Alliance Geotechnical

Engineering | Environmental | Testing

Stockpile Contamination Assessment
Lot 3991 in DP1190132

Jordan Springs Boulevard, Jordan Springs, NSW

Prepared for: LLRL Management Services Pty Ltd as Trustee of LLRL Management Services Trust

Report Number: 7161-ER-1-4
Report Date: 17 May 2018

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Alliance Geotechnical Pty Ltd
10 Welder Road, Seven Hills, NSW
Phone: 1800 288 188 – Email: enviro@allgeo.com.au - Web: www.allgeo.com.au

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Revision	Date	Author	Authorised
Rev 0	17 May 2018	Jake Walker / Craig Cowper	Craig Cowper

EXECUTIVE SUMMARY

Alliance Geotechnical Pty Ltd (AG) was engaged by LLRL Management Services Pty Ltd as trustee of LLRL Management Services Trust, to undertake a stockpile contamination assessment for a parcel of land located at Jordan Springs Boulevard, Jordan Springs, NSW (refer **Figure 1** with the 'site' boundaries outlined in **Figure 2**).

AG has the following project appreciation:

- the site was the subject of a site audit statement in 1999, which confirmed the site was suitable for a residential land use setting; and
- nine stockpiles of soil were identified towards the western boundary of the site; and
- a stockpile contamination assessment is required to provide advice on the contamination status of nine stockpiles identified on the site.

The objectives of this project were to:

- assess the nature and extent of contamination to be present in nine stockpiles on the site;
- provide advice on whether the stockpiles be suitable (in the context human health exposure risks) for the proposed land use setting;
- provide recommendations for further investigation, management and/or remediation (if warranted).

The scope of works undertaken to address the project objectives, included:

- a limited desktop review;
- a site walkover;
- stockpile soil sampling and laboratory analysis; and
- data assessment and reporting.

Within the context and objective of this project, an area of environmental concern (AEC) and contaminants of potential concern (COPC) have the potential to be present on site. The AEC identified are presented in attached **Figure 3** and associated COPC are presented in **Table 4.1**. The layout of

Table 4.1: AEC and COPC

ID	AEC	Land Use Activity	Contaminants of Potential Concern
AEC01	Nine stockpiles located adjacent to western boundary (~10m^3 each)	Uncontrolled filling	Hydrocarbons, pesticides, polychlorinated biphenyl, metals and asbestos.

The layout of the stockpiles within AEC03, is presented in the attached **Figure 4**.

Based on AG's assessment of the desktop review information, fieldwork data and laboratory analytical data, in the context of the assessment objectives and current commercial / industrial land use setting, AG makes the following conclusions:

- the concentrations of identified contaminants of potential concern in stockpile SP03 to SP11 are considered unlikely to present an unacceptable direct contact human health exposure risk, with the exception of benzo(a)pyrene TEQ in stockpiles SP03, SP06, SP07, SP08, SP09, SP10 and SP11;

- the concentrations of identified contaminants of potential concern in stockpiles SP03 to SP11 are considered unlikely to present an unacceptable inhalation / vapour intrusion human health exposure risk;

- the concentrations of bonded asbestos in soil in stockpiles SP03 to SP11 may present an unacceptable human health exposure risk;

- the visible presence of asbestos containing materials in SP03 to SP11 may present an unacceptable aesthetics risk; and

- management and/or remediation of stockpiles SP03 to SP11 is required.

Based on these conclusions, AG makes the following recommendations:

- stockpiles SP03, SP06, SP07, SP08, SP09, SP10 and SP11 should be excavated, transported and disposed of to a suitably licensed landfill facility. The excavation and transportation works should be undertaken by a suitably licensed and experienced contractor, under an asbestos removal control plan;

- stockpiles SP04 and SP05 could be either remediated to remove the identified bonded asbestos human health and aesthetics risks, or excavated, transported and disposed of to a suitably licensed landfill facility. The remediation and/or excavation and transportation works should be undertaken by a suitably licensed and experienced contractor, under an asbestos removal control plan;

- a waste classification should be prepared for materials proposed for offsite disposal, with reference to relevant NSW EPA waste classification guidelines. The waste classification should be prepared by a suitably experienced environmental consultant; and

- a validation report should be prepared following removal and/or remedial works, that assesses whether the identified human health and aesthetics risks have been appropriate managed and/or remediated. The validation report should be prepared by a suitably experienced environmental consultant.

This report, including its conclusions and recommendations, must be read in conjunction with the limitations presented in **Section 11**.

1. INTRODUCTION

1.1. Background

Alliance Geotechnical Pty Ltd (AG) was engaged by LLRL Management Services Pty Ltd as trustee of LLRL Management Services Trust, to undertake a stockpile contamination assessment for a parcel of land located at Jordan Springs Boulevard, Jordan Springs, NSW (refer **Figure 1** with the 'site' boundaries outlined in **Figure 2**).

AG has the following project appreciation:

- the site was the subject of a site audit statement in 1999, which confirmed the site was suitable for a residential land use setting; and
- nine stockpiles of soil were identified towards the western boundary of the site; and
- a stockpile contamination assessment is required to provide advice on the contamination status of nine stockpiles identified on the site.

1.2. Objectives

The objectives of this project were to:

- assess the nature and extent of contamination to be present in nine stockpiles on the site;
- provide advice on whether the stockpiles be suitable (in the context human health exposure risks) for the proposed land use setting;
- provide recommendations for further investigation, management and/or remediation (if warranted).

1.3. Scope of Work

The scope of works undertaken to address the project objectives, included:

- a limited desktop review;
- a site walkover;
- stockpile soil sampling and laboratory analysis; and
- data assessment and reporting.

2. SITE IDENTIFICATION

The site is identified as the stockpiles located in Lot 3991 in DP1190132.

The approximate geographic coordinates of the middle of the Lot 3991, inferred from Google Earth were 33°43'45" S and 150°43'23" E.

The locality of the site is set out in **Figure 1**.

The general layout and boundary of Lot 3991 is set out in **Figure 2**.

Lot3991 covers an area of approximately 3.633 hectares.

A copy of a detail and level survey covering Lot 3991, is presented in **Appendix A**.

