Chlordane	530	<0.1	<0.1	<0.1	<0.1
	Endosulfan	2000	<0.4	<0.4	<0.4	<0.2
	DDT+DDE+DDD	3600	<0.3	<0.3	<0.3	<0.3
	Heptachlor	50	<0.1	<0.1	<0.1	<0.1
OPPS	Chlorpyrifos	2000	<0.1	<0.1	<0.1	<0.1
Total Phenols		240000	0.2	0	<0.1	0.2
PCBs		7	<0.6	<0.6	<0.6	<0.6
Asbestos		No Asbestos Detected	NAD	NAD	NAD	NAD
EC			0.27	0.06	0.09	0.15
pH		>5.5	4.9	9.4	8	8.4
Chlorides		5000	550	10	<10	29
Sulphates		5000	33	41	13	34
Textural Classification			Medium & Heavy Clays	Clay Loams	Light Clays	Sands
ECe		<8	1.89	0.51	0.77	2.55

Summary of Gate Check Samples and Analytical Results - February 2015

Source Site		Assessment Criteria (mg/kg)	John Holland	Ace Demolition	Rahme	Ace Demolition
Sample I.D			8695-WAC4	8695-WAC5	8695-WAC6	8695-WAC7
Sampling Date			2nd Feb 2015	6th Feb 2015	12th Feb 2015	12th Feb 2015
Heavy Metals	As	3000	<2	3.5	7.1	15
	Cd	900	<0.3	<0.4	<0.3	<0.3
	Cr	3600	<5	57	7.9	<5
	Cu	240000	47	6.8	<5	39
	Pb	1500	31	6	<10	<10
	Hg	730	<0.2	<0.1	<0.2	<0.2
	Ni	6000	44	30	<10	<10
	Zn	400000	110	19	5.7	<0.2
PAH	B(a)P	5	<0.3	<0.3	<0.3	<0.3
	Total PAH	4000	0.48	0.48	0.48	0.48
	C'genic PAHs (as BaP TEQ)	40	ND	ND	ND	ND
TRH	C6-C10	700	<35	<35	<35	<35
	C10-C16	1000	<50	<50	<50	<50
	C16-C34	3500	<100	<100	<100	<100
	C34-C40	10000	<100	<100	<100	<100
BTEX	Benzene	1	<0.5	<0.5	<0.5	<0.5
	Toluene	0.5	<0.5	<0.5	<0.5	<0.5
	Ethylbenzene	65	<1	<1	<1	<1
	Xylene	25	<3	<3	<3	<3
OCPs	Aldrin + Dieldrin	45	<0.2	<0.2	<0.2	<0.2
	Chlordane	530	<0.1	<0.1	<0.1	<0.1
	Endosulfan	2000	<0.4	<0.4	<0.4	<0.4
	DDT+DDE+DDD	3600	<0.3	<0.3	<0.3	<0.3
	Heptachlor	50	<0.1	<0.1	<0.1	<0.1
OPPS	Chlorpyrifos	2000	<0.1	<0.1	<0.1	<0.1
Total Phenols		240000	<0.1	<0.1	0.3	<0.1
PCBs		7	<0.6	<0.6	<0.6	<0.6
Asbestos		No Asbestos Detected	NAD	NAD	NAD	NAD
EC			0.27	0.26	0.04	0.18
pH		>5.5	9.7	7	4	5.6
Chlorides		5000	150	140	54	110
Sulphates		5000	52	38	<10	96
Textural Classification			Light Clays	Medium &Heavy Clays	Light Clays	Medium & Heavy Clays
ECe		<8	2.32	1.82	0.34	1.26

Summary of Gate Check Samples and Analytical Results - March 2015 - No Gate Check Samples Taken.

