

GTE549-Stage 2 Contamination

27 October 2015

LOGOS PROPERTY

Suite 1202, Level 12
167 Macquarie Street,
Sydney NSW 2000

Attention: Jeff Lord

E-mail: jlord@dblproperty.com

Dear Sir,

RE: STAGE 2 CONTAMINATION ASSESSMENT at 34 Yarrunga Street, Prestons.

This letter presents a Stage 2 Contamination report on the inspection and testing services associated with the contamination assessment undertaken at the above project.

Should you have any questions related to this report please do not hesitate to contact the undersigned.

For and on behalf of

Ground Technologies Pty Ltd



A. Bennett
Senior Geotechnical Engineer

Reviewed By



J. Harendran
Geotechnical Engineer

TABLE OF CONTENTS

Description	Page
Table of Contents	2
1.0 Introduction	3
3.0 Site Description	3
3.0 Summary of Previous Investigations	4
4.0 Laboratory Quality Assessment and Quality Control	5
4.1 Laboratory Accreditation	5
4.2 Sample Holding Times	5
4.3 Analytical Methods Used and Practical Quantitation Limits	5
4.4 Laboratory Blank Results	5
4.5 Laboratory Control Standards	5
5.0 Area of Environmental Concern 1	6
5.1 Sampling & Analysis Plan and Sampling Methodology	6
5.2 Basis for Assessment Criteria	7
5.3 Laboratory Test Results	7
6.0 Area of Environmental Concern 2	8
6.1 Sampling & Analysis Plan and Sampling Methodology	8
6.2 Basis for Assessment Criteria	9
6.3 Laboratory Test Results	9
7.0 Area of Environmental Concern 3	11
7.1 Sampling & Analysis Plan and Sampling Methodology	11
7.2 Basis for Assessment Criteria	12
7.3 Laboratory Test Results	12
8.0 Conclusions and Recommendations	13
References	14

APPENDICES

Appendix A – Laboratory Test Certificates

1.0 INTRODUCTION

Ground Technologies Pty Ltd have undertaken a Stage 2 Contamination Report with limited testing and analysis as requested by Logos Property in response to the Secretary's Environmental Assessment Requirements (SEARs) for the Prestons Industrial Estate SSD 7155 prepared by the Department of Planning and the Environment. It is understood that the site is to be re-developed as the Prestons Warehousing and Distribution Estate.

2.0 SITE DESCRIPTION

The following information, presented in Table 1, describes the site.

Table 1: Summary of Site Details

Site Address	34 Yarrunga Street, Prestons
Lot & Plan No.	Lot 33, 34, 35, 43 DP2359 Lot 20 DP 117483
Council Area	Liverpool City Council

The subject property is irregular in shape, measuring approximately 625m wide along the Yarrunga Street frontage, and 305m deep along the Bernera Road frontage.

Figure 1 – Location of Site



The subject property covers an area of approximately 20.7ha, with the majority of it vacant and grass covered. A high point is located within lot 34, behind the metal shed, with ground slopes falling away from this point in all directions by grades of up to 3° to 7°.

Lot 33 and 35 are grass covered and vacant. High voltage power lines traverse through the site in a north / south alignment. Lot 34 contains a single storey residential house, a metal shed and equipment for loading cattle onto trucks within the northern (front) portion of the lots. Lot 43 contains a metal shed located centrally within the lot. Lot 20 of DP1173483 is predominately vacant. An old drainage line has been re-aligned within this site with a new culvert placed under Kurrajong Road.

3.0 SUMMARY OF PREVIOUS INVESTIGATIONS

A stage 1 Contamination Assessment has been undertaken by Ground Technologies, see report GTE549-Stage 1 Contamination. The conclusions of this Contamination Report are as follows:

- The site was used previously for a residential dwelling and market gardening / light agriculture.
- A review of aerial photography suggests that the neighbouring properties are rural / residential and not considered to have posed a risk for potential contamination to the site.
- A search of the NSW EPA Contaminated Land Management record of notices revealed that there were no notices issued to the subject site. No history of dangerous manufacturing utilizing heavy chemicals or metals was documented.
- According to the interpretation of the sub-surface soil profile for this site, clay soils are present beneath the site. This material would provide a relatively impermeable layer and prevent the migration of any contamination into deeper soils or groundwater.
- No industrial facilities undertaking heavy manufacturing are located within 500m of the subject site. The surrounding sites are residential / warehousing. Therefore the risk of contamination migration caused by surface run-off from adjoining sites is minimal.

Filling was observed within the south-eastern corner of the site for the re-alignment of a drainage channel (see figure 1) and is denoted as Area of Environmental Concern 1 (AEC1). No documentation pertaining to the source of the fill material was made available to Ground Technologies at the time of preparing this report. As such, further investigation of this material is required.

Two areas of market gardening were noted in the desk top study and are denoted as Area of Environmental Concern 2 (AEC2) and Area of Environmental Concern 3 (AEC3). A limited sampling and analysis program was undertaken as a part of the Stage 1 Contamination Assessment in order to assess the nature, location and likely distribution of any contamination present at the subject site, and also any potential risk posed to human health or the environment. Test results were compared to the relevant assessment criteria, Hils D, and indicated that the risk of contamination is low, however in accordance “Guidelines for Assessing Former Orchards and Market Gardens” Department of Environment and Conservation (NSW), it is recommended that these areas of environmental concern be further investigated for the development application process and any contaminants found be appropriately treated under a site management plan during construction.

Figure 1 – Areas of Environmental Concern



4.0 LABORATORY QUALITY ASSESSMENT AND QUALITY CONTROL

4.1 Laboratory Accreditation

ALS are accredited by the National Association of Testing Authorities (NATA) for the analyses carried out and are also accredited for compliance with ISO/IEC 17025.