3. PREVIOUS CONTAMINATION ASSESSMENTS

A copy of the following reports was made available to AG during this project:

- URS 2008, 'Contamination Management Plan, Western Precinct Development Phase' dated 7 July 2008, ref: 4321 7287.
- Douglas Partners 2017, 'Site Walkover Contamination Report, Proposed Lots 3989, 3990 and 3991, DP1190132, Jordan Springs, NSW', dated 21 September 2017, ref: 92245.00.
- AG 2018, 'Supplementary Contamination Assessment, Lot 3991 in DP1190132, Jordan Springs Boulevard, Jordan Springs, NSW', dated 20 April 2018, ref: 7161-ER-1-3.

A summary of these reports is presented in **Section 3.1** to **3.3** of this report.

3.1. URS (2008)

The objective of URS (2008) was to provide a framework for identifying and addressing any discovery of chemical contamination or potentially explosive ordnance so as to ensure a safe working environment for workers during development and to avoid unacceptable impact on the nature environment.

URS (2008) was prepared for a parcel of land referred to as the Western Precinct. AG understands the Western Precinct fell within the former Australia Defence Industries (ADI) facility in St Marys.

An assessment by AG of Figure 2 in URS (2008) indicated that the subject site falls within the south western corner of the Western Precinct.

Section 1.2 of URS (2008) noted that the majority of the Western Precinct was assessed by a NSW EPA Accredited Site Auditor (Site Auditor), to pose a negligible risk to the public or the environment with regard to chemical contamination and/or explosive ordnance. A number of site audit statements (SASs) for parcels of land across the Western Precinct were included in Appendix A of URS (2008).

URS (2008) noted that:

- unexpected finds may occur in areas which, although searched extensively, contain remnant materials which were obscured by the local topography, the type of surface cover (e.g. building) or at a depth preventing detection; and
- the Site Auditor considered that, while explosive ordnance may be uncovered during earthworks, it is unlikely that these will present an unacceptable risk provided appropriate procedures for the safe handling and disposal of such material are adopted.

A copy of a Site Audit Statement (SAS), prepared by the Site Auditor (Mr Christopher Kidd of HLA-Envirosciences), dated 7 June 1999, reference CHK001/1 was presented in Appendix A of URS (2008). An assessment of the SAS by AG indicated that the subject site fell within the boundaries of the land that SAS CHK001/1 applied to. AG also found that the SAS certified that land as suitable for residential, including substantial vegetable garden and poultry, residential with minimal, opportunity for soil access including units, day care centre, preschool, primary schools, secondary school, park, recreational open space, playing field and commercial / industrial land use settings, subject to a number of conditions, including:

- the exclusion of specific parcels of land, as marked on the plan attached to the SAS; and
- an appropriate management plan, including procedures for the safe handling and disposal of any items of ordnance that may be found during earthworks, being lodged prior to the commencement of development earthworks

AG assessed the plan attached to the SAS and considered that:

- the subject site did not appear to fall within the shaded areas excluded from SAS CHK001/1; and

- land located immediately adjacent to the subject site, did not appear to fall within the shaded areas excluded from SAS CHK001/1.

3.2. Douglas Partners (2017)

The objective of Douglas Partners (2017) was to identify additional activities or sources that have occurred/appeared on site since the sale of the property in June 2013.

The scope of work undertaken to address the project objective included a document review and site walkover.

Douglas Partners (2017) reported the following conclusions, considered relevant to the subject Lot 3990 and Lot 3991:

- Limited review of historical aerial imagery and site walkover completed on 19 September 2017, identified the following potential sources appearing onsite in recent years that have the potential for contamination of the site:
    - Five small stockpiles or soil observed on the unsealed area immediately adjacent to the south eastern corner of the asphalt carpark on Lot 3991. Given the small volume (15-20m^3) of the stockpiles, likely origins from bulk earthworks associated with the nearby carpark and observed contents, the soil within the stockpiles poses a low contamination risk to the site.

Douglas Partners (2017) recommended that:

- further investigations be completed within the soil stockpiles on Lot 3991, to confirm the absence/presence of contaminants of potential concern associated with fill of an unknown origin; and

- the recommended further assessment should build on the information presented in Douglas Partners (2017) with reference to NEPC (1999) and should include intrusive investigation, sampling and analysis.

3.3. AG (2018)

The objectives of this project were to:
- assess the potential for contamination to be present on the site as a result of past and current land use activities;
- provide advice on whether the site would be suitable (in the context of land contamination) for the proposed land use setting;
- provide recommendations for further investigation, management and/or remediation (if warranted).

The scope of works undertaken to address the project objectives, included:
- a limited desktop review;
- a site walkover;
- limited soil sampling and laboratory analysis; and
- data assessment and reporting.

Based on AG's assessment of the desktop review information, fieldwork data and laboratory analytical data, in the context of the assessment objectives and current commercial / industrial land use setting, AG makes the following conclusions:
- the contamination status of the broader site is considered unlikely to have materially changed since the issue of a site audit statement in 1999;
- the concentrations of identified contaminants of potential concern in stockpile SP01 and SP02 are considered unlikely to present an unacceptable direct contact human health exposure risk;

- the concentrations of identified contaminants of potential concern in stockpile SP01 and SP02 are considered unlikely to present an unacceptable inhalation / vapour intrusion human health exposure risk;
- stockpile SP01 (in AEC01) would be suitable (in the context of human health and land contamination) for beneficial reuse on site;
- the estimated concentration of bonded asbestos in soil detected in AEC02 (stockpile SP02), may present an unacceptable human health exposure risk and unacceptable aesthetics risk;
- chemical contaminants of concern, asbestos fines and friable asbestos in AEC03 (stockpiles SP03, SP04, SP05, SP06, SP07, SP08, SP09, SP10 and SP11) require further investigation, to assess whether they may present an unacceptable human health exposure risk;
- the site could be made suitable for the proposed land use setting (in the context of land contamination), subject to:
  - management and/or remediation of bonded asbestos in stockpile SP02;
  - further assessment, management and/or remediation of potential unacceptable human health exposure risks in SP03, SP04, SP05, SP06, SP07, SP08, SP09, SP10 and SP11;
  - ongoing implementation of the URS 2008, 'Contamination Management Plan, Western Precinct Development Phase' dated 7 July 2008, ref: 4321 7287, as recommended in the site audit statement issued for the sites; and
- Further assessment, management and/or remediation planning works should be undertaken by a suitably experienced environmental consultant.