Source Site		Assessment Criteria (mg/kg)
Sample I.D		
Sampling Date		
Heavy Metals	As	3000
	Cd	900
	Cr	3600
	Cu	240000
	Pb	1500
	Hg	730
	Ni	6000
	Zn	400000
PAH	B(a)P	5
	Total PAH	4000
	C'genic PAHs (as BaP TEQ)	40
TPH	C6-C10	700
	C10-C16	1000
	C16-C34	3500
	C34-C40	10000
BTEX	Benzene	1
	Toluene	0.5
	Ethylbenzene	65
	Xylene	25
OCPs	Aldrin + Dieldrin	45
	Chlordane	530
	Endosulfan	2000
	DDT+DDE+DDD	3600
	Heptachlor	50
OPPS	Chlorpyrifos	2000
Total Phenols		240000
PCBs		7
Asbestos		No Asbestos Detected
EC		
pH		>5.5
Chlorides		5000
Sulphates		5000
Textural Classification		
ECe		<8

Summary of Gate Check Samples and Analytical Results - April 2015

Source Site		Assessment Criteria (mg/kg)	Aust. Plant Hire	Holland	Epping
Sample I.D			8937-WAC2	8937-WAC4	8937-WAC5
Sampling Date			2nd April 2015	13th April 2015	13th April 2015
Heavy Metals	As	3000	3	18.0	2.2
	Cd	900	ND	ND	ND
	Cr	3600	ND	9.1	23.0
	Cu	240000	22.0	41	24
	Pb	1500	52	55	12
	Hg	730	ND	ND	ND
	Ni	6000	ND	17	27
	Zn	400000	44	70	26
PAH	B(a)P	5	0.6	ND	ND
	Total PAH	4000	5	ND	ND
	C'genic PAHs (as BaP TEQ)	40	ND	ND	ND
TPH	C6-C10	700	ND	ND	ND
	C10-C16	1000	ND	ND	ND
	C16-C34	3500	ND	ND	ND
	C34-C40	10000	ND	ND	ND
BTEX	Benzene	1	ND	ND	ND
	Toluene	0.5	ND	ND	ND
	Ethylbenzene	65	ND	ND	ND
	Xylene	25	ND	ND	ND
OCPs	Aldrin + Dieldrin	45	ND	ND	ND
	Chlordane	530	ND	ND	ND
	Endosulfan	2000	ND	ND	ND
	DDT+DDE+DDD	3600	ND	ND	ND
	Heptachlor	50	ND	ND	ND
OPPS	Chlorpyrifos	2000	ND	ND	ND
Total Phenols		240000	ND	ND	ND
PCBs		7	<0.6	<0.6	<0.6
Asbestos		No Asbestos Detected	NAD	NAD	NAD
EC			0.15	0.20	0.36
pH		>5.5	8.2	9.1	7.1
Chlorides		5000	180	7.2	97
Sulphates		5000	230	240	100
Textural Classification					
ECe		<8			

Summary of Gate Check Samples and Analytical Results - May 2015 - No Gate Check Samples Taken

Source Site		Assessment Criteria (mg/kg)
Sample I.D		
Sampling Date		
Heavy Metals	As	3000
	Cd	900
	Cr	3600
	Cu	240000
	Pb	1500
	Hg	730
	Ni	6000
	Zn	400000
PAH	B(a)P	5
	Total PAH	4000
	C'genic PAHs (as BaP TEQ)	40
TPH	C6-C10	700
	C10-C16	1000
	C16-C34	3500
	C34-C40	10000
BTEX	Benzene	1
	Toluene	0.5
	Ethylbenzene	65
	Xylene	25
OCPs	Aldrin + Dieldrin	45
	Chlordane	530
	Endosulfan	2000
	DDT+DDE+DDD	3600
	Heptachlor	50
OPPS	Chlorpyrifos	2000
Total Phenols		240000
PCBs		7
Asbestos		No Asbestos Detected
EC		
pH		>5.5
Chlorides		5000
Sulphates		5000
Textural Classification		
ECe		<8