4.2 Sample Holding Times

The holding times for samples at ALS are presented in the table below, along with the allowable holding time, detailed in Schedule B (3) of the National Environment Protection (Assessment of Site Contamination) Measure (NEPM, 1999):

Table 5 – Sample Holding Times

Laboratory	Analyte	Date Sampled	Date Received	Date of Extraction/ Analysis	Holding Time	Allowable Holding Time
ALS	Metals	7/10/2015	7/10/2015	14/10/2015	7 days	6 months*
	Pesticides	7/10/2015	7/10/2015	14/10/2015	7 days	14 days

Note (*) Metals excludes Mercury which has a holding time of 28 days.

4.3 Analytical Methods Used and Practical Quantitation Limits

The analytical methods and practical quantitation limits (PQL)/level of reporting (LOR) used by ALS are indicated on the test certificates located in Appendix A.

4.4 Laboratory Blank Results

During each analytical method reagents are carried through the preparation / extraction / digestion procedure. A reagent blank is prepared and analysed with every batch of samples plus with each new batch of solvent prior to use to ensure that there are no interferences with the test results.

Blank samples were analysed by ALS for metals and pesticides. The reported blank concentrations were below the relevant PQL/LOR.

4.5 Laboratory Control Standards

A known matrix spiked with compound(s) representative of the target analytes is used to document the laboratories performance. This is known as the Laboratory Control Standard (LCS). The LCS is analysed with the sample batch and the resultant concentrations reported as a percentage recovery of the expected concentration.

At ALS, the LCS was analysed for the same suite of analytes as the submitted samples (heavy metals, OCP and OPP) and the results are summarised in the table 4 below:

Table 6 – Quality Control Spikes Summary

Laboratory	Analyte	Percentage Recovery (%)	Acceptance Criteria	Comments
ALS	Metals	96-112%	70-130%	Achieved
	Pesticides / Hydrocarbons	82-138%	60-140%	Achieved

The results from the LCS analysis met the acceptance criteria.

5.0 AREA OF ENVIRONMENTAL CONCERN 1 (AEC1)

Filling was observed within the south-eastern corner of the site for the re-alignment of a drainage channel (see figure 1) and is denoted as Area of Environmental Concern 1 (AEC1). As such, further investigation of this material was undertaken.

Figure 2 – Area of Environmental Concern 1

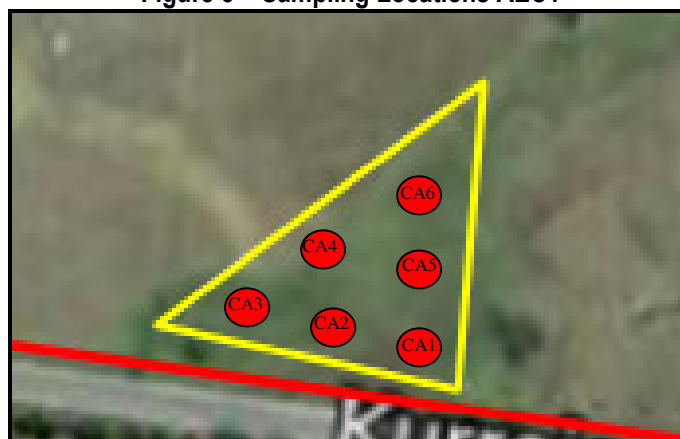


5.1 Sampling & Analysis Plan and Sampling Methodology

Sampling and analysis was undertaken in order to assess the nature, location and likely distribution of any contamination present at the subject site, and also any potential risk posed to human health or the environment. Test results were compared to the relevant New South Wales Environment Protection Authority (NSW EPA) criteria.

The guidelines produced by NSW EPA, 1995 'Sampling Design Guidelines for Contaminated Sites', state that a minimum of six (6) sampling locations is required for a site with an area of less than 1,000m². Six boreholes were drilled across the site in an approximate grid pattern (see Figure 3) with a sample of the fill (samples CA1 to CA6) recovered from each location.

Figure 3 – Sampling Locations AEC1



Each sample location was excavated utilizing a truck mounted drill rig or hand augers to a depth of 1.0m. The samples were collected from the auger using a stainless steel trowel, which had been decontaminated prior to use to prevent cross contamination occurring.

The samples were placed in 250g laboratory prepared glass jars which were capped using Teflon-sealed screw caps and then placed in a chilled container. The sample jars were transported to our Hoxton Park office and placed in a

refrigerator. The following day the samples were forwarded to ALS Pty Ltd (ALS) for analysis along with a Chain of Custody which was subsequently returned to confirm the receipt of all samples.

5.2 Basis for Assessment Criteria

The Assessment criteria used in this investigation have been obtained from the National Environment Protection (Assessment of Site Contamination) Measure (NEPM, 2013). This document presents risk-based Health Investigation Levels based on a variety of exposure settings for a number of organic and inorganic contaminants. To assess the risk to human health the results of the laboratory analysis are compared against the Health Investigation Levels (HIL) for the exposure setting; 'Commercial / Industrial' ('D'). For reference only, the material has also been compared against the maximum contaminant threshold values contained within the "The Excavated Natural Material Order 2014" prepared by the NSW EPA.

5.3 Laboratory Test Results

Test results obtained from Australian Laboratory Services (ALS), Certificate Reference number ES1533155, are tabulated and presented below (Table 8) along with the relevant assessment criteria. Laboratory test certificates are located in Appendix A.

