Appendix E

WorkCover Dangerous Goods

WorkCover NSW
92-100 Donnison Street, Gosford, NSW 2250
Locked Bag 2906, Lisarow, NSW 2252
T 02 4321 5000 F 02 4325 4145
WorkCover Assistance Service 13 10 50
DX 731 Sydney workcover.nsw.gov.au

NSW GOVERNMENT WorkCover

15 DEC 2014

Our Ref: D14/158949
Your Ref: Kate Sargent

11 December 2014

Attention: Kate Sargent
Douglas Partners Pty Ltd
PO BOX 472
West Ryde NSW 1685

Dear Ms Sargent,

RE SITE: 39 – 41 Lindfield Ave Lindfield NSW

I refer to your site search request received by WorkCover NSW on 5 December 2014 requesting information on licences to keep dangerous goods for the above site.

A search of the Stored Chemical Information Database (SCID) and the microfiche records held by WorkCover NSW has not located any records pertaining to the above mentioned premises.

If you have any further queries please contact the Dangerous Goods Licensing Team on (02) 4321 5500.

Yours Sincerely

Brent Jones
Senior Licensing Officer
Dangerous Goods Team

Appendix F

Section 149 (2) & (5) Certificates

PLANNING CERTIFICATE

UNDER SECTION 149 OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

818 Pacific Highway, Gordon NSW 2072
Locked Bag 1056, Pymble NSW 2073
T 02 9424 0000 F 02 9424 0001
DX 8703 Gordon TTY 02 9424 0875
E kmc@kmc.nsw.gov.au
W www.kmc.nsw.gov.au
ABN 86 408 856 411

Ku·ring·gai Council

16 JAN 2015

PROPERTY DETAILS

Address: **39 Lindfield Avenue LINDFIELD NSW 2070**

Lot Description: **Lot D DP 347906**

CERTIFICATE DETAILS

Certificate No: **PC4505/14** **Certificate Date:** **16/12/2014**

Certificate Type: **Section 149(2) & (5)**

Receipt No: **421542**

APPLICANT'S DETAILS

REF: Linshop Pty Ltd

Douglas Partners
PO Box 472
WEST RYDE NSW 1685

BACKGROUND INFORMATION

This certificate provides information on how a property (such as land, a house, a commercial building, etc.) may be used and the limits on its development. The certificate contains information Council is aware of through its records and environmental plans with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 149 of the Environmental Planning and Assessment Act.

1. WHICH ENVIRONMENTAL PLAN RESTRICTS THE USE OF THIS PROPERTY?

(Including planning proposals and draft local environmental plans exhibited prior to 1 July 2009 pursuant to section 66(1) b of the E. P. & A. Act).

Ku-ring-gai Local Environmental Plan (Local Centres) 2012 as published on the NSW Legislation Website on 25 January 2013.

---

2. WHAT IS THE ZONING OF THIS PROPERTY and the relevant environmental plan?

(Zoning is a way of classifying land and limits the range of uses or activities that may be permitted on that land or property).

B2 Local Centres

under the provisions of the Ku-ring-gai Local Environmental Plan (Local Centres) 2012 as published on the NSW Legislation Website on 25 January 2013.

---

3. WHAT DOES NOT REQUIRE DEVELOPMENT CONSENT under the above environmental plan(s)?

Home occupations.

Note: Please refer to the provisions for Exempt and Complying Development as described in Part 3 of Ku-ring-gai Local Environmental Plan (Local Centres) 2012.

---

4. WHAT DOES REQUIRE DEVELOPMENT CONSENT under the above environmental plan(s)?

Boarding houses; Child care centres; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Group homes (permanent); Hostels; Information and education facilities; Light industries; Medical centres; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Seniors housing; Service stations; Shop top housing; Tourist and visitor accommodation; Water reticulation systems; Any other development not specified in item 3 or 5

---

5. WHAT IS PROHIBITED by the above environmental plan(s)?

Agriculture; Air transport facilities; Airstrips; Animal boarding or training establishments; Biosolids treatment facilities; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport

facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Industrial retail outlets; Industrial training facilities; Industries; Jetties; Marinas; Mooring pens; Moorings; Mortuaries; Open cut mining; Recreation facilities (major); Recreation facilities (outdoor); Research stations; Residential accommodation; Rural industries; Sewage treatment plants; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Warehouse or distribution centres; Waste or resource management facilities; Water recreation structures; Water recycling facilities; Water supply systems; Wharf or boating facilities; Wholesale supplies

---

6. DO THE DIMENSIONS OF THE LAND PERMIT THE ERECTION OF A DWELLING HOUSE ON THIS PROPERTY?

Not applicable. Dwelling houses are not permitted within this zone.

---

7. WHAT IS THE PROPOSED ZONING OF THIS PROPERTY and the relevant proposed environmental plan?
(Zoning is a way of classifying land and limits the range of uses or activities that may be permitted on that land or property).

There are no zoning changes under any proposed environmental plans applying to this land.

---

8. WHAT DOES NOT REQUIRE DEVELOPMENT CONSENT under the above proposed environmental plan(s)?

Not applicable.

---

9. WHAT DOES REQUIRE DEVELOPMENT CONSENT under the above proposed environmental plan(s)?

Not applicable.

---

10. WHAT IS PROHIBITED by the above proposed environmental plan(s)?

Not applicable.

---

11. DO THE DIMENSIONS OF THE LAND PERMIT THE ERECTION OF A DWELLING HOUSE ON THIS PROPERTY by the above proposed environmental plan(s)?

Not applicable.

---

12. WHAT OTHER PLANNING INSTRUMENTS AFFECT THIS PROPERTY?

(State and deemed state environmental plans are prepared by the State Government and cover issues as varied as rivers, residential development, employment, etc. If you have any further enquiries please contact the Department of Planning, Tel: 02 9228 6333 or email information@planning.nsw.gov.au..

Draft State Environmental Planning Policy (Competition)

Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005
State Environmental Planning Policy No.6 - Number of storeys in a building.
State Environmental Planning Policy No.19 - Bushland in Urban Areas.
State Environmental Planning Policy No.21 - Caravan Parks.
State Environmental Planning Policy No.22 - Shops and Commercial Premises.
State Environmental Planning Policy No.32 - Urban Consolidation (Redevelopment of Urban Land).
State Environmental Planning Policy No.33 - Hazardous & Offensive Development.
State Environmental Planning Policy No.44 - Koala Habitat Protection.
State Environmental Planning Policy No.55 - Remediation of Land.
State Environmental Planning Policy No.62 - Sustainable Aquaculture.
State Environmental Planning Policy No.64 - Advertising and Signage.
State Environmental Planning Policy No.65 - Design Quality of Residential Flat Development.
State Environmental Planning Policy No.70 - Affordable Housing (Revised Schemes).
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004.
State Environmental Planning Policy (Major Development) 2005.
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.
State Environmental Planning Policy (Temporary Structures) 2007.
State Environmental Planning Policy (Infrastructure) 2007.
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
State Environmental Planning Policy (Affordable Rental Housing) 2009.
State Environmental Planning Policy (State Significant Development) 2005.
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004.

---

13. WHICH DEVELOPMENT CONTROL PLANS APPLY TO THE PROPERTY?

(A development control plan adds further detail to local environmental plans and may address issues such as building height, car parking etc. Copies of the Plans are available from Council).

Ku-ring-gai Local Centres Development Control Plan

---

14. WHICH DEVELOPMENT CONTRIBUTION PLANS APPLY IF THIS PROPERTY IS DEVELOPED?

(A Development Contribution Plan – commonly known as a Section 94 Plan outlines the financial costs Council charges if a property is developed and Council believes the development will require additional services or facilities such as parks, roads etc. Copies of the Plans are available from Council).

Ku-ring-gai Contributions Plan 2010.

---

15. IS THE PROPERTY IDENTIFIED AS A HERITAGE ITEM by Council or State Government? (and if so, what is the status, e.g. local environmental plan, Heritage Act etc.)

No.

***SPECIAL NOTE**: Your attention is drawn to Clause 5.10(5) of the Ku-ring-gai Local Environmental Plan (Local Centres) 2012 which states that the consent authority may, before granting consent to any development: (a) on land on which a heritage item is located, or (b) on land that is within a heritage conservation area, or (c) on land that is within the vicinity of land referred to in paragraph (a) or (b), require a heritage management document to be prepared that assesses the extent to which the carrying out of the proposed development would affect the heritage significance of the heritage item or heritage conservation area concerned.*

---

16. IS THE PROPERTY IN A CONSERVATION AREA?

No.

***SPECIAL NOTE**: A conservation area is a place of historic and aesthetic value to the community. It contains a number of elements of significance, such as a historic subdivision layout, a pattern of building "footprints" within each street block, buildings of historic and architectual importance, road alignments, trees, gutters and kerb edges which all combine to create a sense of place that is worth keeping. Council's Heritage Conservation Planner can provide you with more information on this matter.*

---

17. DOES THE PROPERTY INCLUDE OR COMPRISE CRITICAL HABITAT?

No.

---

18. IS THE PROPERTY AFFECTED BY A ROAD WIDENING OR ROAD REALIGNMENT under the Roads Act, any environmental planning instrument or any Council resolution?

No.

---

19. IS THE PROPERTY RESERVED FOR ACQUISITION BY A PUBLIC AUTHORITY UNDER ANY ENVIRONMENTAL PLAN OR PROPOSED ENVIRONMENTAL PLAN?

No.

---

20. IS THE PROPERTY PART OF ANY APPLICATION DECLARED TO BE "STATE SIGNIFICANT DEVELOPMENT"?

(Development is judged to be "State significant" if the Minister for Planning declares it to be so based on substantial cost of development, significant numbers of employees or other criteria. If you have any further enquiries please contact the Department of Planning, Tel: 02 9228 6333 or email information@planning.nsw.gov.au..

No.

---

21. IS THE PROPERTY AFFECTED BY SECTION 38 OR 39 OF THE COASTAL PROTECTION ACT?

No.

---

22. IS THE PROPERTY WITHIN A "PROCLAIMED MINE SUBSIDENCE DISTRICT"?

No.

---

23. IS THE PROPERTY AFFECTED BY ONE OF THE MATTERS PRESCRIBED BY SECTION 59(2) OF THE CONTAMINATED LAND MANAGEMENT ACT 1997?

No.

SPECIAL NOTE: If you have any concerns about land contamination beyond the information described in this certificate, you should contact the NSW Office of Environment & Heritage. Tel:131 555 or email info@environment.nsw.gov.au.

---

24. IS THE PROPERTY BUSH FIRE PRONE LAND?

No.

---

25. IS THE PROPERTY, LAND TO WHICH A PROPERTY VEGETATION PLAN UNDER THE *NATIVE VEGETATION ACT 2003* APPLIES?

No.

---

26. IS THE PROPERTY, LAND SUBJECT TO AN ORDER UNDER THE *TREE (DISPUTES BETWEEN NEIGHBOURS) ACT 2006*?

The land is not known to be subject to such order.

---

27. IS THE PROPERTY SUBJECT TO DIRECTIONS UNDER PART 3A MAJOR INFRASTRUCTURE AND OTHER PROJECTS of the Environmental Planning & Assessment Act 1979 No.203?

No.

---

28. IS THE PROPERTY SUBJECT TO A CURRENT SITE COMPATIBILITY CERTIFICATE AND CONDITIONS FOR SENIORS HOUSING under the provisions of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004?

No.

---

29. IS THE PROPERTY SUBJECT TO A VALID SITE COMPATIBILITY CERTIFICATE FOR INFRASTRUCTURE issued under clause 19 of State Environmental Planning Policy (Infrastructure) 2007?

No.

---

30. IS THE PROPERTY SUBJECT TO A VALID SITE COMPATIBILITY CERTIFICATE AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING issued under clause 37 of State Environmental Planning Policy (Affordable Rental Housing) 2009?

No.