4. CONCEPTUAL SITE MODEL

4.1. Areas of Environmental Concern and Contaminants of Potential Concern

Within the context and objective of this project, an area of environmental concern (AEC) and contaminants of potential concern (COPC) have the potential to be present on site. The AEC identified are presented in attached **Figure 3** and associated COPC are presented in **Table 4.1**. The layout of

Table 4.1: AEC and COPC

ID	AEC	Land Use Activity	Contaminants of Potential Concern
AEC01	Nine stockpiles located adjacent to western boundary (~10m^3 each)	Uncontrolled filling	Hydrocarbons, pesticides, polychlorinated biphenyl, metals and asbestos.

The layout of the stockpiles within AEC03, is presented in the attached **Figure 4**.

4.2. Land Use Setting

AG understands that the site is proposed for a residential land use setting.

Based on the proposed land use scenario and guidance provided in Section 2.2 of NEPC (1999a), AG considers it reasonable to adopt the 'HIL A – residential with garden / accessible soil' land use setting, for the purpose of assessing land contamination exposure risks.

4.3. Direct Contact – Human Health

The proposed land use setting is likely to include accessible soils. In these areas, it is considered that a direct contact exposure pathway may be complete.

4.4. Inhalation / Vapour Intrusion – Human Health

In order for a potentially unacceptable inhalation / vapour intrusion human health exposure risk to exist, a primary vapour source (e.g. underground storage tank) or secondary vapour source (e.g. significantly contaminated soil or groundwater).

The historical evidence reviewed indicated a low likelihood for a potential primary source to be present in the stockpiles.

The same historical evidence indicated that the stockpiles comprise uncontrolled fill material. The excavation, transport and placement of imported (uncontrolled) fill material involves significant disturbance of soils which typically results in volatilisation of vapour producing contaminants. On that basis, the potential for vapours to be present in soils in the stockpiles at concentrations which might present an unacceptable exposure risk, is considered to be low.

However, given the limited data available on the source and nature of the stockpiles, and as a conservative measure, further assessment of the inhalation / vapour intrusion pathway is considered warranted.

4.5. Management Limits for Petroleum Hydrocarbon Compounds

NEPC (1999a) notes that there are a number of policy considerations which reflect the nature and properties of petroleum hydrocarbons:

- formation of observable light non-aqueous phase liquids (LNAPL);
- fire and explosive hazards; and
- effects on buried infrastructure (e.g. penetration of or damage to, in-ground services by hydrocarbons).

NEPC (1999a) includes 'management limits' to avoid or minimise these potential effects. Application of the management limits requires consideration of site-specific factors such as the depth of building basements and services and depth to groundwater, to determine the maximum depth to which the limits should apply. NEPC (1999a) also notes that management limits may have less relevance at operating industrial sites which have no or limited sensitive receptors in the area of potential impact, and when management limits are exceeded, further site-specific assessment and management may enable any identified risk to be addressed.

4.6. Aesthetics – Human Health

Section 3.6.3 of NEPC (1999a) advises that there are no specific numeric aesthetic guidelines, however site assessment requires a balanced consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity.

The potential presence of foreign materials in the identified AEC, may create an aesthetics risk. Further assessment of this risk is considered warranted.

5. DATA QUALITY OBJECTIVES

Appendix B of NEPC (1999b) provides guidance on the development of data quality objectives (DQO) using a seven-step process.

The DQO for this project are set out in **Sections 5.1** to **5.7** of this report.

5.1. Step 1: State the problem

The first step involves summarising the contamination problem that requires new environmental data and identifying resources available to solve the problem.

The objectives of this project are to:

- assess the nature and extent of contamination to be present in nine stockpiles on the site;
- provide advice on whether the stockpiles be suitable (in the context of human health exposure risks) for the proposed land use setting;
- provide recommendations for further investigation, management and/or remediation (if warranted).

The assessment is being undertaken because:

- advice is required on the suitability of the stockpiles in the context of land contamination and human health exposure risks) for the proposed land use setting.

The project team identified for this project is comprised primarily of suitably experienced environmental consultants from Alliance Geotechnical Pty Ltd.

The regulatory authorities identified for this project include NSW EPA and the local Council.

5.2. Step 2: Identify the decision/goal of the study

The second step involves identifying decisions that need to be made about the contamination problem and the new environmental data required to make them.

The decisions that need to be made during this project include:

- Is the environmental data collected for the project, suitable for assessing relevant human health exposure risks?
- Do the concentrations of identified contaminants of potential concern (COPC) present an unacceptable exposure risk to identified receptors, for the proposed land use setting?
- Are the stockpiles suitable for the proposed land use setting, in the context of human health exposure risks?

5.3. Step 3: Identify the information inputs

The third step involves identifying the information needed to support decisions and whether new environmental data will be needed.

The inputs required to make the decisions set out in **Section 5.2** for this project, will include:

- the nature and extent of sampling at the site, including both density and distribution;
- samples of relevant site media;
- the measured physical and/or chemical parameters of the site media samples (including field screening and laboratory analysis, where relevant); and
- assessment criteria adopted for each of the media sampled.

Taking into consideration the objectives of this project, and the conceptual site model and land use setting presented in Section 4 of this project, the assessment criteria relevant to the proposed land use setting have been adopted for this project.

- Human health direct contact – HILs in Table 1A (1) in NEPC (1999a) and HSLs in Table B4 of Friebel, E & Nadebaum, P (2011);
- Human health inhalation/vapour intrusion – HSLs in Table 1 (A) in NEPC (1999a); and
- Human health (asbestos) – HSLs in Table 7 of NEPC (1999a);
- Petroleum hydrocarbon compounds (management limits) – Table 1 B(7) of NEPC (1999a);
- Aesthetics – no highly malodorous site media (e.g. strong residual petroleum hydrocarbon odours, hydrogen sulphide in site media, organosulfur compounds), no hydrocarbon sheen on surface water, no discoloured chemical deposits or soil staining with chemical waste other than of a very minor nature, no large monolithic deposits of otherwise low risk material (e.g. gypsum as powder or plasterboard, cement kiln dust), no presence of putrescible refuse including material that may generate hazardous levels of methane such as a deep-fill profile of green waste or large quantities of timber waste, and no soils containing residue from animal burial (e.g. former abattoir sites).

5.4. Step 4: Define the boundaries of the study

The fourth step involves specifying the spatial and temporal aspects of the environmental media that the data must represent to support decisions.