Table 2: Analysis of the Samples Recovered from AEC1

Chemicals and other attributes	Sample Number						Health Based Investigation Level (HIL'D')	Absolute Maximum Concentration ENM(mg/kg)
	CA1	CA2	CA3	CA4	CA5	CA6		
Arsenic	8	6	6	16	11	9	3,000	40
Cadmium	<1	<1	<1	<1	<1	<1	900	1
Chromium (total)	11	17	16	8	17	16	3,600	150
Copper	36	37	26	30	35	28	240,000	200
Lead	16	15	21	14	19	19	1,500	100
Nickel	8	17	16	20	21	12	6,000	60
Zinc	40	30	48	69	47	52	400,000	300
Mercury	0.1	<0.1	<0.1	0.1	0.1	0.1	730	1
Total PAH	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	4000	40
Carcinogenic PAH	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	40	
Benzo(a)pyrene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	1
Benzene	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	95	0.5
Toulene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	135	65
Ethyl-Benzene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	185	25
Xylenes	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	96	15
TPH – C10-36	<50	130	280	<50	<50	<50	-	500
TPH – C6-C10	<10	<10	<10	<10	<10	<10	800	-
TPH – C10-C16	<50	<50	<50	<50	<50	<50	1000	-
TPH – C16-C34	<100	<100	190	<100	<100	<100	5000	-
TPH – C34-C40	<100	190	340	<100	<100	<100	10,000	-

The laboratory results detailed in Table 2, revealed levels of heavy metals and TPH were well below the adopted assessment criteria (HILs (D)), and levels of PAH and BTEX were below the practical quantitation limit, and therefore interpreted to be not present on site. Therefore the results of the chemical analyses indicate that the Area of Environmental Concern 1 (AEC1) does not present a risk to human health or the environment in the exposure setting; 'Commercial / Industrial' ('D'). The results also show the material within the chemical threshold limits of "The Excavated Natural Material Order 2014" prepared by the NSW EPA.

6.0 AREA OF ENVIRONMENTAL CONCERN 2 (AEC2)

Market Gardening was observed within the subject site (see figure 4) and is denoted as Area of Environmental Concern 2 (AEC2). Further detailed investigation of this material was undertaken.

Figure 4 – Area of Environmental Concern 2

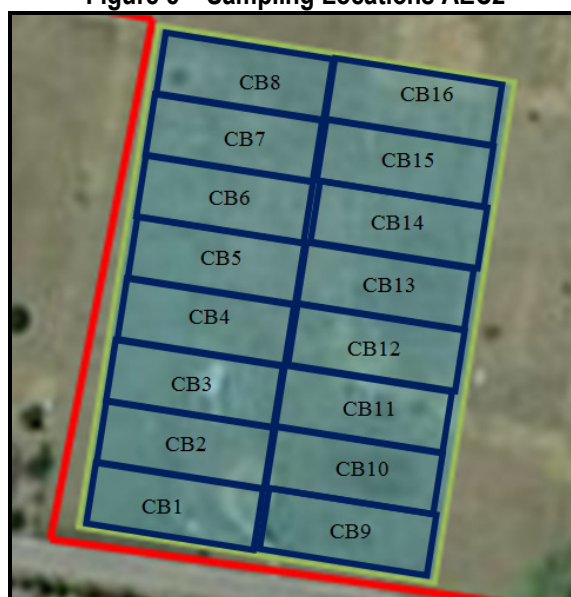


6.1 Sampling & Analysis Plan and Sampling Methodology

Sampling and analysis was undertaken in order to assess the nature, location and likely distribution of any contamination present at the subject site, and also any potential risk posed to human health or the environment. Test results were compared to the relevant New South Wales Environment Protection Authority (NSW EPA) criteria.

The guidelines produced by NSW EPA, 1995 'Sampling Design Guidelines for Contaminated Sites', state that a minimum of fifty (50) sampling locations are required for a site with an area of less than 40,000m². Fifty boreholes were drilled across the site in an approximate grid pattern. To minimize laboratory testing, three samples were recovered from each segment (see Figure 5) to create a homogenous composite (samples CB1 to CB16).

Figure 5 – Sampling Locations AEC2



Each sample location was excavated utilizing a hand auger to a depth of 0.2m. The samples were collected from the auger using a stainless steel trowel and mixed in a stainless steel mixing bowl to create a homogenous composite sample. The auger and mixing bowl were decontaminated prior to each use to prevent cross contamination occurring.

The samples were placed in 250g laboratory prepared glass jars which were capped using Teflon-sealed screw caps and then placed in a chilled container. The sample jars were transported to our Hoxton Park office and placed in a refrigerator. The following day the samples were forwarded to ALS Pty Ltd (ALS) for analysis along with a Chain of Custody which was subsequently returned to confirm the receipt of all samples.

6.2 Basis for Assessment Criteria

The Assessment criteria used in this investigation have been obtained from the National Environment Protection (Assessment of Site Contamination) Measure (NEPM, 2013). This document presents risk-based Health Investigation Levels based on a variety of exposure settings for a number of organic and inorganic contaminants. To assess the risk to human health the results of the laboratory analysis are compared against the Health Investigation Levels (HIL) for the exposure setting; 'Commercial / Industrial' ('D'). For reference only, the material has also been compared against the maximum contaminant threshold values contained within in accordance "Guidelines for Assessing Former Orchards and Market Gardens" (FOMG) prepared by the Department of Environment and Conservation (NSW), prepared by the NSW EPA. Note that as the samples have been composited from three original samples, the thresholds levels have been divided by three.