---

31. IS THE PROPERTY SUBJECT TO AN EXEMPTION UNDER SECTION 23 OR AUTHORISATION UNDER SECTION 24 OF THE NATION BUILDING AND JOBS PLAN (*STATE INFRASTRUCTURE DELIVERY) ACT 2009*?

No.

---

32. IS THE PROPERTY, LAND THAT IS BIODIVERSITY CERTIFIED LAND WITHIN THE MEANING OF PART 7AA OF THE THREATENED SPECIES CONSERVATION ACT 1995?

No.

Special Note: For further information about the Biodiversity Certified Land contact the NSW Office of Environment & Heritage. Tel:131 555 or email info@environment.nsw.gov.au.

---

33. IS THE PROPERTY, LAND TO WHICH A BIOBANKING AGREEMENT UNDER PART 7A OF THE THREATENED SPECIES CONSERVATION ACT 1995 RELATES?

No.

Special Note: For further information about the Biobanking agreement contact the Biobanking Team at NSW Office of Environment & Heritage. Tel:131 555 or email biobanking@environment.nsw.gov.au.

---

34. MAY COMPLYING DEVELOPMENT BE CARRIED OUT UNDER EACH OF THE CODES FOR COMPLYING DEVELOPMENT IN *STATE ENVIRONMENTAL PLANNING POLICY (EXEMPT AND COMPLYING DEVELOPMENT CODES) 2008* ON THE LAND AND IF COMPLYING DEVELOPMENT MAY NOT BE CARRIED OUT ON THAT LAND, BECAUSE OF ONE OR MORE OF THE REQUIREMENTS UNDER CLAUSES 1.17A (1)(c) TO (e), (2), (3) AND (4), 1.18(1)(c3) AND 1.19 OF THAT POLICY, WHY IT MAY NOT BE CARRIED OUT ON THAT LAND?

General Housing Code

Complying development under the General Housing Code **may** be carried out on the land.

Housing Alterations Code

Complying development under the Housing Internal Alteration Code **may** be carried out on the land.

General Development Code

Complying development under the General Development Code **may** be carried out on the land.

Commercial and Industrial Alterations Code

Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

Commercial and Industrial (New Buildings and Additions) Code

Complying development under the Commercial and Industrial (New Buildings and Additions) Code **may** be carried out on the land.

Subdivision Code

Complying development under the Subdivision Code **may** be carried out on the land.

Demolition Code

Complying development under the Demolition Code **may** be carried out on the land.

Fire Safety Code

Complying development under the Fire Safety Code **may** be carried out on the land.

SPECIAL NOTE: *The above question relates to whether or not the land falls within an exclusion area under Clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. It is your responsibility to ensure that you comply with any other general requirements of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. Failure to comply with these provisions may mean that a Complying Development Certificate issued under the provisions of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 is invalid.*

---

35. DO ANY ADOPTED COUNCIL POLICIES OR RESOLUTIONS OR ANY POLICIES ADOPTED BY A PUBLIC AUTHORITY REQUIRED TO BE REFERRED TO IN A PLANNING CERTIFICATE RESTRICT THE DEVELOPMENT OF THE PROPERTY DUE TO THE LIKELIHOOD OF LANDSLIP, BUSHFIRE, TIDAL INUNDATION, SUBSIDENCE, CONTAMINATION, ACID SULPHATE SOILS OR ANY OTHER RISK (OTHER THAN FLOODING)?

No.

Note: A review of Council's readily available records has been conducted to identify previous land uses that may have caused land contamination. This review did not reveal any reason for contamination of this property. However, prior to urban settlement, sizeable areas of Ku-ring-gai were covered by agricultural and horticultural activities. These uses are listed in the Managing Land Contamination Planning Guidelines as activities that may cause contamination. If you are concerned about possible contamination of the site you should make your own investigations regarding the condition of this property.

---

36. DO ANY ADOPTED COUNCIL POLICIES OR RESOLUTIONS OR ANY POLICIES ADOPTED BY A PUBLIC AUTHORITY REQUIRED TO BE REFERRED TO IN A PLANNING CERTIFICATE EFFECT THE DEVELOPMENT OF THE PROPERTY DUE TO FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION?

No.

The following additional information is issued under Section 149(5).

37. IS LAND SLIP OR SUBSIDENCE LIKELY TO RESTRICT DEVELOPMENT OF THE LAND?

No.

SPECIAL NOTE: Some lots in the Ku-ring-gai Local Government area contain filling and/or road batters which may be subject to settlement and require special consideration in the design of foundations.

---

38. IS FLOODING LIKELY TO RESTRICT DEVELOPMENT OF THE LAND?

Some properties in the Ku-ring-gai Local Government area contain or adjoin natural drainage paths, pipelines, watercourses and depressions. During major rainfall or blockage of the drainage system surface water may affect the site or restrict future development.

SPECIAL NOTE: The Department of Infrastructure, Planning & Natural Resources and the Department of Commerce have not indicated any private property which may be affected by flooding of major rivers or creeks in the Ku-ring-gai Local Government area.

---

39. OTHER INFORMATION RELATING TO DEVELOPMENT OF THE SITE.

This land may contain threatened species, populations and ecological communities listed under the Threatened Species Conservation Act 1995 (NSW) and or the Environment Protection Biodiversity Conservation Act 1999 (Commonwealth). For more information contact NSW Department of Environment and Heritage, Tel: 131 555.

This land may contain one or more of the following endangered or critically endangered ecological communities as described in the final determination of the scientific committee to list the ecological communities under Part 3 of Schedule 1 or Part 2 of Schedule 1A of the Threatened Species Conservation Act 1995 (NSW) :

Blue Gum High Forest,
Duffys Forest Ecological Community in the Sydney Basin Bioregion,
Sydney Turpentine Ironbark Forest
Coastal Upland Swamp

For more information contact NSW Environment & Heritage. Tel:131 555 or email info@environment.nsw.gov.au <mailto:info@environment.nsw.gov.au>

---

40. DO YOU NEED TO REFER TO ANY OTHER DOCUMENTS?

Yes. The Environmental Planning and Assessment Amendment Act 1997 No.152 commenced operation on 1 July 1998. As a consequence of this Act the information contained in this certificate needs to be read in conjunction with the provisions of the Environmental Planning and Assessment (Amendment) Regulation 1998, Environmental Planning and Assessment (Further Amendment) Regulation 1998 and Environmental Planning and Assessment (Savings and Transitional) Regulation 1998. Your solicitor will have a copy of this legislation or it may be obtained from the Government Information Office.

John McKee
General Manager,
Per _____

Appendix G

Site Photographs

Photo 1 - Basement

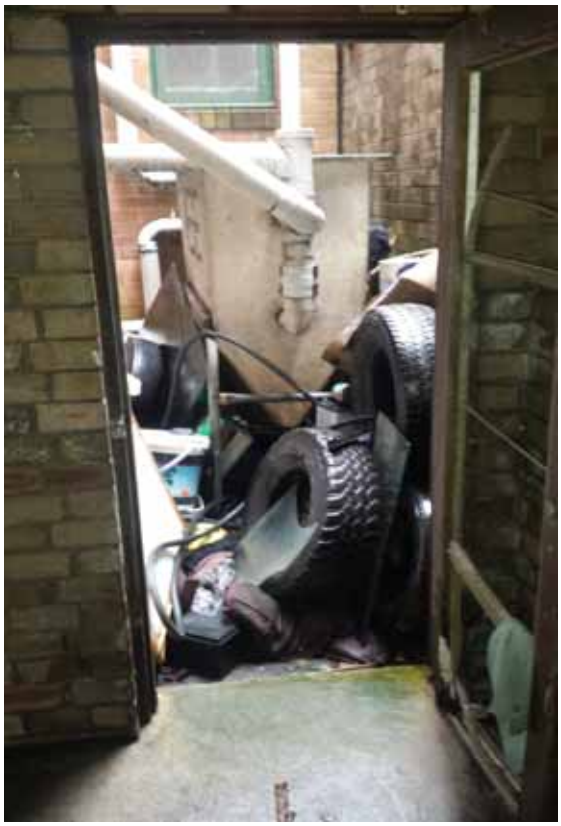


Photo 2 - Fibreglass tank near basement

Douglas Partners Geotechnics / Environment / Groundwater	**Site Photographs** **23 - 41 Lindfield Avenue** **Lindfield NSW**	PROJECT: 73174.03 PLATE No: 1 REV: A
	CLIENT: Aqualand Projects Pty Ltd	DATE: 15-Jan-15

Photo 3 - BH107

Photo 4 - drilling works near arcade

Douglas Partners Geotechnics / Environment / Groundwater	**Site Photographs** **23 - 41 Lindfield Avenue** **Lindfield NSW**	PROJECT: 73174.03 PLATE No: 2 REV: A
	CLIENT: Aqualand Projects Pty Ltd	DATE: 15-Jan-15

Photo 5 - parking area behind service station

Photo 6 - car park at back of site

Douglas Partners Geotechnics / Environment / Groundwater	**Site Photographs** **23 - 41 Lindfield Avenue** **Lindfield NSW**	PROJECT: 73174.03 PLATE No: 3 REV: A
	CLIENT: Aqualand Projects Pty Ltd	DATE: 15-Jan-15

Photo 7 - hardstand sloping east

Photo 8 - back of shops 39-41

Douglas Partners Geotechnics / Environment / Groundwater	**Site Photographs** **23 - 41 Lindfield Avenue** **Lindfield NSW**	PROJECT: 73174.03 PLATE No: 4 REV: A
	CLIENT: Aqualand Projects Pty Ltd	DATE: 15-Jan-15

Photo 9 - back of shops 39-41

Photo 10 - shops facing south

Douglas Partners Geotechnics / Environment / Groundwater	**Site Photographs** **23 - 41 Lindfield Avenue** **Lindfield NSW**	PROJECT: 73174.03 PLATE No: 5 REV: A
	CLIENT: Aqualand Projects Pty Ltd	DATE: 15-Jan-15

Appendix H

Data Quality Objectives / Data Quality Indicators

DATA QUALITY ASSESSMENT

Q1. Data Quality Objectives

The Preliminary Site Investigation (DSI) was prepared with reference to the seven step data quality objective (DQO) process which is provided in Appendix B, Schedule B2 of the *National Environment Protection (Assessment of Site Contamination) Measure* 1999 as amended 2013 (NEPC, 2013). The DQO process is outlined as follows:

- Stating the Problem;
- Identifying the Decision;
- Identifying Inputs to the Decision;
- Defining the Boundary of the Assessment;
- Developing a Decision Rule;
- Specifying Acceptable Limits on Decision Errors; and
- Optimising the Design for Obtaining Data.

The DQOs have been addressed within the report as shown in Table Q1.

Table Q1: Data Quality Objectives

Data Quality Objective	Report Section where Addressed
State the Problem	S1 Introduction
Identify the Decision	S1 Introduction (objectives) S12 Discussion S13 Recommendations and Conclusion
Identify Inputs to the Decision	S1 Introduction S2 Scope of Works S4 Previous Reports S7 Conceptual Site Model S9 Site Assessment Criteria S10 & 11 Fieldwork Observations, Results of Investigation
Define the Boundary of the Assessment	S3 Site Identification and Description Site Drawings - Appendix A
Develop a Decision Rule	S9 Site Assessment Criteria
Specify Acceptable Limits on Decision Errors	S8 Fieldwork S9 Site Assessment Criteria QA/QC Procedures and Results – Sections Q2, Q3
Optimise the Design for Obtaining Data	S2 Scope of Works S8.1 Sample Location and Rationale QA/QC Procedures and Results – Sections Q2, Q3

Q2. FIELD AND LABORATORY QUALITY CONTROL

The field and laboratory quality control (QC) procedures and results are summarised in Tables Q2 and Q3. Reference should be made to the fieldwork and analysis procedures in Section 8 and the laboratory results certificates in Appendix J for further details.