The spatial extent of the project will be limited to the stockpiles.

The lateral extent that contamination is expected to be distributed across, based on the conceptual site model, is defined by the inferred boundaries of the areas of environmental concern (AEC).

The vertical extent that contamination is expected to be distributed across, based on the conceptual site model and the project scope, is limited to the inferred base of the identified AEC.

The scale of the decisions required will be based on the stockpiles.

The temporal boundaries of the project include

- the project timeframe presented in the AG proposal for this project,
- unacceptable weather conditions at the time of undertaking fieldwork, including rainfall, cold and/or heat;
- access availability of the site (to be defined by the site owner/representative); and
- availability of AG field staff (typically normal daylight working hours, Monday to Friday).

Constraints which may affect the carrying out of this project may include access limitations, presence of above and below ground infrastructure, and hazards creating health and safety risks.

5.5. Step 5: Develop the analytical approach (or decision rule)

The fifth step involves defining the parameter of interest, specifying the action level, and integrating information from Steps 1 to 4 into a single statement that gives a logical basis for choosing between alternative actions.

5.5.1. Rinsate Blanks

One rinsate blank will be collected and scheduled for analysis, for each day of sampling undertaken, if non-disposable sampling equipment was used on that day. The rinsate blank will be analysed for at least one of the analytes the sample/s collected that day are being scheduled for analysis for (with the exception of asbestos).

5.5.2. Trip Spikes and Trip Blank Samples

One trip spike and trip blank sample will be used and scheduled for analysis, for each day of sampling undertaken, if site samples being collected that day are being analysed for volatile contaminants of concern (typically BTEX and/or TRH C_6-C_{10}).

5.5.3. Field Duplicates and Field Triplicates

Field duplicate and field triplicates will be collected at a rate of one per twenty (5%) site samples collected. The duplicates and triplicates collected will be analysed for at least one of the analytes that the parent sample of the duplicate/triplicate is being scheduled for analysis for (with the exception of asbestos).

The relevant percent difference (RPD) of concentrations of relevant analytes, between the parent sample and the duplicate/triplicate will be calculated.

5.5.4. Laboratory Analysis Quality Assurance / Quality Control

The analytical laboratory QA/QC program will typically include laboratory method blank samples, matrix spike samples, surrogate spike samples, laboratory control samples, and laboratory duplicate samples.

5.5.5. If/Then Decision Rules

AG has adopted the following 'if/then' decision rules for this project:

- If the result of the assessment of field data and laboratory analytical data is considered acceptable, then that field data and laboratory analytical data is suitable for interpretation within the scope of this project; and
- If the field data and laboratory analytical data is within the constraints of the assessment criteria adopted for this project (refer **Section 5.3**), then the contamination exposure risks to identified receptors, are considered acceptable.

In the event the assessment of field data and/or laboratory analytical data results in the data being not suitable for interpretation, then AG will determine if additional data is required to allow interpretation to be undertaken.

In the event that field data and/or laboratory analytical data exceeds the assessment criteria adopted for this project (refer **Section 5.3**), AG will undertake an assessment of the exceedance in the context of the project objectives to determine if additional data is required and whether management and/or remediation is required.

5.6. Step 6: Specify the performance or acceptance criteria

The sixth step involves specifying the decision maker's acceptable limits on decision errors, which are used to establish performance goals for limiting uncertainties in the data. When assessing contaminated land, there are generally two types of errors in decision making:

- Contamination exposure risks for a specific land use setting are acceptable, when they are not; and
- Contamination exposure risks for a specific land use setting are not acceptable when they are.

AG will mitigate the risk of decision error by:

- Calculation of the 95% upper confidence limit (UCL) statistic to assess the mean concentration of relevant contaminants of potential concern;
- Assignment of fieldwork tasks to suitably experienced AG consulting staff, and suitably experienced contractors;
- Assignment of laboratory analytical tasks to reputable NATA accredited laboratories;

- Assignment of data interpretation tasks to suitably experienced AG consulting staff and outsourcing to technical experts where required.

AG will also adopt a range of data quality indicators (DQI) to facilitate assessment of the completeness, comparability, representativeness, precision and accuracy (bias).

Completeness			
Field Considerations	**Assessment Criterion**	**Laboratory Considerations**	**Assessment Criterion**
Critical locations sampled	Refer **Section 5.7.1**	Critical samples analysed according to SAQP	Refer **Section 5.7.6**
Critical samples collected	Refer **Section 5.7.1**	Analytes analysed according to SAQP	Refer **Section 5.7.6**
SOPs appropriate and complied with	100%	Appropriate laboratory analytical methods and LORs	Refer **Section 5.7.6**
Field documentation complete	All sampling point logs, calibration logs and chain of custody forms	Sample documentation complete	All sample receipt advices, all certificates of analysis
		Sample extraction and holding times complied with	Refer **Section 5.7.7**
Comparability			
Field Considerations	**Assessment Criterion**	**Laboratory Considerations**	**Assessment Criterion**
Same SOPs used on each occasion	100%	Same analytical methods used by primary laboratory	Refer **Section 5.7.7**
Climatic conditions	Samples stored in insulated containers with ice, immediately after collection	Same LORs at primary laboratory	Refer **Section 5.7.7**
Same types of samples collected, and handled/preserved in same manner	All soil samples same size, all stored in insulated containers with ice	Same laboratory for primary sample analysis	All primary samples to SGS Environmental
		Same analytical measurement units	Refer **Section 5.7.7**
Representativeness			
Field Considerations	**Assessment Criterion**	**Laboratory Considerations**	**Assessment Criterion**
Appropriate media sampled according to SAQP	Refer Section 5.4	Samples analysed according to SAQP	Refer **Section 5.7.6**
Media identified in SAQP sampled	Refer Section 5.4		
Precision			
Field Considerations	**Assessment Criterion**	**Laboratory Considerations**	**Assessment Criterion**

Field duplicate / triplicate RPD	Minimum 5% duplicates and triplicates No limit for analytical results <10 times LOR 50% for analytical results 10-20 times LOR 30% for analytical results >20 times LOR	Laboratory duplicates	No exceedances of laboratory acceptance criteria
SOPs appropriate and complied with	100%		
Accuracy (bias)			
Field Considerations	**Assessment Criterion**	**Laboratory Considerations**	**Assessment Criterion**
Rinsate blanks	Less than laboratory limit of reporting	Laboratory method blank	No exceedances of laboratory acceptance criteria
Field trip spikes	Recoveries between 60% and 140%	Matrix spike recovery	No exceedances of laboratory acceptance criteria
Field trip blanks	Analyte concentration <LOR	Surrogate spike recovery	No exceedances of laboratory acceptance criteria
		Laboratory control sample recovery	No exceedances of laboratory acceptance criteria

5.7. Step 7: Develop the plan for obtaining data

The seventh step involves identifying the most resource effective sampling and analysis design for generating the data that is required to satisfy the DQOs.