6.3 Laboratory Test Results

Test results obtained from Australian Laboratory Services (ALS), Certificate Reference number ES1533167, are tabulated and presented below (Tables 3 and 4) along with the relevant assessment criteria. Laboratory test certificates are located in Appendix A.

Table 3: Analysis of the Samples Recovered from AEC2 – Heavy Metals

Location	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
CB1	8	<1	28	37	28	<0.1	14	61
CB2	8	<1	26	33	26	<0.1	13	59
CB3	7	<1	27	46	25	<0.1	11	60
CB4	8	<1	23	41	32	<0.1	13	71
CB5	10	<1	19	43	20	<0.1	13	70
CB6	9	<1	16	37	19	<0.1	8	70
CB7	9	<1	26	36	35	<0.1	9	51
CB8	10	<1	18	30	26	<0.1	10	66
CB9	9	<1	20	50	35	<0.1	16	94
CB10	6	<1	14	86	61	<0.1	13	124
CB11	7	<1	19	45	51	<0.1	15	83
CB12	11	<1	21	41	20	<0.1	10	64
CB13	10	<1	21	34	23	<0.1	16	70
CB14	10	<1	17	39	25	<0.1	12	64
CB15	13	<1	19	33	24	<0.1	12	71
CB16	8	<1	18	33	20	<0.1	11	83
HILs (D)	1000	300	1200	80000	500	245	2000	133000
FOMG	30	8	-	800	100	5	-	2300

Table 4: Analysis of the Samples Recovered from AEC2 – Pesticides

Location	Aldrin + Dieldrin	Chlordane	Endosulfan	Endrin	Heptachlor	Mothoxychlor	DDD+DDE+DDT
CB1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CB2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CB3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CB4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CB5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CB6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CB7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CB8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CB9	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CB10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CB11	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CB12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CB13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CB14	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CB15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CB16	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	0.07
HILs (D)	15	160	660	30	15	830	1200
FOMG	3	15	-	-	3	-	66

The laboratory results detailed in Tables 3 and 4, revealed levels of heavy metals and pesticides were well below the adopted assessment criteria (HILs (D)), Therefore the results of the chemical analyses indicate that the Area of Environmental Concern 2 (AEC2) does not present a risk to human health or the environment in the exposure setting; 'Commercial / Industrial' ('D'). The results also show the material within the chemical threshold limits of Guidelines for Assessing Former Orchards and Market Gardens" Department of Environment and Conservation (NSW).

7.0 AREA OF ENVIRONMENTAL CONCERN 3 (AEC3)

Market Gardening was observed within the subject site (see figure 6) and is denoted as Area of Environmental Concern 3 (AEC3). Further detailed investigation of this material was undertaken.

Figure 6 – Area of Environmental Concern 3

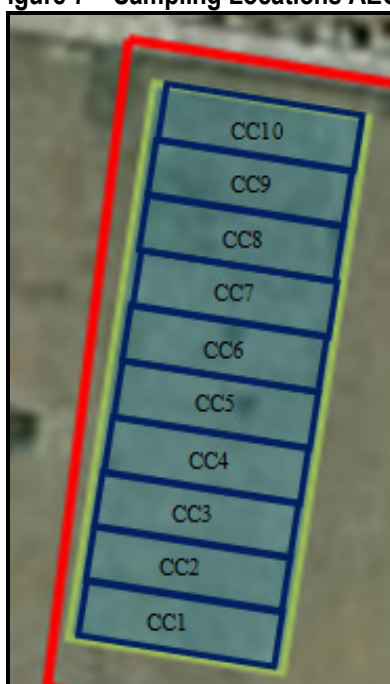


7.1 Sampling & Analysis Plan and Sampling Methodology

Sampling and analysis was undertaken in order to assess the nature, location and likely distribution of any contamination present at the subject site, and also any potential risk posed to human health or the environment. Test results were compared to the relevant New South Wales Environment Protection Authority (NSW EPA) criteria.

The guidelines produced by NSW EPA, 1995 'Sampling Design Guidelines for Contaminated Sites', state that a minimum of thirty (30) sampling locations are required for a site with an area of less than 20,000m². Thirty boreholes were drilled across the site in an approximate grid pattern. To minimize laboratory testing, three samples were recovered from each segment (see Figure 7) to create a homogenous composite (samples CB1 to CB16).

Figure 7 – Sampling Locations AEC3



Each sample location was excavated utilizing a hand auger to a depth of 0.2m. The samples were collected from the auger using a stainless steel trowel and mixed in a stainless steel mixing bowl to create a homogenous composite sample. The auger and mixing bowl were decontaminated prior to each use to prevent cross contamination occurring.

The samples were placed in 250g laboratory prepared glass jars which were capped using Teflon-sealed screw caps and then placed in a chilled container. The sample jars were transported to our Hoxton Park office and placed in a refrigerator. The following day the samples were forwarded to ALS Pty Ltd (ALS) for analysis along with a Chain of Custody which was subsequently returned to confirm the receipt of all samples.

7.2 Basis for Assessment Criteria

The Assessment criteria used in this investigation have been obtained from the National Environment Protection (Assessment of Site Contamination) Measure (NEPM, 2013). This document presents risk-based Health Investigation Levels based on a variety of exposure settings for a number of organic and inorganic contaminants. To assess the risk to human health the results of the laboratory analysis are compared against the Health Investigation Levels (HIL) for the exposure setting; 'Commercial / Industrial' ('D'). For reference only, the material has also been compared against the maximum contaminant threshold values contained within in accordance "Guidelines for Assessing Former Orchards and Market Gardens" Department of Environment and Conservation (NSW), prepared by the NSW EPA. Note that as the samples have been composited from three original samples, the thresholds levels have been divided by three.