Table Q2: Field QC

Item	Evaluation / Acceptance Criteria	Achievement
Intra-laboratory replicates	5% primary samples; <30% RPD (inorganics), <50% RPD (organics)	yes[1,2]
Trip Spikes	1 per day, per sampling event; 60-140% recovery	yes
Trip Blanks	1 per day, per sampling event; <PQL	yes

Notes: 1 qualitative assessment of RPD results overall; refer Section Q2.1
2 applies where concentrations are >5 x LOR/PQL
3 qualitative assessment of RPD results overall; refer Section Q2.2

Table Q3: Laboratory QC

Item	Evaluation / Acceptance Criteria	Achievement
Analytical laboratories used	NATA accreditation	yes
Holding times	In accordance with NEPC (2013) which references various Australian and international standards	yes
Laboratory / Reagent Blanks	1 per batch; <PQL	yes
Matrix Spikes	1 per lab batch; 70-130% recovery (inorganics); 60-140% (organics); 10-140% (SVOC and speciated phenols)	yes
Surrogate Spikes	All organics analysis; 70-130% recovery (inorganics); 60-140% (organics); 10-140% (SVOC and speciated phenols)	yes
Control Samples	1 per lab batch; 70-130% recovery (inorganics); 60-140% (organics); 10-140% (SVOC and speciated phenols)	yes

It is noted that the laboratory RPD acceptance criteria was exceeded in two samples for lead, zinc, copper and nickel. Triplicate results were issued which were found to be suitable for the purposes of the QA/QC.

In summary, the QC data is considered to be of sufficient quality to be acceptable for the assessment.

Q2.1 Intra-Laboratory Replicates

Intra-laboratory replicates were analysed as an internal check of the reproducibility within the primary laboratory Envirolab Services Pty Ltd and as a measure of consistency of sampling techniques. The comparative results of analysis between original and intra-laboratory replicate samples are summarised in Table Q4.

Note that, where both samples are below LOR/PQL the difference and RPD has been given as zero. Where one sample is reported below LOR/PQL, but a concentration is reported for the other, the LOR/PQL value has been used for calculation of the RPD for the less than LOR/PQL sample.

Table Q4: Relative Percentage Difference Results – Intra-laboratory Replicates

Lab	Sample ID	Date Sampled	Media	Units	Metals								BTEX			
					As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	Benzene	Toluene	Ethylbenzene	xylene
Envirolab	BH108/0.15-0.35	12/12/2014	filling	mg/kg	<4.0	<0.4	13	16	33	<0.1	11	25	<0.2	<0.5	<1.0	<3.0
Envirolab	BD1A/111214	12/12/2014	filling	mg/kg	<4.0	<0.4	17	35	22	<0.1	25	31	<0.2	<0.5	<1.0	<3.0
Difference				mg/kg	-	-	4	**19**	**11**	**-**	**14**	6	-	-	-	-
RPD				%	-	-	27	**75**	**40**	**-**	**78**	21	-	-	-	-

Note: - not applicable, not tested

The calculated RPD values were within the acceptable range of ± 30 for inorganic analytes and ± 50% for organics with the with the exception of those in bold. However, this is not considered to be significant because:

- The replicate pair being collected from fill soils which were heterogeneous in nature;
- Soil replicates, rather than homogenised soil duplicates, were used to minimise the risk of possible volatile loss, hence greater variability can be expected;
- The majority of RPDs within a replicate pair being within the acceptable limits; and
- All other QA/QC parameters met the DQIs.

Overall, the intra-laboratory replicate comparisons indicate that the sampling techniques were generally consistent and repeatable.

Q3. Data Quality Indicators

The reliability of field procedures and analytical results was assessed against the following data quality indicators (DQIs):

- Completeness – a measure of the amount of usable data from a data collection activity;
- Comparability – the confidence (qualitative) that data may be considered to be equivalent for each sampling and analytical event;
- Representativeness – the confidence (qualitative) of data representativeness of media present on-site;
- Precision – a measure of variability or reproducibility of data; and
- Accuracy – a measure of closeness of the data to the 'true' value.

The DQIs were assessed as outlined in the following Table Q5.

Table Q5: Data Quality Indicators

Data Quality Indicator	Method(s) of Achievement
Completeness	Planned systematic and selected target locations sampled; Preparation of field logs, sample location plan and chain of custody (COC) records; Preparation of field groundwater sampling sheets; Laboratory sample receipt information received confirming receipt of samples intact and appropriateness of the chain of custody; Samples analysed for contaminants of potential concern (COPC) identified in the Conceptual Site Model (CSM); Completion of COC documentation; NATA endorsed laboratory certificates provided by the laboratory; Satisfactory frequency and results for field and laboratory QC samples as discussed in Section Q2.
Comparability	Using appropriate techniques for sample recovery, storage and transportation, which were the same for the duration of the project; Works undertaken by appropriately experienced and trained DP environmental scientist / engineer; Use of NATA registered laboratory; Satisfactory results for field and laboratory QC samples.
Representativeness	Target media sampled; Spatial and temporal distribution of sample locations; Sample numbers recovered and analysed are considered to be representative of the target media and complying with DQOs; Samples were extracted and analysed within holding times; Samples were analysed in accordance with the analysis request.
Precision	Acceptable RPD overall between original samples and replicates; Satisfactory results for all other field and laboratory QC samples.
Accuracy	Satisfactory results for all field and laboratory QC samples.

Based on the above, it is considered that the DQIs have been complied with. As such, it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.

Appendix I

Borehole Log Results

Notes About this Report

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

Sampling

Sampling is carried out during drilling or test pitting to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing it to obtain a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Test Pits

Test pits are usually excavated with a backhoe or an excavator, allowing close examination of the in-situ soil if it is safe to enter into the pit. The depth of excavation is limited to about 3 m for a backhoe and up to 6 m for a large excavator. A potential disadvantage of this investigation method is the larger area of disturbance to the site.

Large Diameter Augers

Boreholes can be drilled using a rotating plate or short spiral auger, generally 300 mm or larger in diameter commonly mounted on a standard piling rig. The cuttings are returned to the surface at intervals (generally not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube samples.

Continuous Spiral Flight Augers

The borehole is advanced using 90-115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are disturbed and may be mixed with soils from the sides of the hole. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively low reliability, due to the remoulding, possible mixing or softening of samples by groundwater.

Non-core Rotary Drilling

The borehole is advanced using a rotary bit, with water or drilling mud being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from the rate of penetration. Where drilling mud is used this can mask the cuttings and reliable identification is only possible from separate sampling such as SPTs.

Continuous Core Drilling

A continuous core sample can be obtained using a diamond tipped core barrel, usually with a 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in weak rocks and granular soils), this technique provides a very reliable method of investigation.

Standard Penetration Tests

Standard penetration tests (SPT) are used as a means of estimating the density or strength of soils and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, Methods of Testing Soils for Engineering Purposes - Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of, say, 4, 6 and 7 as:

  4,6,7
  N=13

- In the case where the test is discontinued before the full penetration depth, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm as:

  15, 30/40 mm

The results of the SPT tests can be related empirically to the engineering properties of the soils.

Dynamic Cone Penetrometer Tests / Perth Sand Penetrometer Tests

Dynamic penetrometer tests (DCP or PSP) are carried out by driving a steel rod into the ground using a standard weight of hammer falling a specified distance. As the rod penetrates the soil the number of blows required to penetrate each successive 150 mm depth are recorded. Normally there is a depth limitation of 1.2 m, but this may be extended in certain conditions by the use of extension rods. Two types of penetrometer are commonly used.

- Perth sand penetrometer - a 16 mm diameter flat ended rod is driven using a 9 kg hammer dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.
- Cone penetrometer - a 16 mm diameter rod with a 20 mm diameter cone end is driven using a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). This test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various road authorities.

Soil Descriptions

Douglas Partners

Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are based on Australian Standard AS 1726, Geotechnical Site Investigations Code. In general, the descriptions include strength or density, colour, structure, soil or rock type and inclusions.

Soil Types

Soil types are described according to the predominant particle size, qualified by the grading of other particles present:

Type	Particle size (mm)
Boulder	>200
Cobble	63 - 200
Gravel	2.36 - 63
Sand	0.075 - 2.36
Silt	0.002 - 0.075
Clay	<0.002

The sand and gravel sizes can be further subdivided as follows:

Type	Particle size (mm)
Coarse gravel	20 - 63
Medium gravel	6 - 20
Fine gravel	2.36 - 6
Coarse sand	0.6 - 2.36
Medium sand	0.2 - 0.6
Fine sand	0.075 - 0.2

The proportions of secondary constituents of soils are described as:

Term	Proportion	Example
And	Specify	Clay (60%) and Sand (40%)
Adjective	20 - 35%	Sandy Clay
Slightly	12 - 20%	Slightly Sandy Clay
With some	5 - 12%	Clay with some sand
With a trace of	0 - 5%	Clay with a trace of sand

Definitions of grading terms used are:

- Well graded - a good representation of all particle sizes
- Poorly graded - an excess or deficiency of particular sizes within the specified range
- Uniformly graded - an excess of a particular particle size
- Gap graded - a deficiency of a particular particle size with the range

Cohesive Soils

Cohesive soils, such as clays, are classified on the basis of undrained shear strength. The strength may be measured by laboratory testing, or estimated by field tests or engineering examination. The strength terms are defined as follows:

Description	Abbreviation	Undrained shear strength (kPa)
Very soft	vs	<12
Soft	s	12 - 25
Firm	f	25 - 50
Stiff	st	50 - 100
Very stiff	vst	100 - 200
Hard	h	>200

Cohesionless Soils

Cohesionless soils, such as clean sands, are classified on the basis of relative density, generally from the results of standard penetration tests (SPT), cone penetration tests (CPT) or dynamic penetrometers (PSP). The relative density terms are given below:

Relative Density	Abbreviation	SPT N value	CPT qc value (MPa)
Very loose	vl	<4	<2
Loose	l	4 - 10	2 -5
Medium dense	md	10 - 30	5 - 15
Dense	d	30 - 50	15 - 25
Very dense	vd	>50	>25

Soil Descriptions

Soil Origin

It is often difficult to accurately determine the origin of a soil. Soils can generally be classified as:

- Residual soil - derived from in-situ weathering of the underlying rock;
- Transported soils - formed somewhere else and transported by nature to the site; or
- Filling - moved by man.

Transported soils may be further subdivided into:

- Alluvium - river deposits
- Lacustrine - lake deposits
- Aeolian - wind deposits
- Littoral - beach deposits
- Estuarine - tidal river deposits
- Talus - scree or coarse colluvium
- Slopewash or Colluvium - transported downslope by gravity assisted by water. Often includes angular rock fragments and boulders.

Rock Strength

Rock strength is defined by the Point Load Strength Index ($Is_{(50)}$) and refers to the strength of the rock substance and not the strength of the overall rock mass, which may be considerably weaker due to defects. The test procedure is described by Australian Standard 4133.4.1 - 1993. The terms used to describe rock strength are as follows:

Term	Abbreviation	Point Load Index $Is_{(50)}$ MPa	Approx Unconfined Compressive Strength MPa*
Extremely low	EL	<0.03	<0.6
Very low	VL	0.03 - 0.1	0.6 - 2
Low	L	0.1 - 0.3	2 - 6
Medium	M	0.3 - 1.0	6 - 20
High	H	1 - 3	20 - 60
Very high	VH	3 - 10	60 - 200
Extremely high	EH	>10	>200

* Assumes a ratio of 20:1 for UCS to $Is_{(50)}$

Degree of Weathering

The degree of weathering of rock is classified as follows:

Term	Abbreviation	Description
Extremely weathered	EW	Rock substance has soil properties, i.e. it can be remoulded and classified as a soil but the texture of the original rock is still evident.
Highly weathered	HW	Limonite staining or bleaching affects whole of rock substance and other signs of decomposition are evident. Porosity and strength may be altered as a result of iron leaching or deposition. Colour and strength of original fresh rock is not recognisable
Moderately weathered	MW	Staining and discolouration of rock substance has taken place
Slightly weathered	SW	Rock substance is slightly discoloured but shows little or no change of strength from fresh rock
Fresh stained	Fs	Rock substance unaffected by weathering but staining visible along defects
Fresh	Fr	No signs of decomposition or staining

Degree of Fracturing

The following classification applies to the spacing of natural fractures in diamond drill cores. It includes bedding plane partings, joints and other defects, but excludes drilling breaks.