5.7.1. Sampling Point Density and Locations

Section 6.2.1 of NEPC (1999b) states that the number and location or sampling points is based on knowledge of the site and professional judgement. Sampling should be localised to known or potentially contaminated areas identified from knowledge of the site either from site history or an earlier phase of site investigation. Judgemental sampling can be used to investigate sub-surface contamination issues in site assessment. Section 7.5.2 of NEPC (1999b) provides guidance on the quantity of samples to be collected form stockpiles.

Given the combined volume of material estimated in each of the identified AEC, and the guidance provided above, AG proposes to establish one sampling point in each stockpile, with three samples collected from each sampling point.

5.7.2. Sampling Methodology

The sampling point methodology presented in **Table 5.7.2** will be used for this assessment. The methodology is based on a range of factors considered relevant to this project, including:

- the identified contaminants of potential concern;
- the suspected laydown mechanisms for those contaminants of concern;

- the suspected likely depth of contamination; and
- site specific constraints which affect the type of sampling techniques suited to the site.

Table 5.7.2 Proposed Sampling Methodology

AEC	Sampling Point ID	Method	Target Depth of Sampling Point (m bgs)
AEC03	SP03 to SP11	Excavator	Minimum of 0.3m below surface of stockpiled material

5.7.3. Identification, Storage and Handling of Samples

Sample identifiers will be used for each sample collected, based on the sampling point number and the depth the sample was collected from.

Project samples will be stored in laboratory prepared containers (and zip lock bags if collected for asbestos or acid sulfate soil assessment). Filled containers will be placed in insulated container/s with ice.

Samples will be transported to the relevant analytical laboratory, with chain of custody (COC) documentation that includes the following information:

AG project identification number
- Each sample identifier
- Date each sample was collected
- Sample type (e.g. soil or water)
- Container type/s for each sample collected
- Preservation method used for each sample (e.g. ice)
- Analytical requirements for each sample and turnaround times
- Date and time of dispatch and receipt of samples (including signatures)

5.7.4. Decontamination

In the event that non-disposable sampling equipment is used, that equipment will be decontaminated before and in between sampling events, to mitigate potential for cross contamination between samples collected. The decontamination methodology to be adopted for this project will include:
- Washing relevant sampling equipment using potable water with a phosphate free detergent (i.e. Decon 90 or similar) mixed into the water;
- Rinsing the washed non-disposable sampling equipment with distilled or de-ionised water; and
- Air drying as required.

5.7.5. Laboratory Selection

The analytical laboratories used for this project will be NATA accredited for the analysis undertaken.

5.7.6. Laboratory Analytical Schedule

Project samples will be scheduled for NATA accredited laboratory analysis, using a combination of:
- Observations made in the field of the media sampled;
- The contaminants of potential concern (COPC) identified for the area of environmental concern that the sample was collected from.

Based on site history, AG has adopted the laboratory analytical schedule (and associated upper limiting quantities) presented in **Table 5.7.6** for this project.

Table 5.7.6 Laboratory Analytical Schedule

AEC	Sampling Point ID	TRH/BTEX	PAH	OCP	PCB	Metals	Asbestos (0.001%)	Asbestos ID
AEC03	SP03 to SP11	9	18	9	9	18	18	-

5.7.7. Laboratory Holding Times, Analytical Methods and Limits of Reporting

The laboratory holding times, analytical methods and limits of reporting (LOR) being used for this project, are presented in **Table 5.7.7**.

Table 5.7.7 Laboratory Holding Times, Analytical Methods and Limits of Reporting

Analyte	Holding Time	Analytical Method	Limit of Reporting (mg/kg)
BTEX and TRH C_6-C_{10}	14 days	USEPA 5030, 8260B and 8020	0.2-0.5
TRH >C_{10}-C_{40}	14 days	USEPA 8015B & C	20-100
VOC	14 days	USEPA 8260	0.1-0.5
PAH	14 days	USEPA 8270	0.1-0.5
OCP	14 days	USEPA 8081	0.2
PCB	14 days	USEPA 8270	0.2
Metals	14 days	USEPA 8015B & C	0.05 – 2
Asbestos	No limit	AS4964:2004	Absence / presence
Asbestos	No limit	Inhouse Method	0.001% w/w

6. FIELDWORK

6.1. Service Locating

Given the nature and methodology of the fieldwork planned for this project, underground service locating was not undertaken.

6.2. Soil Sampling

Soil sampling of was undertaken by AG on 9 May 2018.

A total of 9 (nine) sampling points (one from each stockpile, SP03 to SP11) were established on site. Each sampling point was excavated using a 3.5T track mounted excavator. The locations of the sampling points established on site, are presented in **Figure 4**.

Collected samples were placed in labelled laboratory supplied acid-rinsed glass jars (with Teflon lined lids) and zip lock bags.

6.3. Geology

Observations were made of soils encountered during sampling work. These observations were recorded on test pit logs, which are presented in **Appendix B**.

6.4. Odours

Olfactory evidence of odours was not detected in the soil samples collected.

6.5. Staining

Visual evidence of staining was not observed in the soil samples collected.

7. LABORATORY

The samples collected were transported to the analytical laboratory, using chain of custody (COC) protocols. A selection of these samples was scheduled for analysis, with reference to the relevant COPC identified for the AEC that the samples were collected from.

A copy of the analytical laboratory certificates of analysis, is presented in **Appendix C**.

The sample analytical results were tabulated and presented in the attached **Table LAR1** and **Table LAR2**.

8. DATA QUALITY INDICATOR ASSESSMENT

8.1. Completeness

An assessment of the completeness of data collected was undertaken, and the results presented in **Table 8.1**.