7.3 Laboratory Test Results

Test results obtained from Australian Laboratory Services (ALS), Certificate Reference number ES1533164, are tabulated and presented below (Tables 5 and 6) along with the relevant assessment criteria. Laboratory test certificates are located in Appendix A.

Table 5: Analysis of the Samples Recovered from AEC3 – Heavy Metals

Location	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
CC1	9	<1	20	16	28	<0.1	9	40
CC2	11	<1	26	18	33	<0.1	12	46
CC3	12	<1	25	19	33	<0.1	13	54
CC4	6	<1	16	19	27	<0.1	9	50
CC5	6	<1	18	21	18	<0.1	12	50
CC6	8	<1	28	26	33	<0.1	11	63
CC7	7	<1	25	20	28	<0.1	11	52
CC8	7	<1	22	21	28	<0.1	10	49
CC9	10	<1	25	26	26	<0.1	10	47
CC10	10	<1	22	73	25	<0.1	10	48
HILs (D)	1000	300	1200	80000	500	245	2000	133000
FOMG	30	8	-	800	100	5	-	2300

Table 6: Analysis of the Samples Recovered from AEC3 – Pesticides

Location	Aldrin + Dieldrin	Chlordane	Endosulfan	Endrin	Heptachlor	Mothoxychlor	DDD+DDE+DDT
CC1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CC2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CC3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CC4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CC5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CC6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CC7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CC8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CC9	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
CC10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	0.32
HILs (D)	15	160	660	30	15	830	1200
FOMG	3	15	-	-	3	-	66

The laboratory results detailed in Table 5 and 6, revealed levels of heavy metals and pesticides were well below the adopted assessment criteria (HILs (D)), Therefore the results of the chemical analyses indicate that the Area of Environmental Concern 3 (AEC3) does not present a risk to human health or the environment in the exposure setting; 'Commercial / Industrial' ('D'). The results also show the material within the chemical threshold limits of Guidelines for Assessing Former Orchards and Market Gardens" Department of Environment and Conservation (NSW).

8.0 CONCLUSIONS AND RECOMMENDATIONS

Filling was observed within the south-eastern corner of the site for the re-alignment of a drainage channel denoted as Area of Environmental Concern 1 (AEC1). Two areas of market gardening were noted in the desk top study and are denoted as Area of Environmental Concern 2 (AEC2) and Area of Environmental Concern 3 (AEC3). Chemical investigation of this material was required in order to determine if the site is suitable for development as an industrial / commercial subdivision.

Laboratory testing of the in-situ fill material (AEC1), revealed levels of heavy metals and TPH were well below the adopted assessment criteria (HILs (D)), and levels of PAH and BTEX were below the practical quantitation limit, and therefore interpreted to be not present on site. Therefore the results of the chemical analyses indicate that the Area of Environmental Concern 1 (AEC1) does not present a risk to human health or the environment in the exposure setting; 'Commercial / Industrial' ('D'). The results also show the material within the chemical threshold limits of "The Excavated Natural Material Order 2014" prepared by the NSW EPA.

The laboratory results of the areas identified as being used for market gardening, revealed levels of heavy metals and pesticides were well below the adopted assessment criteria (HILs (D)), Therefore the results of the chemical analyses indicate that the Area of Environmental Concern 2 (AEC2) and Area of Environmental Concern 3 (AEC3) does not present a risk to human health or the environment in the exposure setting; 'Commercial / Industrial' ('D'). The results also show the material within the chemical threshold limits of Guidelines for Assessing Former Orchards and Market Gardens" Department of Environment and Conservation (NSW).

The subject site is suitable for the proposed development and no Remediation Action Plan (RAP) is required.

REFERENCES:

Contaminated Sites – Guidelines for Assessing Former Orchards and Market Gardens. Department of Environment and Conservation (NSW) 2005.

Contaminated Sites – Guidelines for Consultants Reporting on Contaminated Sites. NSW Environment Protection Authority (EPA) 2000.

Contaminated Sites – Sampling Design Guidelines. NSW Environment Protection Authority (EPA) 1995

Managing Land Contamination: Planning Guidelines SEPP55 – Remediation of Land - Department of Urban Affairs and Planning and Environment Protection Authority (DUAP and EPA) 1998.

National Environment Protection (Assessment of Site Contamination) Measure – National Environmental Protection Council 1999.

APPENDIX A

LABORATORY TEST CERTIFICATES



CHAIN OF CUSTODY

ALS Laboratory:
please tick ->

LABOURAL 21 Bunn Road Portlaur SA 5085
Ph: 08 8342 0000 E: lab@groundtech.com
LABOURAL 22 Sharn Road Stirlingfield QLD 4053
Ph: 07 3243 7222 E: samples@groundtech.com
LABOURAL 23 Castle Hill Drive Clontarf QLD 4050
Ph: 07 3471 7000 E: lab@groundtech.com

LABOURAL 24 Harrow Road Harewood QLD 4040
Ph: 07 4041 0177 E: lab@groundtech.com
LABOURAL 25 Warril Road Springfield VIC 3071
Ph: 03 8249 2000 E: samples@groundtech.com
LABOURAL 26 Sydney Road Macquarie NSW 2150
Ph: 02 8372 8755 E: lab@groundtech.com

LABOURAL 27 Power Sun Road Warril NSW 2204
Ph: 02 4926 9433 E: samples@groundtech.com
LABOURAL 28 Green Place North Sydney NSW 2241
Ph: 02 4423 2085 E: lab@groundtech.com
LABOURAL 29 Hord Way Bayside WA 6190
Ph: 08 9220 7555 E: samples@groundtech.com