Term	Description
Fragmented	Fragments of <20 mm
Highly Fractured	Core lengths of 20-40 mm with some fragments
Fractured	Core lengths of 40-200 mm with some shorter and longer sections
Slightly Fractured	Core lengths of 200-1000 mm with some shorter and loner sections
Unbroken	Core lengths mostly > 1000 mm

Rock Descriptions

Rock Quality Designation

The quality of the cored rock can be measured using the Rock Quality Designation (RQD) index, defined as:

$$\text{RQD \%} = \frac{\text{cumulative length of 'sound' core sections} \geq \text{100 mm long}}{\text{total drilled length of section being assessed}}$$

where 'sound' rock is assessed to be rock of low strength or better. The RQD applies only to natural fractures. If the core is broken by drilling or handling (i.e. drilling breaks) then the broken pieces are fitted back together and are not included in the calculation of RQD.

Stratification Spacing

For sedimentary rocks the following terms may be used to describe the spacing of bedding partings:

Term	Separation of Stratification Planes
Thinly laminated	< 6 mm
Laminated	6 mm to 20 mm
Very thinly bedded	20 mm to 60 mm
Thinly bedded	60 mm to 0.2 m
Medium bedded	0.2 m to 0.6 m
Thickly bedded	0.6 m to 2 m
Very thickly bedded	> 2 m

Symbols & Abbreviations

Douglas Partners

Introduction

These notes summarise abbreviations commonly used on borehole logs and test pit reports.

Drilling or Excavation Methods

C	Core Drilling
R	Rotary drilling
SFA	Spiral flight augers
NMLC	Diamond core - 52 mm dia
NQ	Diamond core - 47 mm dia
HQ	Diamond core - 63 mm dia
PQ	Diamond core - 81 mm dia

Water

▷	Water seep
▽	Water level

Sampling and Testing

A	Auger sample
B	Bulk sample
D	Disturbed sample
E	Environmental sample
U_{50}	Undisturbed tube sample (50mm)
W	Water sample
pp	pocket penetrometer (kPa)
PID	Photo ionisation detector
PL	Point load strength Is(50) MPa
S	Standard Penetration Test
V	Shear vane (kPa)

Description of Defects in Rock

The abbreviated descriptions of the defects should be in the following order: Depth, Type, Orientation, Coating, Shape, Roughness and Other. Drilling and handling breaks are not usually included on the logs.

Defect Type

B	Bedding plane
Cs	Clay seam
Cv	Cleavage
Cz	Crushed zone
Ds	Decomposed seam
F	Fault
J	Joint
Lam	lamination
Pt	Parting
Sz	Sheared Zone
V	Vein

Orientation

The inclination of defects is always measured from the perpendicular to the core axis.

h	horizontal
v	vertical
sh	sub-horizontal
sv	sub-vertical

Coating or Infilling Term

cln	clean
co	coating
he	healed
inf	infilled
stn	stained
ti	tight
vn	veneer

Coating Descriptor

ca	calcite
cbs	carbonaceous
cly	clay
fe	iron oxide
mn	manganese
slt	silty

Shape

cu	curved
ir	irregular
pl	planar
st	stepped
un	undulating

Roughness

po	polished
ro	rough
sl	slickensided
sm	smooth
vr	very rough

Other

fg	fragmented
bnd	band
qtz	quartz

Symbols & Abbreviations

Graphic Symbols for Soil and Rock

General


Asphalt


Road base


Concrete


Filling

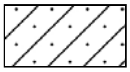
Soils


Topsoil

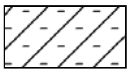

Peat


Clay

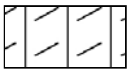

Silty clay

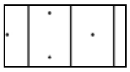

Sandy clay

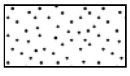

Gravelly clay

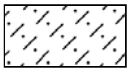

Shaly clay

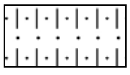

Silt


Clayey silt


Sandy silt

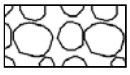

Sand

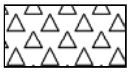

Clayey sand


Silty sand


Gravel


Sandy gravel


Cobbles, boulders

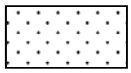

Talus

Sedimentary Rocks

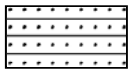

Boulder conglomerate

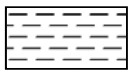

Conglomerate


Conglomeratic sandstone

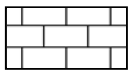

Sandstone


Siltstone


Laminite

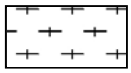

Mudstone, claystone, shale

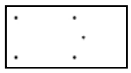

Coal


Limestone

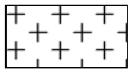
Metamorphic Rocks

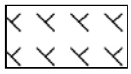

Slate, phyllite, schist

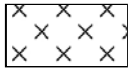

Gneiss

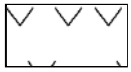

Quartzite

Igneous Rocks


Granite


Dolerite, basalt, andesite


Dacite, epidote


Tuff, breccia


Porphyry

BOREHOLE LOG

CLIENT: Aqualand Projects Pty Ltd
PROJECT: Proposed Mixed-Use Development
LOCATION: 23-41 Lindfield Avenue, Lindfield

SURFACE LEVEL: 92.7 AHD
EASTING: 330504
NORTHING: 6261394
DIP/AZIMUTH: 90°/--

BORE No: 101
PROJECT No: 73174.02/03
DATE: 12/12/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
92	0.02	ASPHALT							A			
	0.3	FILLING - grey, silty clayey, fine to coarse sand filling with some fine gravel, moist							A			
		SILTY CLAY - firm to stiff, orange-brown, silty clay with a trace of fine ironstone gravel, moist							A			
91	1	0.7m: stiff to very stiff, red-brown							S			7,12,26 N = 38
		0.9m: hard, brown mottled yellow-brown										
		1.0m: some ironstone bands and fine to medium ironstone gravel										
	1.8	SILTY CLAY - red-brown and grey, silty clay with ironstone bands, humid										
90	2								S			26,25/150mm refusal
	3											
	3.2	SILTY CLAY - very stiff, grey and red-brown mottled silty clay, moist										
89	3.8	SHALY CLAY - hard, grey shaly clay with a trace of fine ironstone gravel, humid						Note: Unless otherwise stated, rock is fractured along rough planar bedding dipping 0°- 10°	S			9,18,24 N = 42
	4											
	4.5	SANDY CLAY (WEATHERED SANDSTONE) - hard, grey, fine grained sandy clay, humid										
88	5											
	5.05	SANDSTONE - low to medium then medium strength, highly then slightly weathered, slightly fractured, light grey-brown and red-brown, fine to medium grained sandstone						5.1-5.27m: B's 0°, cly co, 5mm				PL(A) = 0.7
												PL(A) = 0.3
								5.78, 5.86 & 6.53m: B5°-10°, cly co, 2-3mm				
87	6								C	100	91	
												PL(A) = 0.8
	7							6.95m: B0°, fe, cly, 5mm				
	7.0	LAMINITE - low to medium strength, fresh, slightly fractured, light grey to grey, laminite with approximately 40% fine sandstone laminations						7.1m: B10°, cly, 5mm				
86								7.45m: J35°, un, ro, cln				PL(A) = 0.3
	8							7.93m: J90°, pl, ro, cln				
	8.07	Bore discontinued at 8.07m						7.97-8.0m: cly				
85												
	9											
84												
83												

RIG: MD200 **DRILLER:** ID **LOGGED:** KM/SI **CASING:** HW to 2.5m

TYPE OF BORING: Solid flight auger to 2.5m; Rotary to 5.0m; NMLC-Coring to 8.07m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Aqualand Projects Pty Ltd
PROJECT: Proposed Mixed-Use Development
LOCATION: 23-41 Lindfield Avenue, Lindfield

SURFACE LEVEL: 94.1 AHD
EASTING: 330492
NORTHING: 6261380
DIP/AZIMUTH: 90°/--

BORE No: BH102
PROJECT No: 73174.02/03
DATE: 11/12/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
94	0.02	ASPHALT		U_{90}	0.02				
	0.2	FILLING - grey, sand filling with some basalt and concrete gravel			0.1				
		SILTY CLAY - stiff to very stiff, red-brown, silty clay with some ironstone gravel		U_{90}	0.7				
93	1.0	Bore discontinued at 1.0m - target depth reached			1.0				
92	2								
91	3								
90	4								
89	5								
88	6								
87	7								
86	8								
85	9								

RIG: Dando Terrier **DRILLER:** ID **LOGGED:** MW **CASING:** Uncased
TYPE OF BORING: Push Tube to 1.0m
WATER OBSERVATIONS: No free groundwater observed
REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Aqualand Projects Pty Ltd
PROJECT: Proposed Mixed-Use Development
LOCATION: 23-41 Lindfield Avenue, Lindfield

SURFACE LEVEL: 94.5 AHD
EASTING: 330525
NORTHING: 6261360
DIP/AZIMUTH: 90°/--

BORE No: BH103
PROJECT No: 73174.02/03
DATE: 11/12/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
94	0.12	CONCRETE							
	0.2	FILLING - grey, sandy, fine gravel filling		U_{90}	0.15 0.26				
		SILTY CLAY - stiff to very stiff, red-brown, silty clay with some ironstone bands and gravel		U_{90}	0.7				
93	1.0	Bore discontinued at 1.0m - target depth reached			1.0				
92									
91									
90									
89									
88									
87									
86									
85									

RIG: Dando Terrier **DRILLER:** ID **LOGGED:** MW **CASING:** Uncased
TYPE OF BORING: 150mm Diacore to 0.15m; Pushtube to 1.0m
WATER OBSERVATIONS: No free groundwater observed
REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Aqualand Projects Pty Ltd
PROJECT: Proposed Mixed-Use Development
LOCATION: 23-41 Lindfield Avenue, Lindfield

SURFACE LEVEL: 94.8 AHD
EASTING: 330500
NORTHING: 6261358
DIP/AZIMUTH: 90°/--

BORE No: BH104
PROJECT No: 73174.02/03
DATE: 11/12/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
94.8	0.12	CONCRETE			0.12				
94.7	0.18	FILLING - grey, sandy, fine gravel filling		U_{90}	0.18				
		SILTY CLAY - stiff to very stiff, red-brown, silty clay with some ironstone gravel			0.7				
93.8	1.0			U_{90}	1.0				
		Bore discontinued at 1.0m - target depth reached							

RIG: Dando Terrier **DRILLER:** ID **LOGGED:** MW **CASING:** Uncased

TYPE OF BORING: 150mm Diacore to 0.12m; Pushtube to 1.0m

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Aqualand Projects Pty Ltd
PROJECT: Proposed Mixed-Use Development
LOCATION: 23-41 Lindfield Avenue, Lindfield

SURFACE LEVEL: 95.4 AHD
EASTING: 330483
NORTHING: 6261363
DIP/AZIMUTH: 90°/--

BORE No: BH105
PROJECT No: 73174.02/03
DATE: 11/12/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
95	0.17	CONCRETE							
	0.35	FILLING - grey, sand filling with some basalt and concrete gravel		U_{90}	0.2–0.3				
		SILTY CLAY - stiff to very stiff, red-brown, silty clay with some ironstone bands and gravel		U_{90}	0.7–1.0				
	1	1.0m: hard		S	1.45		22,26,26 N = 52		1
94	1.7	- refusal at 1.7m		S	1.7		30/30mm refusal		
		Bore discontinued at 1.7m - suspected ironstone band							
	2								2
93									
	3								3
92									
	4								4
91									
	5								5
90									
	6								6
89									
	7								7
88									
	8								8
87									
	9								9
86									

RIG: Dando Terrier **DRILLER:** ID **LOGGED:** MW **CASING:** Uncased

TYPE OF BORING: 150mm Diacore to 0.17m; Pushtube to 1.7m

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Aqualand Projects Pty Ltd
PROJECT: Proposed Mixed-Use Development
LOCATION: 23-41 Lindfield Avenue, Lindfield