Table 8.1 Completeness DQI

Field Considerations	Target	Actual	Comment
Critical locations sampled	9	9	Performance against indicator considered acceptable.
Critical samples collected	27	27	Performance against indicator considered acceptable.
SOPs appropriate and complied with	100%	100%	Performance against indicator considered acceptable.
Field documentation complete	All sampling point logs, calibration logs and chain of custody forms	All sampling point logs, calibration logs and chain of custody forms	Performance against indicator considered acceptable.
Laboratory Considerations	**Target**	**Actual**	**Comment**
Critical samples analysed according to SAQP	Refer **Section 5.7.6**	100%	Performance against indicator considered acceptable.
Analytes analysed according to SAQP	Refer **Section 5.7.6**	100%	Performance against indicator considered acceptable.
Appropriate laboratory analytical methods and LORs	Refer **Section 5.7.7**	100%	Performance against indicator considered acceptable.
Sample documentation complete	All sample receipt advices, all certificates of analysis	100%	Performance against indicator considered acceptable.
Sample extraction and holding times complied with	Refer **Section 5.7.7**	100%	Performance against indicator considered acceptable.

The data collected is considered to be adequately complete.

8.2. Comparability

An assessment of the comparability of data collected was undertaken, and the results presented in **Table 8.2**.

Table 8.2 Comparability DQI

Field Considerations	Target	Actual	Comment
Same SOPs used on each occasion	100%	100%	Performance against indicator considered acceptable.

Climatic conditions	Samples stored in insulated containers with ice, immediately after collection	100%	Performance against indicator considered acceptable.
Same types of samples collected, and handled/preserved in same manner	All soil samples same size, all stored in insulated containers with ice	100%	Performance against indicator considered acceptable.
Laboratory Considerations	**Target**	**Actual**	**Comment**
Same analytical methods used by primary laboratory	Refer **Section 5.7.7**	100%	Performance against indicator considered acceptable.
Same LORs at primary laboratory	Refer **Section 5.7.7**	100%	Performance against indicator considered acceptable.
Same laboratory for primary sample analysis	All primary samples to SGS Environmental	100%	Performance against indicator considered acceptable.
Same analytical measurement units	Refer **Section 5.7.7**	100%	Performance against indicator considered acceptable.

The data collected is considered to be adequately comparable.

8.3. Representativeness

An assessment of the representativeness of data collected was undertaken, and the results presented in **Table 8.3**.

Table 8.3 Representativeness DQI

Field Considerations	**Target**	**Actual**	**Comment**
Appropriate media sampled according to SAQP	Refer **Section 5.7.2**	100%	Performance against indicator considered acceptable.
Media identified in SAQP sampled	Refer **Section 5.7.2**	100%	Performance against indicator considered acceptable.
Laboratory Considerations	**Target**	**Actual**	**Comment**
Samples analysed according to SAQP	Refer **Section 5.7.6**	100%	Acceptable Performance against indicator considered acceptable.

The data collected is considered to be adequately representative.

8.4. Precision

An assessment of the precision of data collected was undertaken, and the results presented in **Table 8.4**.

Table 8.4 Precision DQI

Field Considerations	Target	Actual	Comment
Field duplicate / triplicate RPD	Minimum 5% duplicates and triplicates	7.4% duplicates and 7.7% triplicates collected. 3.7% duplicates and 7.4% triplicates analysed.	The duplicate analytical rate is marginally below the target criterion, due to an administrative error when scheduling laboratory analysis for the parent sample of DUP1. It is noted that the analytical results of DUP1A were generally comparable with that of DUP1. This is minor non-conformance is not considered not to have a material impact on the precision of the laboratory data. As a conservative measure, the sample reporting the higher concentration of the relevant analyte (between DUP1 and DUP1A) should be used when making decisions regarding human health exposure risks. Field duplicate DUP01 (parent sample SP01/01) had RPD exceedances for copper and zinc. Field duplicate DUP1A (interim parent sample DUP1) had RPD exceedances for copper, lead, nickel and zinc. Field duplicate DUP2 (parent sample SP05-0.6) had RPD exceedances for lead and zinc. Field duplicate DUP2A (parent sample SP05-0.6) had RPD exceedances for chromium, lead, nickel, zinc and mercury. AG considers these exceedances likely to be attributable to
	No limit for analytical results <10 times LOR	Nil	
	50% for analytical results 10-20 times LOR	Nil	
	30% for analytical results >20 times LOR	11 exceedances	

			heterogeneity in each of the discrete soils samples, as the parent sample could not be homogenised prior to splitting, due to the potential for volatile and semi volatile contaminants to be present. As a conservative measure, the sample reporting the higher concentration of the relevant analyte should be used when making decisions regarding contamination risks on the site. Performance against indicator considered acceptable.
SOPs appropriate and complied with	100%	100%	Performance against indicator considered acceptable.
Laboratory Considerations	**Target**	**Actual**	**Comment**
Laboratory duplicates	No exceedances of laboratory acceptance criteria	3 exceedances	SGS reported that the 3 laboratory duplicate exceedances in batch SE178910 failed RPD acceptance criteria due to sample heterogeneity. Performance against indicator considered acceptable.

The data collected is considered to be adequately precise.

8.5. Accuracy

An assessment of the precision of data collected was undertaken, and the results presented in **Table 8.5**.

Table 8.5 Accuracy DQI

Field Considerations	Target	Actual	Comment
Rinsate blanks	Less than laboratory limit of reporting	Not applicable.	Disposable sampling equipment used for each sampling point. Rinsate blank not collected. Performance against indicator considered acceptable.

Field trip spikes	Recoveries between 60% and 140%	Recoveries between were 89%to 96%.	Performance against indicator considered acceptable.
Field trip blanks	Analyte concentration <LOR	Analyte concentration was <LOR	Performance against indicator considered acceptable.
Laboratory Considerations	**Target**	**Actual**	**Comment**
Laboratory method blank	No exceedances of laboratory acceptance criteria	Nil	Acceptable
Matrix spike recovery	No exceedances of laboratory acceptance criteria	3 matrix spike recovery exceedances	SGS reported that the five matrix spike DQO exceedances in batch SE175866 failed acceptance criteria due to matrix interference and sample heterogeneity. Performance against indicator considered acceptable.
Surrogate spike recovery	No exceedances of laboratory acceptance criteria	Nil	Performance against indicator considered acceptable.
Laboratory control sample recovery	No exceedances of laboratory acceptance criteria	Nil	Performance against indicator considered acceptable.