LABOURAL 30 Warril Road Smithfield NSW 2164
Ph: 02 8794 8555 E: samples@groundtech.com
LABOURAL 31 14-15 Lismore Court Brisbane QLD 4076
Ph: 07 4766 0500 E: lab@groundtech.com
LABOURAL 32 39 Kanyu Street Warril NSW 2150
Ph: 02 4225 5125 E: lab@groundtech.com

CLIENT: Ground Technologies

OFFICE: 55 Fifteenth Avenue, West Hoxton

PROJECT: gte549 prestons

ORDER NUMBER:

PROJECT MANAGER: Anthony Bennett

SAMPLER: Anthony Bennett

COC emailed to ALS? (YES / NO)

Email Reports to: anthony@groundtech.com.au, moustafa@groundtech.com.au

Email Invoice to (will default to PM if no other addresses are listed):

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

TURNAROUND REQUIREMENTS:

(Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

ALS QUOTE NO.:

CONTACT PH: 0433284610

SAMPLER MOBILE:

EDD FORMAT (or default):

RELINQUISHED BY:

DATE/TIME:

☒ Standard TAT (List due date):

☐ Non Standard or urgent TAT (List due date):

SY554/14

COC SEQUENCE NUMBER (Circle)

COC: 1 2 3 4 5 6 7

OF: 1 2 3 4 5 6 7

RECEIVED BY:

DATE/TIME:

FOR LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

Free ice / frozen ice bricks present upon receipt? Yes No N/A

Random Sample Temperature on Receipt: °C

Other comment:

RECEIVED BY:

DATE/TIME:

ANALYSIS REQUIRED INCLUDING SUITES (NB: Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

CONTAINER INFORMATION

ANALYSIS REQUIRED INCLUDING SUITES (NB: Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

Additional Information

Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.

TOTAL CONTAINERS

S-26

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

TOTAL 6 6

Environmental Division
Sydney
Work Order Reference
ES1533155



Telephone : + 61-2-8784 8655

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CERTIFICATE OF ANALYSIS

Work Order	: ES1533155	Page	: 1 of 8
Client	: GROUND TECHNOLOGIES	Laboratory	: Environmental Division Sydney
Contact	: MR ANTHONY BENNETT	Contact	:
Address	: PO BOX 1121 GREEN VALLEY NSW,AUSTRALIA 2168	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: anthony@groundtech.com.au	E-mail	:
Telephone	: +61 02 8783 8200	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: gte549 prestons	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 07-Oct-2015 15:30
C-O-C number	: ----	Date Analysis Commenced	: 09-Oct-2015
Sampler	: ANTHONY BENNETT	Issue Date	: 14-Oct-2015 15:50
Site	: ----		
Quote number	: ----	No. of samples received	: 6
		No. of samples analysed	: 6

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

Ø = ALS is not NATA accredited for these tests.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR.

Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	CA1	CA2	CA3	CA4	CA5
Client sampling date / time					[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]
Compound	CAS Number	LOR	Unit		ES1533155-001	ES1533155-002	ES1533155-003	ES1533155-004	ES1533155-005
					Result	Result	Result	Result	Result
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	----	1	%		20.3	12.9	11.6	11.3	13.8
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		8	6	6	16	11
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		11	17	16	8	17
Copper	7440-50-8	5	mg/kg		36	37	26	30	35
Lead	7439-92-1	5	mg/kg		16	15	21	14	19
Nickel	7440-02-0	2	mg/kg		8	17	16	20	21
Zinc	7440-66-6	5	mg/kg		40	30	48	69	47
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	CA1	CA2	CA3	CA4	CA5
Client sampling date / time					[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]
Compound	CAS Number	LOR	Unit		ES1533155-001	ES1533155-002	ES1533155-003	ES1533155-004	ES1533155-005
					Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	130	280	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	130	280	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	>C10_C16	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	190	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	190	340	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	190	530	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		104	115	110	105	102
2-Chlorophenol-D4	93951-73-6	0.5	%		104	115	113	106	102
2,4,6-Tribromophenol	118-79-6	0.5	%		75.4	68.0	63.0	64.6	63.7
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		99.2	108	106	98.7	100
Anthracene-d10	1719-06-8	0.5	%		88.5	101	107	99.0	88.0
4-Terphenyl-d14	1718-51-0	0.5	%		94.9	97.7	98.1	97.6	93.9
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		86.4	83.2	95.2	83.7	92.9
Toluene-D8	2037-26-5	0.2	%		91.2	91.4	104	92.5	101



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	CA1	CA2	CA3	CA4	CA5
Client sampling date / time					[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]
Compound	CAS Number	LOR	Unit		ES1533155-001	ES1533155-002	ES1533155-003	ES1533155-004	ES1533155-005
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		93.0	93.4	107	94.2	102



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	CA6	----	----	----	----
Client sampling date / time				[07-Oct-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1533155-006	-----	-----	-----	-----
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	13.0	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	9	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	16	----	----	----	----
Copper	7440-50-8	5	mg/kg	28	----	----	----	----
Lead	7439-92-1	5	mg/kg	19	----	----	----	----
Nickel	7440-02-0	2	mg/kg	12	----	----	----	----
Zinc	7440-66-6	5	mg/kg	52	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----



Analytical Results

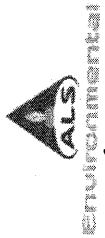
Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	CA6	----	----	----	----
Client sampling date / time					[07-Oct-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1533155-006	-----	-----	-----	-----
				Result		Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	>C10_C16	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		93.5	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		98.5	----	----	----	----
2,4,6-Tribromophenol	118-79-6	0.5	%		59.9	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		90.7	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		91.6	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		88.3	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		86.0	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		100	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	CA6	----	----	----	----
				Client sampling date / time	[07-Oct-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1533155-006	-----	-----	-----	-----
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		103	----	----	----	----