SURFACE LEVEL: 94.8 AHD
EASTING: 330498
NORTHING: 6261343
DIP/AZIMUTH: 90°/--

BORE No: BH106
PROJECT No: 73174.02/03
DATE: 11/12/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
94	0.12	CONCRETE		U_{90}	0.08				
	0.2	FILLING - brown, gravelly (basalt) clay filling with some sand			0.2				
		SILTY CLAY - stiff to very stiff, grey and red-brown, silty clay with some ironstone gravel		U_{90}	0.8				
	0.9				0.9				
	1	SHALY CLAY - hard, grey, shaly clay with some ironstone bands		S	1.0		11,16,23 N = 39		1
					1.45				
				U_{80}	1.6				
93	1.7	SHALE - extremely low to very low strength, extremely to highly weathered, light grey shale with some ironstone and clay bands			1.7				
	2			S			26,30,39 N = 69		2
	2.15	Bore discontinued at 2.15m - target depth reached			2.15				
92	3								3
91	4								4
90	5								5
89	6								6
88	7								7
87	8								8
86	9								9
85									

RIG: Dando Terrier **DRILLER:** ID **LOGGED:** MW **CASING:** Uncased

TYPE OF BORING: 150mm Diacore to 0.12m; Pushtube to 2.15m

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Aqualand Projects Pty Ltd
PROJECT: Proposed Mixed-Use Development
LOCATION: 23-41 Lindfield Avenue, Lindfield

SURFACE LEVEL: 97.1 AHD
EASTING: 330496
NORTHING: 6261330
DIP/AZIMUTH: 90°/--

BORE No: BH107
PROJECT No: 73174.02/03
DATE: 11/12/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
97	0.13	CONCRETE							
	0.3	FILLING - grey, sandy fine gravel filling with some clay		U_{90}	0.15				
		SILTY CLAY - stiff to very stiff, grey mottled red-brown, silty clay with a trace of fine ironstone gravel			0.3				
				U_{90}	0.7				
96	1.0	Bore discontinued at 1.0m - target depth reached			1.0				
95	2								
94	3								
93	4								
92	5								
91	6								
90	7								
89	8								
88	9								

RIG: Dando Terrier **DRILLER:** ID **LOGGED:** MW **CASING:** Uncased

TYPE OF BORING: 150mm Diacore to 0.13m; Pushtube to 1.0m

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Aqualand Projects Pty Ltd
PROJECT: Proposed Mixed-Use Development
LOCATION: 23-41 Lindfield Avenue, Lindfield

SURFACE LEVEL: 96.1 AHD
EASTING: 330517
NORTHING: 6261338
DIP/AZIMUTH: 90°/--

BORE No: BH108
PROJECT No: 73174.02/03
DATE: 11/12/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
96	0.14	CONCRETE							
		FILLING - grey, sandy, fine gravel with some clay filling		*U_{90}	0.15 0.35				
	0.47	SILTY CLAY - stiff to very stiff, grey mottled red-brown, silty clay with a trace of fine ironstone gravel		U_{90}	0.7				
95	1.0	Bore discontinued at 1.0m - target depth reached			1.0				
94									
93									
92									
91									
90									
89									
88									
87									

RIG: Dando Terrier **DRILLER:** ID **LOGGED:** MW **CASING:** Uncased

TYPE OF BORING: 150mm Diacore to 0.14m; Pushtube to 1.0m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: *BD1A/BD1B taken from 0.15m to 0.35m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Aqualand Projects Pty Ltd
PROJECT: Proposed Mixed-Use Development
LOCATION: 23-41 Lindfield Avenue, Lindfield

SURFACE LEVEL: 97.7 AHD
EASTING: 330501
NORTHING: 6261318
DIP/AZIMUTH: 90°/--

BORE No: BH109
PROJECT No: 73174.02/03
DATE: 11/12/2014
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
97	0.02	ASPHALT		U_{90}	0.02–0.1				
	0.35	FILLING - grey, sand filling with some basalt and concrete gravel FILLING - brown, gravel and cobble filling (bricks whole and fragments)							
	1			U_{90}	0.7–1.0				
	1.2	SILTY CLAY - stiff to very stiff, light grey and orange-brown, silty clay 1.0m: hard		S	1.0–1.45		9,10,16 N = 26		
96		SHALY CLAY - hard, grey, shaly clay with some ironstone bands		U_{80}	1.7–2.0				
	2			S	2.0–2.45		17,17,24 N = 41		
	2.6	Bore discontinued at 2.6m - on extremely weathered, light grey shale							
95	3								
94	4								
93	5								
92	6								
91	7								
90	8								
89	9								
88									

RIG: Dando Terrier **DRILLER:** ID **LOGGED:** MW **CASING:** Uncased

TYPE OF BORING: Pushtube to 2.6m

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

Appendix J

Laboratory Reports

and Chain-of-Custody Documentation

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 120983

Client:
Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Matt West

Sample log in details:

Your Reference:	**73174.03, Linfield**
No. of samples:	16 Soils 4 Waters
Date samples received / completed instructions received	15/12/2014 / 15/12/2014

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	22/12/14 / 22/12/14
Date of Preliminary Report:	Not Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	120983-5	120983-6	120983-7	120983-8	120983-9
Your Reference	----------	BH101	BH101	BD1A/111214	TS	TB
Depth	----------	0.1	0.5	-	-	-
Date Sampled		12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	18/12/2014	18/12/2014	18/12/2014	18/12/2014	18/12/2014
TRHC$_6$ - C$_9$	mg/kg	<25	<25	[NA]	[NA]	[NA]
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	[NA]	[NA]	[NA]
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	[NA]	[NA]	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	103%	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	104%	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	108%	<1
m+p-xylene	mg/kg	<2	<2	<2	108%	<2
o-Xylene	mg/kg	<1	<1	<1	107%	<1
naphthalene	mg/kg	<1	<1	[NA]	[NA]	[NA]
Surrogate aaa-Trifluorotoluene	%	78	79	95	100	104

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	120983-10	120983-11	120983-12	120983-13	120983-14
Your Reference	----------	BH102	BH103	BH104	BH105	BH106
Depth	----------	0.05-0.15	0.7-0.10	0.12-0.18	0.2-0.3	0.08-0.20
Date Sampled		11/12/2014	11/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	18/12/2014	18/12/2014	18/12/2014	18/12/2014	18/12/2014
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	100	101	98	102	97

vTRH(C6-C10)/BTEXN in Soil						
Our Reference:	UNITS	120983-15	120983-16	120983-17	120983-18	120983-19
Your Reference	----------	BH106	BH107	BH108	BH109	BH109
Depth	----------	1.6-1.7	0.2-0.3	0.15-0.35	0.7-1.0	0.02-0.10
Date Sampled		11/12/2014	11/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	18/12/2014	18/12/2014	18/12/2014	18/12/2014	18/12/2014
TRHC$_6$ - C$_9$	mg/kg	<25	<25	<25	<25	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25	<25	<25	<25	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	100	100	99	100	103

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	120983-20
Your Reference	----------	BH109
Depth	----------	1.7-2.0
Date Sampled		11/12/2014
Type of sample		Soil
Date extracted	-	16/12/2014
Date analysed	-	18/12/2014
TRHC$_6$ - C$_9$	mg/kg	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	96

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	120983-5	120983-6	120983-10	120983-11	120983-12
Your Reference	----------	BH101	BH101	BH102	BH103	BH104
Depth	----------	0.1	0.5	0.05-0.15	0.7-0.10	0.12-0.18
Date Sampled		12/12/2014	12/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	17/12/2014	17/12/2014	17/12/2014	17/12/2014	17/12/2014
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	140	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	160	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	150	<100	<100	<100	<100
Surrogate o-Terphenyl	%	89	89	92	88	88

svTRH (C10-C40) in Soil						
Our Reference:	UNITS	120983-13	120983-14	120983-15	120983-16	120983-17
Your Reference	----------	BH105	BH106	BH106	BH107	BH108
Depth	----------	0.2-0.3	0.08-0.20	1.6-1.7	0.2-0.3	0.15-0.35
Date Sampled		11/12/2014	11/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	17/12/2014	17/12/2014	17/12/2014	17/12/2014	17/12/2014
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	92	85	85	88	85

svTRH (C10-C40) in Soil				
Our Reference:	UNITS	120983-18	120983-19	120983-20
Your Reference	----------	BH109	BH109	BH109
Depth	----------	0.7-1.0	0.02-0.10	1.7-2.0
Date Sampled		11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	17/12/2014	17/12/2014	17/12/2014
TRHC$_{10}$ - C$_{14}$	mg/kg	<50	<50	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100	<100	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100	<100	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50	<50	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100	<100	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100	<100	<100
Surrogate o-Terphenyl	%	85	85	86

PAHs in Soil						
Our Reference:	UNITS	120983-5	120983-6	120983-10	120983-11	120983-12
Your Reference	----------	BH101	BH101	BH102	BH103	BH104
Depth	----------	0.1	0.5	0.05-0.15	0.7-0.10	0.12-0.18
Date Sampled		12/12/2014	12/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	102	109	105	103	104

PAHs in Soil						
Our Reference:	UNITS	120983-13	120983-14	120983-15	120983-16	120983-17
Your Reference	----------	BH105	BH106	BH106	BH107	BH108
Depth	----------	0.2-0.3	0.08-0.20	1.6-1.7	0.2-0.3	0.15-0.35
Date Sampled		11/12/2014	11/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.8
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	1.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.7
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.6
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	1
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.66
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.4
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	<0.5	<0.5	<0.5	0.9
Total Positive PAHs	mg/kg	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	5.9
Surrogate p-Terphenyl-d14	%	106	102	107	99	99

PAHs in Soil				
Our Reference:	UNITS	120983-18	120983-19	120983-20
Your Reference	----------	BH109	BH109	BH109
Depth	----------	0.7-1.0	0.02-0.10	1.7-2.0
Date Sampled		11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	16/12/2014	17/12/2014	17/12/2014
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.4	<0.1
Pyrene	mg/kg	<0.1	0.5	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.4	<0.1
Chrysene	mg/kg	<0.1	0.4	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.8	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.54	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.4	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.3	<0.1
Benzo(a)pyrene TEQ NEPM B1	mg/kg	<0.5	0.7	<0.5
Total Positive PAHs	mg/kg	NIL (+)VE	4.0	NIL (+)VE
Surrogate p-Terphenyl-d14	%	104	101	103

Organochlorine Pesticides in soil						
Our Reference:	UNITS	120983-6	120983-10	120983-11	120983-12	120983-13
Your Reference	----------	BH101	BH102	BH103	BH104	BH105
Depth	----------	0.5	0.05-0.15	0.7-0.10	0.12-0.18	0.2-0.3
Date Sampled		12/12/2014	11/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	85	83	81	81	81

Organochlorine Pesticides in soil					
Our Reference:	UNITS	120983-14	120983-16	120983-17	120983-19
Your Reference	----------	BH106	BH107	BH108	BH109
Depth	----------	0.08-0.20	0.2-0.3	0.15-0.35	0.02-0.10
Date Sampled		11/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	80	83	79	79

Organophosphorus Pesticides						
Our Reference:	UNITS	120983-6	120983-10	120983-11	120983-12	120983-13
Your Reference	----------	BH101	BH102	BH103	BH104	BH105
Depth	----------	0.5	0.05-0.15	0.7-0.10	0.12-0.18	0.2-0.3
Date Sampled		12/12/2014	11/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	85	83	81	81	80

Organophosphorus Pesticides					
Our Reference:	UNITS	120983-14	120983-16	120983-17	120983-19
Your Reference	----------	BH106	BH107	BH108	BH109
Depth	----------	0.08-0.20	0.2-0.3	0.15-0.35	0.02-0.10
Date Sampled		11/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	80	83	79	79