The data collected is considered to be adequately accurate.

9. DISCUSSION

A discussion on comparison of laboratory analytical results and field observations, in the context of the assessment criteria adopted for this project, is presented in **Sections 9.1** to **9.4**.

9.1. Human Health - Direct Contact

9.1.1. TRH

The concentrations of TRH C_6-C_{10}, >C_{10}-C_{16}, >C_{16}-C_{34} and >C_{34}-C_{40} detected in the soil samples analysed, were less than the applicable adopted direct contact human health exposure criteria.

9.1.2. BTEX

The concentrations of benzene, toluene, ethyl benzene and xylenes detected in the soil samples analysed, were less than the applicable adopted direct contact human health exposure criteria.

9.1.3. PAH

The concentrations of naphthalene, benzo(a)pyrene TEQ and total PAH (16) detected in the soil samples analysed, were less than the applicable adopted direct contact human health exposure criteria, with the exception of benzo(a)pyrene TEQ in samples SP03-0.3, SP03-0.6, SP06-0.6, SP06-0.9, SP07-0.3, SP07-0.6, SP08-0.6, SP08-0.9, SP09-0.3, SP10-0.6, SP10-0.3, SP10-0.6, SP10-0.9, SP11-0.3 and SP11-0.6.

9.1.4. OCP

The concentration of relevant OCP compounds detected in the soil samples analysed, were less than the applicable adopted direct contact human health exposure criteria.

9.1.5. PCB

The concentration of relevant PCB compounds detected in the soil samples analysed, were less than the applicable adopted direct contact human health exposure criteria.

9.1.6. Metals

The concentrations of lead detected in the soil samples analysed, were less than the applicable adopted direct contact human health exposure criteria.

9.1.7. Bonded Asbestos Containing Materials

AG (2018) reported that the estimated concentrations of bonded asbestos in soil in stockpiles SP03 to SP11 was not less than the adopted health screening level of 0.01% w/w, with the exception of sample SP05 which had a preliminary estimated asbestos concentration of asbestos in soil, equal to the adopted health screening level. AG (2018) considered that the potential for asbestos concentrations in SP05 to exceed to adopted health screening level should not be precluded.

The laboratory analytical results for sample SP05-0.3 detected a concentration of asbestos in a fragment of fibrous cement sheeting in the >7mm fraction, of 0.01% w/w, which is not less than the adopted health screening level of 0.01% w/w.

The visual presence of fragments of asbestos containing materials in the form of fibrous cement sheeting fragments, is considered likely to exceed the adopted 'no visible asbestos for surface soil' health screening level.

9.1.8. Asbestos Fines and Friable Asbestos

The concentration of friable asbestos and asbestos fines (FA and AF) detected in the soil samples analysed from SP03 to SP11, were less than the applicable adopted health screening level.

9.2. Human Health – Inhalation / Vapour Intrusion (Soils)

9.2.1. TRH

The concentrations of TRH C_6-C_{10} (minus BTEX) and TRH >C_{10}-C_{16} (minus naphthalene) detected in the soil samples analysed, were less than the applicable adopted inhalation / vapour intrusion human health exposure criteria.

9.2.2. BTEX

The concentrations of benzene, toluene, ethyl benzene and xylenes detected in the soil samples analysed, were less than the applicable adopted inhalation / vapour intrusion human health exposure criteria.

9.2.3. PAH

The concentrations of naphthalene detected in the soil samples analysed, were less than the applicable adopted inhalation / vapour intrusion human health exposure criteria.

9.3. TPH Management Limits (Residential)

The concentrations of TRH C_6-C_{10}, >C_{10}-C_{16}, >C_{16}-C_{34} and >C_{34}-C_{40} detected in the soil samples analysed, were less than the applicable adopted TRH management limits.

9.4. Aesthetics

There were no observations of odours, significant chemical deposits, large monolithic deposits of low risk material or putrescible waste in the soils sampled. There were observations made of building/demolition waste in stockpiles SP03 to SP11.

AG (2018) reported observations of fragments of fibrous cement sheeting in stockpiles SP03, SP04, SP05, SP06, SP07, SP08, SP09, SP10 and SP11.

The visible presence of fragments of asbestos containing materials in the form of fibrous cement sheeting fragments, in stockpiles SP03 to SP11, is considered to exceed the adopted aesthetics assessment criteria.

10. CONCLUSIONS AND RECOMMENDATIONS

Based on AG's assessment of the desktop review information, fieldwork data and laboratory analytical data, in the context of the assessment objectives and current commercial / industrial land use setting, AG makes the following conclusions:

- the concentrations of identified contaminants of potential concern in stockpile SP03 to SP11 are considered unlikely to present an unacceptable direct contact human health exposure risk, with the exception of benzo(a)pyrene TEQ in stockpiles SP03, SP06, SP07, SP08, SP09, SP10 and SP11;
- the concentrations of identified contaminants of potential concern in stockpiles SP03 to SP11 are considered unlikely to present an unacceptable inhalation / vapour intrusion human health exposure risk;
- the concentrations of bonded asbestos in soil in stockpiles SP03 to SP11 may present an unacceptable human health exposure risk;
- the visible presence of asbestos containing materials in SP03 to SP11 may present an unacceptable aesthetics risk; and
- management and/or remediation of stockpiles SP03 to SP11 is required.

Based on these conclusions, AG makes the following recommendations:

- stockpiles SP03, SP06, SP07, SP08, SP09, SP10 and SP11 should be excavated, transported and disposed of to a suitably licensed landfill facility. The excavation and transportation works should be undertaken by a suitably licensed and experienced contractor, under an asbestos removal control plan;
- stockpiles SP04 and SP05 could be either remediated to remove the identified bonded asbestos human health and aesthetics risks, or excavated, transported and disposed of to a suitably licensed landfill facility. The remediation and/or excavation and transportation works should be undertaken by a suitably licensed and experienced contractor, under an asbestos removal control plan;
- a waste classification should be prepared for materials proposed for offsite disposal, with reference to relevant NSW EPA waste classification guidelines. The waste classification should be prepared by a suitably experienced environmental consultant; and
- a validation report should be prepared following removal and/or remedial works, that assesses whether the identified human health and aesthetics risks have been appropriate managed and/or remediated. The validation report should be prepared by a suitably experienced environmental consultant.