CHAIN OF CUSTODY



ALS Laboratory:
please tick →

CLIENT: Ground Technologies OFFICE: 55 Fifteenth Avenue, West Hoxton PROJECT: g16549 prestons ORDER NUMBER: PROJECT MANAGER: Anthony Bennett SAMPLER: Anthony Bennett CONTACT PH: 0433284610 SAMPLER MOBILE: EDD FORMAT (or default): Email Reports to: anthony@groundtech.com.au, moustafa@groundtech.com.au Email Invoice to (will default to PM if no other addresses are listed):		TURNAROUND REQUIREMENTS: (Standard TAT may be longer for some tests e.g. Ultra Trace Organics) ☒ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date): ALS QUOTE NO.: SY/554/14	
FOR LABORATORY USE ONLY (Circle) Custody Seal intact? Yes No Free ice / frozen ice bricks present upon receipt? Yes No Random Sample Temperature on Receipt °C Other comment:		RECEIVED BY: DATE/TIME: 7/10 14:30	
RELINQUISHED BY: DATE/TIME: 7/10 14:30 Anthony Bennett		RECEIVED BY: DATE/TIME:	

SAMPLE DETAILS		CONTAINER INFORMATION		ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).		Additional Information	
ALS USE	MATRIX: SOLID (S) WATER (W)	TYPE & PRESERVATIVE codes below	TOTAL CONTAINERS (refer to)	S1 - 8 Metals	S11 - OC Pesticides and PCB		
LAB ID	SAMPLE ID	DATE / TIME	MATRIX				
1	CB1	7/10/2015	S	x	x		
2	CB2	7/10/2015	S	x	x		
3	CB3	7/10/2015	S	x	x		
4	CB4	7/10/2015	S	x	x		
5	CB5	7/10/2015	S	x	x		
6	CB6	7/10/2015	S	x	x		
7	CB7	7/10/2015	S	x	x		
8	CB8	7/10/2015	S	x	x		
9	CB9	7/10/2015	S	x	x		
10	CB10	7/10/2015	S	x	x		
11	CB11	7/10/2015	S	x	x		
12	CB12	7/10/2015	S	x	x		
13	CB13	7/10/2015	S	x	x		
14	CB14	7/10/2015	S	x	x		
15	CB15	7/10/2015	S	x	x		
16	CB16	7/10/2015	S	x	x		
		TOTAL		16	16	16	
				Environmental Division Sydney Work Order Reference ES1533167  Telephone : + 61-2-8784 8565			

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved Plastic; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

CERTIFICATE OF ANALYSIS

Work Order	: ES1533167	Page	: 1 of 10
Client	: GROUND TECHNOLOGIES	Laboratory	: Environmental Division Sydney
Contact	: MR ANTHONY BENNETT	Contact	:
Address	: PO BOX 1121 GREEN VALLEY NSW,AUSTRALIA 2168	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: anthony@groundtech.com.au	E-mail	:
Telephone	: +61 02 8783 8200	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: gte549 prestons	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 07-Oct-2015 15:30
C-O-C number	: ----	Date Analysis Commenced	: 09-Oct-2015
Sampler	: ANTHONY BENNETT	Issue Date	: 14-Oct-2015 15:51
Site	: ----		
Quote number	: ----	No. of samples received	: 16
		No. of samples analysed	: 16

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.

- EP068: Positive results on sample confirmed by re-extraction and re-analysis.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	CB1	CB2	CB3	CB4	CB5
Client sampling date / time					[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]
Compound	CAS Number	LOR	Unit		ES1533167-001	ES1533167-002	ES1533167-003	ES1533167-004	ES1533167-005
					Result	Result	Result	Result	Result
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	----	1	%		12.9	10.2	10.3	10.0	10.1
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		6	8	7	8	10
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		28	26	27	23	19
Copper	7440-50-8	5	mg/kg		37	33	46	41	43
Lead	7439-92-1	5	mg/kg		28	26	25	32	20
Nickel	7440-02-0	2	mg/kg		14	13	11	13	13
Zinc	7440-66-6	5	mg/kg		61	59	60	71	70
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	CB1	CB2	CB3	CB4	CB5
Client sampling date / time					[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]
Compound	CAS Number	LOR	Unit		ES1533167-001	ES1533167-002	ES1533167-003	ES1533167-004	ES1533167-005
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		76.0	90.4	80.0	85.6	75.6
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		79.1	98.6	106	98.8	94.0
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		76.8	94.9	77.0	89.8	79.4



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	CB6	CB7	CB8	CB9	CB10
Client sampling date / time					[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]
Compound	CAS Number	LOR	Unit		ES1533167-006	ES1533167-007	ES1533167-008	ES1533167-009	ES1533167-010
					Result	Result	Result	Result	Result
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	----	1	%		10.2	10.8	9.6	11.7	5.4
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		9	9	10	9	6
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		16	26	18	20	14
Copper	7440-50-8	5	mg/kg		37	36	30	50	86
Lead	7439-92-1	5	mg/kg		19	35	26	35	61
Nickel	7440-02-0	2	mg/kg		8	9	10	16	13
Zinc	7440-66-6	5	mg/kg		70	51	66	94	124
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	CB6	CB7	CB8	CB9	CB10
Client sampling date / time					[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]
Compound	CAS Number	LOR	Unit		ES1533167-006	ES1533167-007	ES1533167-008	ES1533167-009	ES1533167-010
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		78.0	77.8	75.4	90.4	85.0
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		105	85.2	89.5	105	74.7
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		84.3	85.3	84.8	99.7	76.9