PCBs in Soil						
Our Reference:	UNITS	120983-6	120983-10	120983-11	120983-12	120983-13
Your Reference	----------	BH101	BH102	BH103	BH104	BH105
Depth	----------	0.5	0.05-0.15	0.7-0.10	0.12-0.18	0.2-0.3
Date Sampled		12/12/2014	11/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	85	83	81	81	81

PCBs in Soil					
Our Reference:	UNITS	120983-14	120983-16	120983-17	120983-19
Your Reference	----------	BH106	BH107	BH108	BH109
Depth	----------	0.08-0.20	0.2-0.3	0.15-0.35	0.02-0.10
Date Sampled		11/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Arochlor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	80	83	79	79

Total Phenolics in Soil						
Our Reference:	UNITS	120983-6	120983-10	120983-11	120983-12	120983-13
Your Reference	----------	BH101	BH102	BH103	BH104	BH105
Depth	----------	0.5	0.05-0.15	0.7-0.10	0.12-0.18	0.2-0.3
Date Sampled		12/12/2014	11/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Total Phenolics in Soil					
Our Reference:	UNITS	120983-14	120983-16	120983-17	120983-19
Your Reference	----------	BH106	BH107	BH108	BH109
Depth	----------	0.08-0.20	0.2-0.3	0.15-0.35	0.02-0.10
Date Sampled		11/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5

Acid Extractable metals in soil						
Our Reference:	UNITS	120983-5	120983-6	120983-7	120983-10	120983-11
Your Reference	----------	BH101	BH101	BD1A/111214	BH102	BH103
Depth	----------	0.1	0.5	-	0.05-0.15	0.7-0.10
Date Sampled		12/12/2014	12/12/2014	12/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	17/12/2014	17/12/2014	17/12/2014	17/12/2014	17/12/2014
Date analysed	-	17/12/2014	17/12/2014	17/12/2014	17/12/2014	17/12/2014
Arsenic	mg/kg	<4	7	<4	<4	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	11	43	17	10	18
Copper	mg/kg	65	2	35	62	<1
Lead	mg/kg	6	26	22	4	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	120	6	25	120	<1
Zinc	mg/kg	45	16	31	41	<1

Acid Extractable metals in soil						
Our Reference:	UNITS	120983-12	120983-13	120983-14	120983-15	120983-16
Your Reference	----------	BH104	BH105	BH106	BH106	BH107
Depth	----------	0.12-0.18	0.2-0.3	0.08-0.20	1.6-1.7	0.2-0.3
Date Sampled		11/12/2014	11/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	17/12/2014	17/12/2014	17/12/2014	17/12/2014	17/12/2014
Date analysed	-	17/12/2014	17/12/2014	17/12/2014	17/12/2014	17/12/2014
Arsenic	mg/kg	<4	<4	<4	<4	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	87	11	2	25
Copper	mg/kg	50	26	6	3	7
Lead	mg/kg	5	7	15	15	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	49	87	5	<1	20
Zinc	mg/kg	23	46	7	<1	13

Acid Extractable metals in soil						
Our Reference:	UNITS	120983-17	120983-18	120983-19	120983-20	120983-21
Your Reference	----------	BH108	BH109	BH109	BH109	BH101 - TRIPLICATE
Depth	----------	0.15-0.35	0.7-1.0	0.02-0.10	1.7-2.0	0.5
Date Sampled		11/12/2014	11/12/2014	11/12/2014	11/12/2014	12/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	17/12/2014	17/12/2014	17/12/2014	17/12/2014	17/12/2014
Date analysed	-	17/12/2014	17/12/2014	17/12/2014	17/12/2014	17/12/2014
Arsenic	mg/kg	<4	9	7	6	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	31	75	19	44
Copper	mg/kg	16	<1	34	<1	2
Lead	mg/kg	33	11	78	16	23
Mercury	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Nickel	mg/kg	11	<1	65	<1	6

Acid Extractable metals in soil						
Our Reference:	UNITS	120983-17	120983-18	120983-19	120983-20	120983-21
Your Reference	----------	BH108	BH109	BH109	BH109	BH101 - TRIPLICATE
Depth	----------	0.15-0.35	0.7-1.0	0.02-0.10	1.7-2.0	0.5
Date Sampled		11/12/2014	11/12/2014	11/12/2014	11/12/2014	12/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Zinc	mg/kg	25	<1	130	<1	12

Acid Extractable metals in soil		
Our Reference:	UNITS	120983-22
Your Reference	----------	BH107 - TRIPLICATE
Depth	----------	0.2-0.3
Date Sampled		11/12/2014
Type of sample		Soil
Date digested	-	17/12/2014
Date analysed	-	17/12/2014
Arsenic	mg/kg	8
Cadmium	mg/kg	<0.4
Chromium	mg/kg	16
Copper	mg/kg	4
Lead	mg/kg	25
Mercury	mg/kg	<0.1
Nickel	mg/kg	12
Zinc	mg/kg	10

Moisture						
Our Reference:	UNITS	120983-5	120983-6	120983-7	120983-9	120983-10
Your Reference	----------	BH101	BH101	BD1A/111214	TB	BH102
Depth	----------	0.1	0.5	-	-	0.05-0.15
Date Sampled		12/12/2014	12/12/2014	12/12/2014	12/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	17/12/2014	17/12/2014	17/12/2014	17/12/2014	17/12/2014
Moisture	%	6.9	23	18	1.9	4.5

Moisture						
Our Reference:	UNITS	120983-11	120983-12	120983-13	120983-14	120983-15
Your Reference	----------	BH103	BH104	BH105	BH106	BH106
Depth	----------	0.7-0.10	0.12-0.18	0.2-0.3	0.08-0.20	1.6-1.7
Date Sampled		11/12/2014	11/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	17/12/2014	17/12/2014	17/12/2014	17/12/2014	17/12/2014
Moisture	%	17	21	7.9	18	13

Moisture						
Our Reference:	UNITS	120983-16	120983-17	120983-18	120983-19	120983-20
Your Reference	----------	BH107	BH108	BH109	BH109	BH109
Depth	----------	0.2-0.3	0.15-0.35	0.7-1.0	0.02-0.10	1.7-2.0
Date Sampled		11/12/2014	11/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	17/12/2014	17/12/2014	17/12/2014	17/12/2014	17/12/2014
Moisture	%	16	15	16	5.7	11

Asbestos ID - soils						
Our Reference:	UNITS	120983-5	120983-6	120983-10	120983-11	120983-12
Your Reference	----------	BH101	BH101	BH102	BH103	BH104
Depth	----------	0.1	0.5	0.05-0.15	0.7-0.10	0.12-0.18
Date Sampled		12/12/2014	12/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	19/12/2014	19/12/2014	19/12/2014	19/12/2014	19/12/2014
Sample mass tested	g	Approx 40g	Approx 30g	Approx 40g	Approx 30g	Approx 35g
Sample Description	-	Grey coarse-grained soil & rocks	Red-brown coarse-grained soil	Grey coarse-grained soil & rocks	Pink coarse-grained soil & rocks	Grey coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference:	UNITS	120983-13	120983-14	120983-15	120983-16	120983-17
Your Reference	----------	BH105	BH106	BH106	BH107	BH108
Depth	----------	0.2-0.3	0.08-0.20	1.6-1.7	0.2-0.3	0.15-0.35
Date Sampled		11/12/2014	11/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	19/12/2014	19/12/2014	19/12/2014	19/12/2014	19/12/2014
Sample mass tested	g	Approx 40g	Approx 40g	Approx 35g	Approx 35g	Approx 40g
Sample Description	-	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Grey coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils				
Our Reference:	UNITS	120983-18	120983-19	120983-20
Your Reference	----------	BH109	BH109	BH109
Depth	----------	0.7-1.0	0.02-0.10	1.7-2.0
Date Sampled		11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil
Date analysed	-	19/12/2014	19/12/2014	19/12/2014
Sample mass tested	g	Approx 35g	Approx 40g	Approx 40g
Sample Description	-	Purple coarse-grained soil & rocks	Grey coarse-grained soil & rocks	Ivory coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected

VOCs in water Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ---------- 	120983-1 BH1 - 12/12/2014 Water	120983-2 BH5 - 12/12/2014 Water	120983-3 MW1 - 12/12/2014 Water	120983-4 MW4 - 12/12/2014 Water
Date extracted	-	16/12/2014	16/12/2014	16/12/2014	16/12/2014
Date analysed	-	17/12/2014	17/12/2014	17/12/2014	17/12/2014
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1
Chloroform	µg/L	<1	<1	13	<1
2,2-dichloropropane	µg/L	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	2	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1
Bromoform	µg/L	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1
o-xylene	µg/L	<1	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1

VOCs in water Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	120983-1 BH1 - 12/12/2014 Water	120983-2 BH5 - 12/12/2014 Water	120983-3 MW1 - 12/12/2014 Water	120983-4 MW4 - 12/12/2014 Water
Isopropylbenzene	µg/L	<1	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	105	104	104	105
Surrogate toluene-d8	%	100	100	101	100
Surrogate 4-BFB	%	103	102	102	103

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Org-013	Water samples are analysed directly by purge and trap GC-MS.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/12/2014	120983-6	16/12/2014 || 16/12/2014	LCS-4	16/12/2014
Date analysed	-			18/12/2014	120983-6	18/12/2014 || 18/12/2014	LCS-4	18/12/2014
TRHC6 - C9	mg/kg	25	Org-016	<25	120983-6	<25 || <25	LCS-4	90%
TRHC6 - C10	mg/kg	25	Org-016	<25	120983-6	<25 || <25	LCS-4	90%
Benzene	mg/kg	0.2	Org-016	<0.2	120983-6	<0.2 || <0.2	LCS-4	81%
Toluene	mg/kg	0.5	Org-016	<0.5	120983-6	<0.5 || <0.5	LCS-4	88%
Ethylbenzene	mg/kg	1	Org-016	<1	120983-6	<1 || <1	LCS-4	93%
m+p-xylene	mg/kg	2	Org-016	<2	120983-6	<2 || <2	LCS-4	94%
o-Xylene	mg/kg	1	Org-016	<1	120983-6	<1 || <1	LCS-4	95%
naphthalene	mg/kg	1	Org-014	<1	120983-6	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	84	120983-6	79 || 80 || RPD: 1	LCS-4	84%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/12/2014	120983-6	16/12/2014 || 16/12/2014	LCS-4	16/12/2014
Date analysed	-			17/12/2014	120983-6	17/12/2014 || 17/12/2014	LCS-4	17/12/2014
TRHC10 - C14	mg/kg	50	Org-003	<50	120983-6	<50 || <50	LCS-4	98%
TRHC15 - C28	mg/kg	100	Org-003	<100	120983-6	<100 || <100	LCS-4	108%
TRHC29 - C36	mg/kg	100	Org-003	<100	120983-6	<100 || <100	LCS-4	86%
TRH>C10-C16	mg/kg	50	Org-003	<50	120983-6	<50 || <50	LCS-4	98%
TRH>C16-C34	mg/kg	100	Org-003	<100	120983-6	<100 || <100	LCS-4	108%
TRH>C34-C40	mg/kg	100	Org-003	<100	120983-6	<100 || <100	LCS-4	86%
Surrogate o-Terphenyl	%		Org-003	82	120983-6	89 || 90 || RPD: 1	LCS-4	97%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/12/2014	120983-6	16/12/2014 || 16/12/2014	LCS-4	16/12/2014
Date analysed	-			16/12/2014	120983-6	16/12/2014 || 16/12/2014	LCS-4	16/12/2014
Naphthalene	mg/kg	0.1	Org-012 subset	<0.1	120983-6	<0.1 || <0.1	LCS-4	97%
Acenaphthylene	mg/kg	0.1	Org-012 subset	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	Org-012 subset	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	Org-012 subset	<0.1	120983-6	<0.1 || <0.1	LCS-4	95%
Phenanthrene	mg/kg	0.1	Org-012 subset	<0.1	120983-6	<0.1 || <0.1	LCS-4	89%
Anthracene	mg/kg	0.1	Org-012 subset	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	Org-012 subset	<0.1	120983-6	<0.1 || <0.1	LCS-4	89%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Pyrene	mg/kg	0.1	Org-012 subset	<0.1	120983-6	<0.1 || <0.1	LCS-4	106%
Benzo(a)anthracene	mg/kg	0.1	Org-012 subset	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	Org-012 subset	<0.1	120983-6	<0.1 || <0.1	LCS-4	84%
Benzo(b,j+k) fluoranthene	mg/kg	0.2	Org-012 subset	<0.2	120983-6	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	Org-012 subset	<0.05	120983-6	<0.05 || <0.05	LCS-4	102%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012 subset	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012 subset	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012 subset	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%		Org-012 subset	99	120983-6	109 || 107 || RPD: 2	LCS-4	107%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/12/2014	120983-6	16/12/2014 || 16/12/2014	LCS-4	16/12/2014
Date analysed	-			16/12/2014	120983-6	16/12/2014 || 16/12/2014	LCS-4	16/12/2014
HCB	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	LCS-4	129%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	LCS-4	129%
Heptachlor	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	LCS-4	110%
delta-BHC	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	LCS-4	.
Aldrin	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	LCS-4	115%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	LCS-4	108%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	LCS-4	122%
Dieldrin	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	LCS-4	110%
Endrin	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	LCS-4	116%
pp-DDD	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	LCS-4	133%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	LCS-4	117%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%		Org-005	77	120983-6	85 || 83 || RPD: 2	LCS-4	81%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/12/2014	120983-6	16/12/2014 || 16/12/2014	LCS-4	16/12/2014
Date analysed	-			16/12/2014	120983-6	16/12/2014 || 16/12/2014	LCS-4	16/12/2014
Diazinon	mg/kg	0.1	Org-008	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	Org-008	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	Org-008	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	120983-6	<0.1 || <0.1	LCS-4	104%
Fenitrothion	mg/kg	0.1	Org-008	<0.1	120983-6	<0.1 || <0.1	LCS-4	100%
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	Org-008	<0.1	120983-6	<0.1 || <0.1	LCS-4	108%
Surrogate TCMX	%		Org-008	77	120983-6	85 || 83 || RPD: 2	LCS-4	83%

QUALITY CONTROL PCBs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/12/2014	120983-6	16/12/2014 || 16/12/2014	LCS-4	16/12/2014
Date analysed	-			16/12/2014	120983-6	16/12/2014 || 16/12/2014	LCS-4	16/12/2014
Arochlor 1016	mg/kg	0.1	Org-006	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	Org-006	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	Org-006	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	Org-006	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	Org-006	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	Org-006	<0.1	120983-6	<0.1 || <0.1	LCS-4	101%
Arochlor 1260	mg/kg	0.1	Org-006	<0.1	120983-6	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		Org-006	77	120983-6	85 || 83 || RPD: 2	LCS-4	95%

QUALITY CONTROL Total Phenolics in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/12/2014	120983-6	16/12/2014 || 16/12/2014	LCS-1	16/12/2014
Date analysed	-			16/12/2014	120983-6	16/12/2014 || 16/12/2014	LCS-1	16/12/2014
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	120983-6	<5 || <5	LCS-1	102%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date digested	-			17/12/2014	120983-6	17/12/2014 || 17/12/2014	LCS-5	17/12/2014
Date analysed	-			17/12/2014	120983-6	17/12/2014 || 17/12/2014	LCS-5	17/12/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	120983-6	7 || 5 || RPD: 33	LCS-5	116%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	120983-6	<0.4 || <0.4	LCS-5	109%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	120983-6	43 || 26 || RPD: 49	LCS-5	114%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	120983-6	2 || 2 || RPD: 0	LCS-5	115%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	120983-6	26 || 13 || RPD: 67	LCS-5	108%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	120983-6	<0.1 || <0.1	LCS-5	99%
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	120983-6	6 || 5 || RPD: 18	LCS-5	109%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	120983-6	16 || 7 || RPD: 78	LCS-5	109%
QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base || Duplicate || %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			16/12/2014	120983-3	16/12/2014 || 16/12/2014	LCS-W1	16/12/2014
Date analysed	-			17/12/2014	120983-3	17/12/2014 || 17/12/2014	LCS-W1	17/12/2014
Dichlorodifluoromethane	µg/L	10	Org-013	<10	120983-3	<10 || <10	[NR]	[NR]
Chloromethane	µg/L	10	Org-013	<10	120983-3	<10 || <10	[NR]	[NR]
Vinyl Chloride	µg/L	10	Org-013	<10	120983-3	<10 || <10	[NR]	[NR]
Bromomethane	µg/L	10	Org-013	<10	120983-3	<10 || <10	[NR]	[NR]
Chloroethane	µg/L	10	Org-013	<10	120983-3	<10 || <10	[NR]	[NR]
Trichlorofluoromethane	µg/L	10	Org-013	<10	120983-3	<10 || <10	[NR]	[NR]
1,1-Dichloroethene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
1,1-dichloroethane	µg/L	1	Org-013	<1	120983-3	<1 || <1	LCS-W1	102%
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Bromochloromethane	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Chloroform	µg/L	1	Org-013	<1	120983-3	13 || 13 || RPD: 0	LCS-W1	101%
2,2-dichloropropane	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
1,2-dichloroethane	µg/L	1	Org-013	<1	120983-3	<1 || <1	LCS-W1	101%
1,1,1-trichloroethane	µg/L	1	Org-013	<1	120983-3	<1 || <1	LCS-W1	102%
1,1-dichloropropene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Cyclohexane	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Carbon tetrachloride	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Benzene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Dibromomethane	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
1,2-dichloropropane	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Trichloroethene	µg/L	1	Org-013	<1	120983-3	<1 || <1	LCS-W1	118%
Bromodichloromethane	µg/L	1	Org-013	<1	120983-3	2 || 2 || RPD: 0	LCS-W1	101%
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]

QUALITY CONTROL VOCs in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Toluene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
1,3-dichloropropane	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Dibromochloromethane	µg/L	1	Org-013	<1	120983-3	<1 || <1	LCS-W1	99%
1,2-dibromoethane	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Tetrachloroethene	µg/L	1	Org-013	<1	120983-3	<1 || <1	LCS-W1	99%
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Chlorobenzene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Ethylbenzene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Bromoform	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
m+p-xylene	µg/L	2	Org-013	<2	120983-3	<2 || <2	[NR]	[NR]
Styrene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
o-xylene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
1,2,3-trichloropropane	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Isopropylbenzene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Bromobenzene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
n-propyl benzene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
2-chlorotoluene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
4-chlorotoluene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Tert-butyl benzene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Sec-butyl benzene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
4-isopropyl toluene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
n-butyl benzene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Hexachlorobutadiene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	120983-3	<1 || <1	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-013	102	120983-3	104 || 104 || RPD: 0	LCS-W1	101%
Surrogate toluene-d8	%		Org-013	100	120983-3	101 || 100 || RPD: 1	LCS-W1	101%
Surrogate 4-BFB	%		Org-013	102	120983-3	102 || 100 || RPD: 2	LCS-W1	91%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	120983-16	16/12/2014 || 16/12/2014	120983-10	18/12/2014
Date analysed	-	120983-16	18/12/2014 || 18/12/2014	120983-10	18/12/2014
TRHC$_6$ - C$_9$	mg/kg	120983-16	<25 || <25	120983-10	109%
TRHC$_6$ - C$_{10}$	mg/kg	120983-16	<25 || <25	120983-10	109%

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzene	mg/kg	120983-16	<0.2 || <0.2	120983-10	94%
Toluene	mg/kg	120983-16	<0.5 || <0.5	120983-10	105%
Ethylbenzene	mg/kg	120983-16	<1 || <1	120983-10	113%
m+p-xylene	mg/kg	120983-16	<2 || <2	120983-10	116%
o-Xylene	mg/kg	120983-16	<1 || <1	120983-10	116%
naphthalene	mg/kg	120983-16	<1 || <1	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%	120983-16	100 || 98 || RPD: 2	120983-10	102%
QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	120983-16	16/12/2014 || 16/12/2014	120983-10	16/12/2014
Date analysed	-	120983-16	17/12/2014 || 17/12/2014	120983-10	17/12/2014
TRHC$_{10}$ - C$_{14}$	mg/kg	120983-16	<50 || <50	120983-10	103%
TRHC$_{15}$ - C$_{28}$	mg/kg	120983-16	<100 || <100	120983-10	109%
TRHC$_{29}$ - C$_{36}$	mg/kg	120983-16	<100 || <100	120983-10	97%
TRH>C$_{10}$-C$_{16}$	mg/kg	120983-16	<50 || <50	120983-10	103%
TRH>C$_{16}$-C$_{34}$	mg/kg	120983-16	<100 || <100	120983-10	109%
TRH>C$_{34}$-C$_{40}$	mg/kg	120983-16	<100 || <100	120983-10	97%
Surrogate o-Terphenyl	%	120983-16	88 || 86 || RPD: 2	120983-10	100%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	120983-16	16/12/2014 || 16/12/2014	120983-10	16/12/2014
Date analysed	-	120983-16	16/12/2014 || 16/12/2014	120983-10	16/12/2014
Naphthalene	mg/kg	120983-16	<0.1 || <0.1	120983-10	99%
Acenaphthylene	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	120983-16	<0.1 || <0.1	120983-10	94%
Phenanthrene	mg/kg	120983-16	<0.1 || <0.1	120983-10	87%
Anthracene	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	120983-16	<0.1 || <0.1	120983-10	84%
Pyrene	mg/kg	120983-16	<0.1 || <0.1	120983-10	100%
Benzo(a)anthracene	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	120983-16	<0.1 || <0.1	120983-10	83%
Benzo(b,j+k)fluoranthene	mg/kg	120983-16	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	120983-16	<0.05 || <0.05	120983-10	100%
Indeno(1,2,3-c,d)pyrene	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d14	%	120983-16	99 || 102 || RPD: 3	120983-10	101%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	120983-16	16/12/2014 || 16/12/2014	120983-10	16/12/2014
Date analysed	-	120983-16	16/12/2014 || 16/12/2014	120983-10	16/12/2014
HCB	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	120983-16	<0.1 || <0.1	120983-10	94%
gamma-BHC	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	120983-16	<0.1 || <0.1	120983-10	92%
Heptachlor	mg/kg	120983-16	<0.1 || <0.1	120983-10	78%
delta-BHC	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	120983-16	<0.1 || <0.1	120983-10	83%
Heptachlor Epoxide	mg/kg	120983-16	<0.1 || <0.1	120983-10	78%
gamma-Chlordane	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	120983-16	<0.1 || <0.1	120983-10	85%
Dieldrin	mg/kg	120983-16	<0.1 || <0.1	120983-10	78%
Endrin	mg/kg	120983-16	<0.1 || <0.1	120983-10	82%
pp-DDD	mg/kg	120983-16	<0.1 || <0.1	120983-10	102%
Endosulfan II	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	120983-16	<0.1 || <0.1	120983-10	81%
Methoxychlor	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Surrogate TCMX	%	120983-16	83 || 79 || RPD: 5	120983-10	80%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	120983-16	16/12/2014 || 16/12/2014	120983-10	16/12/2014
Date analysed	-	120983-16	16/12/2014 || 16/12/2014	120983-10	16/12/2014
Diazinon	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	120983-16	<0.1 || <0.1	120983-10	101%
Fenitrothion	mg/kg	120983-16	<0.1 || <0.1	120983-10	97%
Bromophos-ethyl	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	120983-16	<0.1 || <0.1	120983-10	104%
Surrogate TCMX	%	120983-16	83 || 79 || RPD: 5	120983-10	81%
QUALITY CONTROL PCBs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	120983-16	16/12/2014 || 16/12/2014	120983-10	16/12/2014
Date analysed	-	120983-16	16/12/2014 || 16/12/2014	120983-10	16/12/2014
Arochlor 1016	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Arochlor 1221	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Arochlor 1232	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Arochlor 1242	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Arochlor 1248	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Arochlor 1254	mg/kg	120983-16	<0.1 || <0.1	120983-10	103%
Arochlor 1260	mg/kg	120983-16	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	120983-16	83 || 79 || RPD: 5	120983-10	92%
QUALITY CONTROL Total Phenolics in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	120983-10	16/12/2014
Date analysed	-	[NT]	[NT]	120983-10	16/12/2014
Total Phenolics (as Phenol)	mg/kg	[NT]	[NT]	120983-10	103%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	120983-16	17/12/2014 || 17/12/2014	120983-10	17/12/2014
Date analysed	-	120983-16	17/12/2014 || 17/12/2014	120983-10	17/12/2014
Arsenic	mg/kg	120983-16	4 || 10 || RPD: 86	120983-10	85%
Cadmium	mg/kg	120983-16	<0.4 || <0.4	120983-10	81%
Chromium	mg/kg	120983-16	25 || 18 || RPD: 33	120983-10	98%
Copper	mg/kg	120983-16	7 || 3 || RPD: 80	120983-10	111%
Lead	mg/kg	120983-16	19 || 23 || RPD: 19	120983-10	80%
Mercury	mg/kg	120983-16	<0.1 || <0.1	120983-10	109%
Nickel	mg/kg	120983-16	20 || 12 || RPD: 50	120983-10	108%
Zinc	mg/kg	120983-16	13 || 7 || RPD: 60	120983-10	92%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	LCS-6	17/12/2014
Date analysed	-	[NT]	[NT]	LCS-6	17/12/2014
Arsenic	mg/kg	[NT]	[NT]	LCS-6	119%
Cadmium	mg/kg	[NT]	[NT]	LCS-6	111%
Chromium	mg/kg	[NT]	[NT]	LCS-6	116%
Copper	mg/kg	[NT]	[NT]	LCS-6	115%
Lead	mg/kg	[NT]	[NT]	LCS-6	110%
Mercury	mg/kg	[NT]	[NT]	LCS-6	99%
Nickel	mg/kg	[NT]	[NT]	LCS-6	113%
Zinc	mg/kg	[NT]	[NT]	LCS-6	112%