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	CB11	CB12	CB13	CB14	CB15
Client sampling date / time					[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]
Compound	CAS Number	LOR	Unit		ES1533167-011	ES1533167-012	ES1533167-013	ES1533167-014	ES1533167-015
					Result	Result	Result	Result	Result
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	----	1	%		9.7	12.9	11.7	10.7	8.5
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		7	11	10	10	13
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		19	21	21	17	19
Copper	7440-50-8	5	mg/kg		45	41	34	39	33
Lead	7439-92-1	5	mg/kg		51	20	23	25	24
Nickel	7440-02-0	2	mg/kg		15	10	16	12	12
Zinc	7440-66-6	5	mg/kg		83	64	70	64	71
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	CB11	CB12	CB13	CB14	CB15
Client sampling date / time					[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]
Compound	CAS Number	LOR	Unit		ES1533167-011	ES1533167-012	ES1533167-013	ES1533167-014	ES1533167-015
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		80.8	75.6	72.8	78.8	75.6
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		90.7	78.4	75.0	92.7	87.4
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		86.5	74.8	75.8	82.1	83.8



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	CB16	----	----	----	----
Client sampling date / time				[07-Oct-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1533167-016	-----	-----	-----	-----
				Result	Result	Result	Result	Result
EA055: Moisture Content								
^ Moisture Content (dried @ 103°C)	----	1	%	10.2	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	18	----	----	----	----
Copper	7440-50-8	5	mg/kg	33	----	----	----	----
Lead	7439-92-1	5	mg/kg	23	----	----	----	----
Nickel	7440-02-0	2	mg/kg	11	----	----	----	----
Zinc	7440-66-6	5	mg/kg	83	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4,4'-DDE	72-55-9	0.05	mg/kg	0.07	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	CB16	----	----	----	----
Client sampling date / time					[07-Oct-2015]	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1533167-016	-----	-----	-----	-----
				Result	Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg		0.07	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		86.0	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		80.3	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		77.4	----	----	----	----

CERTIFICATE OF ANALYSIS

Work Order	: ES1533164	Page	: 1 of 6
Client	: GROUND TECHNOLOGIES	Laboratory	: Environmental Division Sydney
Contact	: MR ANTHONY BENNETT	Contact	:
Address	: PO BOX 1121 GREEN VALLEY NSW,AUSTRALIA 2168	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: anthony@groundtech.com.au	E-mail	:
Telephone	: +61 02 8783 8200	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: gte549 prestons	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Order number	: ----	Date Samples Received	: 07-Oct-2015 15:30
C-O-C number	: ----	Date Analysis Commenced	: 09-Oct-2015
Sampler	: ANTHONY BENNETT	Issue Date	: 14-Oct-2015 13:37
Site	: ----		
Quote number	: ----	No. of samples received	: 10
		No. of samples analysed	: 10

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



NATA Accredited Laboratory 825

Accredited for compliance with
ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Pabi Subba	Senior Organic Chemist	Sydney Inorganics
Pabi Subba	Senior Organic Chemist	Sydney Organics
Shobhna Chandra	Metals Coordinator	Sydney Inorganics



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.

- EP068: Positive results on sample confirmed by re-extraction and re-analysis.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	CC1	CC2	CC3	CC4	CC5
Client sampling date / time					[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]
Compound	CAS Number	LOR	Unit		ES1533164-001	ES1533164-002	ES1533164-003	ES1533164-004	ES1533164-005
					Result	Result	Result	Result	Result
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	----	1	%		10.2	11.9	12.2	12.3	11.9
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		9	11	12	6	6
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		20	26	25	16	18
Copper	7440-50-8	5	mg/kg		16	18	19	19	21
Lead	7439-92-1	5	mg/kg		28	33	33	27	18
Nickel	7440-02-0	2	mg/kg		9	12	13	9	12
Zinc	7440-66-6	5	mg/kg		40	46	54	50	50
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	CC1	CC2	CC3	CC4	CC5
Client sampling date / time					[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]
Compound	CAS Number	LOR	Unit		ES1533164-001	ES1533164-002	ES1533164-003	ES1533164-004	ES1533164-005
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		82.0	78.4	84.6	71.0	79.0
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		90.4	90.9	102	82.5	96.6
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		82.1	85.2	93.0	85.4	88.6



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	CC6	CC7	CC8	CC9	CC10
Client sampling date / time					[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]
Compound	CAS Number	LOR	Unit		ES1533164-006	ES1533164-007	ES1533164-008	ES1533164-009	ES1533164-010
					Result	Result	Result	Result	Result
EA055: Moisture Content									
^ Moisture Content (dried @ 103°C)	----	1	%		14.0	12.0	11.4	11.6	10.4
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		8	7	7	10	10
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		28	25	22	25	22
Copper	7440-50-8	5	mg/kg		26	20	21	26	73
Lead	7439-92-1	5	mg/kg		33	28	28	26	25
Nickel	7440-02-0	2	mg/kg		11	11	10	10	10
Zinc	7440-66-6	5	mg/kg		63	52	49	47	48
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	0.32
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	CC6	CC7	CC8	CC9	CC10
Client sampling date / time					[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]	[07-Oct-2015]
Compound	CAS Number	LOR	Unit		ES1533164-006	ES1533164-007	ES1533164-008	ES1533164-009	ES1533164-010
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4,4'-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	0.32
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		62.8	77.2	69.4	80.0	75.6
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		70.0	82.8	74.9	103	79.4
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		70.6	84.2	68.5	93.2	89.1