Report Comments:

Asbestos: A portion of the supplied sample was sub-sampled for asbestos analysis according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteriae has been exceeded for 120983-6 for Pb, Zn. Therefore a triplicate result has been issued as laboratory sample number 120983-21.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteriae has been exceeded for 120983-16 for Cu, Ni, Zn. Therefore a triplicate result has been issued as laboratory sample number 120983-22.

Asbestos ID was analysed by Approved Identifier: Paul Ching
Asbestos ID was authorised by Approved Signatory: Paul Ching

INS: Insufficient sample for this test
NA: Test not required
<: Less than

PQL: Practical Quantitation Limit
RPD: Relative Percent Difference
>: Greater than

NT: Not tested
NA: Test not required
LCS: Laboratory Control Sample

Quality Control Definitions

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.

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.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Douglas Partners
Geotechnics · Environment · Groundwater

CHAIN OF CUSTODY

Project Name: Linfield
Project No: 73174.03
Project Mgr: PG
Email: Matt.West@douglaspartners.com.au
Date Required: STD

Sampler: MW
Mob. Phone: 0412 985 938

Lab Quote No. ...

To: Envirolab Services
12 Ashley St Chatswood 2067
Attn: Aileen Hie
Phone: (02) 9910 6200 Fax: (02) 9910 6201
Email: AHie@envirolab.com.au

Sample ID	Lab ID	Sampling Date	Sample Type S - soil W – water	Container type G – glass P - plastic	Analytes: VOC	Combo 8A	Combo 3A	BTEX	Heavy Metals							Notes/preservation
BH1	1	12-12-14	W	G	X											Combo
BH5	2	12-12-14	W	G	X											Combo
MW1	3	12-12-14	W	G	X											Combo
MW4	4	12-12-14	W	G	X											Combo
BH101 0.1	5	12-12-14	S	G			X									Combo
BH101 0.5	6	12-12-14	S	G		X										Combo
																Combo
																Combo
																Combo
																Combo
BD1A/111214	7							X	X							Combo
T.S	8							X								Combo
T.13	9							X								Combo

ENVIROLAB group

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 120983
Date Received: 15/12/14
Time Received: 15:30
Received by: CSB
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Lab Report No. .....
Send Results to: Douglas Partners Address: 96 Hermitage Road West Ryde NSW 2114
Phone: (02) 4271 1836
Fax: (02) 4271 1897

Relinquished by: M.West Signed: Date & Time: 15/12/14
Received By: CSB Date & Time: 15/12/14 15:30
Transported to laboratory by: Hunter Express

Form COC

Douglas Partners
Geotechnics · Environment · Groundwater

CHAIN OF CUSTODY

Project Name: Linfield
Project No: 73174.03
Project Mgr: PG
Email: Matt.West@douglaspartners.com.au
Date Required: STD

Sampler: MW
Mob. Phone: 0412 985 938

Lab Quote No. ...

To: Envirolab Services
12 Ashley St Chatswood 2067
Attn: Aileen Hie
Phone: (02) 9910 6200 Fax: (02) 9910 6201
Email: AHie@envirolab.com.au

120983

	Sample ID	Lab ID	Sampling Date	Sample Type S - soil W – water	Container type G – glass P - plastic	Analytes: VOC	Combo 8A	Combo 3A	BTEX	Heavy Metals						Notes/preservation
10	BH102 0.05-0.15	7	11-12-14	S	G		X									Combo
11	BH103 0.7-0.16	8	11-12-14	S	G		X									Combo
12	BH104 0.12-0.18	9	11-12-14	S	G		X									Combo
13	BH105 0.2-0.3	10	11-12-14	S	G		X									Combo
14	BH106 0.08-0.20	11	11-12-14	S	G		X									Combo
15	BH106 1.6-1.7	12	11-12-14	S	G			X								Combo
16	BH107 0.2-0.3	13	11-12-14	S	G		X									Combo
17	BH108 0.15-0.35	14	11-12-14	S	G		X									Combo
18	BH108 0.7-1.0	15	11-12-14	S	G			X								Combo
19	BH109 0.02-0.10	16	11-12-14	S	G		X									Combo
20	BH109 1.7-2.0	17	11-12-14	S	G			X								Combo
			11-12-14	S	G											Combo
			11-12-14	S	G											Combo

Lab Report No. .....
Send Results to: Douglas Partners Address: 96 Hermitage Road West Ryde NSW 2114
Phone: (02) 4271 1836
Fax: (02) 4271 1897

Relinquished by: M.West Signed: Date & Time: 15/12/14
Received By: C&B Date & Time: 15/12/14 15.30
Transported to laboratory by: Hunter Express

Form COC

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 120983-A

Client:
Douglas Partners Pty Ltd
96 Hermitage Rd
West Ryde
NSW 2114

Attention: Matt West

Sample log in details:

Your Reference:	**73174.03, Linfield**
No. of samples:	Additional testing on 4 soils
Date samples received / completed instructions received	15/12/2014 / 22/12/14

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	7/01/15 / 7/01/15
Date of Preliminary Report:	Not Issued

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

Metals in TCLP USEPA1311					
Our Reference:	UNITS	120983-A-5	120983-A-10	120983-A-13	120983-A-19
Your Reference	----------	BH101	BH102	BH105	BH109
Depth	----------	0.1	0.05-0.15	0.2-0.3	0.02-0.10
Date Sampled		12/12/2014	11/12/2014	11/12/2014	11/12/2014
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	30/12/2014	30/12/2014	30/12/2014	30/12/2014
Date analysed	-	30/12/2014	30/12/2014	30/12/2014	30/12/2014
pH of soil for fluid# determ.	pH units	9.7	9.8	9.5	9.0
pH of soil for fluid # determ. (acid)	pH units	1.6	1.6	1.6	1.6
Extraction fluid used	-	1	1	1	1
pH of final Leachate	pH units	5.2	5.2	5.4	5.6
Nickel in TCLP	mg/L	0.2	0.2	0.08	0.03

Method ID	Methodology Summary
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using AS 4439 and USEPA 1311 and in house method INORG-004.
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP).
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.

QUALITY CONTROL Metals in TCLP USEPA1311	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			05/01/2015	[NT]	[NT]	LCS-W1	05/01/2015
Date analysed	-			05/01/2015	[NT]	[NT]	LCS-W1	05/01/2015
Nickel in TCLP	mg/L	0.02	Metals-020 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	93%

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

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

Quality Control Definitions

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.

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.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Simon Song

From: Alexander Maclean
Sent: Monday, 22 December 2014 12:14 PM
To: Paul Gorman
Cc: Simon Song; Matt West (matt.west@douglaspartners.com.au)
Subject: RE: Results for registration '120983 - 73174.03, Linfield'

HI Paul,

No problem.

Regards,

Alexander Maclean | Customer Service | Envirolab Services Pty Ltd

Great Chemistry.Great Service

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200 F 612 9910 6201
mailto:amaclean@envirolab.com.au | http://www.envirolab.com.au

120983A
std T/A
due 7/1/15

-----Original Message-----
From: Paul Gorman [mailto:Paul.Gorman@douglaspartners.com.au]
Sent: Monday, 22 December 2014 12:02 PM
To: Alexander Maclean; Matt West
Subject: RE: Results for registration '120983 - 73174.03, Linfield'

Alexander,

Can I please schedule some additional testing (TCLP) for this sample batch, standard turnaround:

BH101/0.1 5 Nickel TCLP
10 BH102/0.05-0.15 Nickel TCLP
13 BH105/0.2-0.3 Nickel TCLP
19 BH109/0.02-0.1 Nickel TCLP

Thanks

Paul Gorman | Senior Associate / Environmental Manager Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au
96 Hermitage Road West Ryde NSW 2114 | PO Box 472 West Ryde NSW 1685
P: 02 8878 0632 | F: 02 9809 4095 | M: 0427 949 878 | E: Paul.Gorman@douglaspartners.com.au

-----Original Message-----
From: Alexander Maclean [mailto:AMaclean@envirolab.com.au]
Sent: Monday, 22 December 2014 11:50 AM
To: Matt West
Cc: Paul Gorman

Subject: Results for registration '120983 - 73174.03, Linfield'

Please refer to attached for:
a copy of the Certificate of Analysis
a copy of the COC
an excel file containing the results

Please note that a hard copy will not be posted.

Enquiries should be made directly to:
Jacinta Hurst on jhurst@envirolabservices.com.au or David Springer on dspringer@envirolabservices.com.au
or
Tania Notaras on tnotaras@envirolabservices.com.au

Regards

Envirolab Services
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
www.envirolabservices.com.au

Sydney Laboratory opening time over the holiday season (Sydney@envirolab.com.au)

Friday 19th December Business as usual
Monday 22nd December Business as usual
Tuesday 23rd December Business as usual
Wednesday 24th December Lab is closing at 12.00pm. Please ensure any last minute sampling is submitted by 9.00am at the latest. No Couriers available today. Please be aware of holding time dependent samples – there is a good chance we will not have time to test within holding times. Please avoid sending holding time dependent waters today.
Thursday 25th December Lab Closed
Friday 26th December Lab Closed
Monday 29th December Lab Open with limited staff at reduced hours (9am – 5pm). If you will have samples outside hours please call Tania 0400885292 to pre arrange.
Tuesday 30th December Lab Open with limited staff at reduced hours (9am – 3pm). If you will have samples outside hours please call Tania 0400885292 to pre arrange.
Wednesday 31st December Lab Open with limited staff at reduced hours (9am – 3pm). If you will have samples outside hours please call Tania 0400885292 to pre arrange.
Thursday 1st January Lab Closed
Friday 2nd January Lab Closed

Alexander Maclean | Customer Service | Envirolab Services Pty Ltd

Great Chemistry.Great Service

12 Ashley Street Chatswood NSW 2067
T 612 9910 6200 F 612 9910 6201
amaclean@envirolab.com.au | www.envirolab.com.au