This report, including its conclusions and recommendations, must be read in conjunction with the limitations presented in **Section 11**.

11. STATEMENT OF LIMITATIONS

The findings presented in this report are based on specific searches of relevant, government historical databases and anecdotal information that were made available during the course of this project. To the best of our knowledge, these observations represent a reasonable interpretation of the general condition of the site at the time of report completion.

This report has been prepared solely for the use of the client to whom it is addressed and no other party is entitled to rely on its findings.

No warranties are made as to the information provided in this report. All conclusions and recommendations made in this report are of the professional opinions of personnel involved with the project and while normal checking of the accuracy of data has been conducted, any circumstances outside the scope of this report or which are not made known to personnel and which may impact on those opinions is not the responsibility of Alliance Geotechnical Pty Ltd. Should information become available regarding conditions at the site including previously unknown sources of contamination, AG reserves the right to review the report in the context of the additional information.

This report must be reviewed in its entirety and in conjunction with the objectives, scope and terms applicable to AG's engagement. The report must not be used for any purpose other than the purpose specified at the time AG was engaged to prepare the report.

Logs, figures, and drawings are generated for this report based on individual AG consultant interpretations of nominated data, as well as observations made at the time site walkover/s were completed.

Data and/or information presented in this report must not be redrawn for its inclusion in other reports, plans or documents, nor should that data and/or information be separated from this report in any way.

Should additional information that may impact on the findings of this report be encountered or site conditions change, AG reserves the right to review and amend this report.

12. REFERENCES

AG 2018, 'Supplementary Contamination Assessment, Lot 3991 in DP1190132, Jordan Springs Boulevard, Jordan Springs, NSW', dated 20 April 2018, ref: 7161-ER-1-3.

Friebel, E and Nadebaum, P, 2011, 'Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 2: Application document', CRC CARE Technical Report no. 10, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.

National Environment Protection Council (NEPC) 1999a, 'Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater, National Environment Protection (Assessment of Site Contamination) Measure (NEPM) as amended in May 2013'.

National Environment Protection Council (NEPC) 1999b, 'Schedule B(2) Guideline on Site Characterisation, National Environment Protection (Assessment of Site Contamination) Measure (NEPM) as amended in May 2013'.

NSW EPA 2017, 'Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (3rd edition)'.

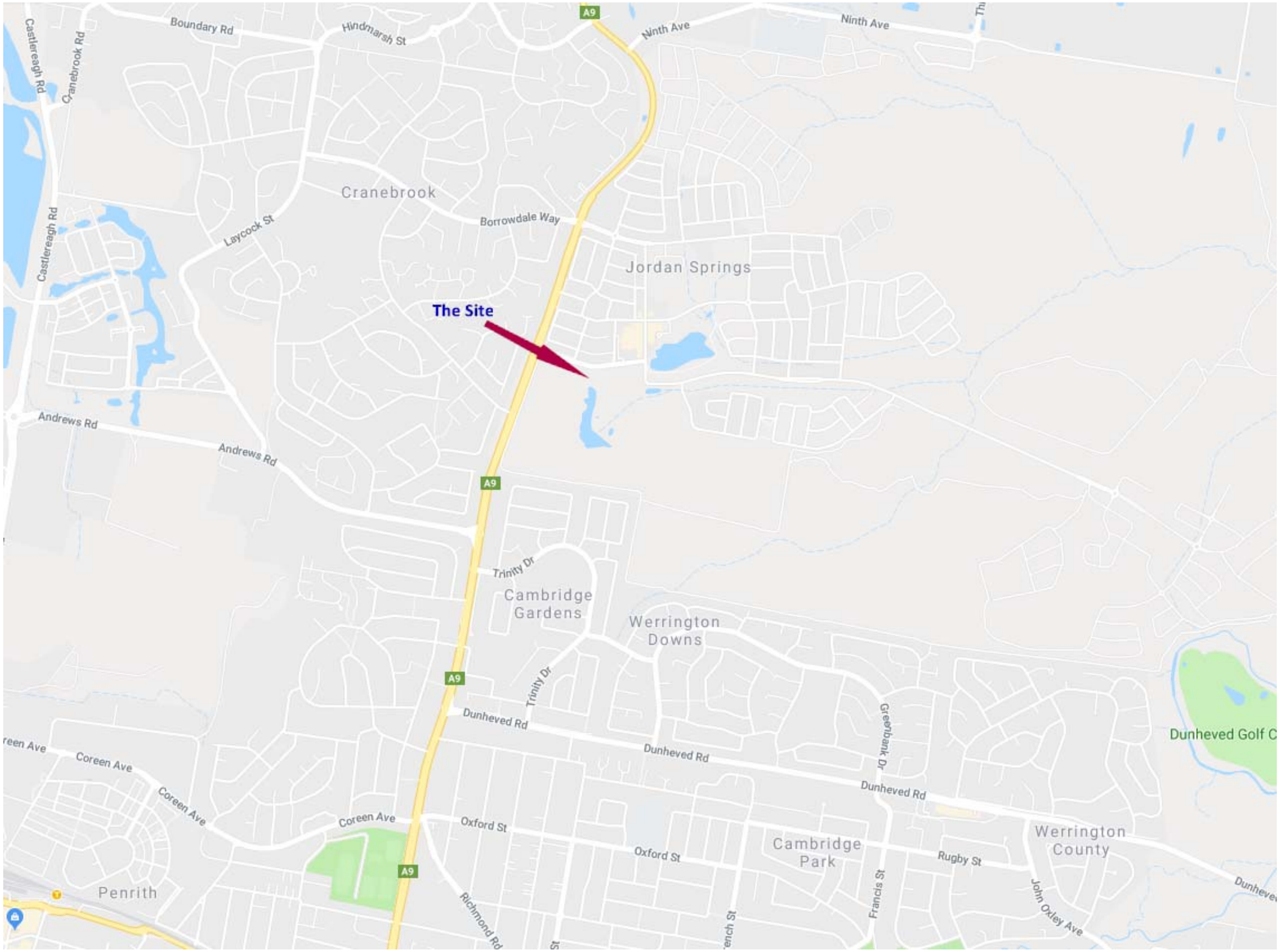
NSW EPA 1995, 'Contaminated Sites: Sampling Design Guidelines'.

NSW OEH 2011, 'Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites'.

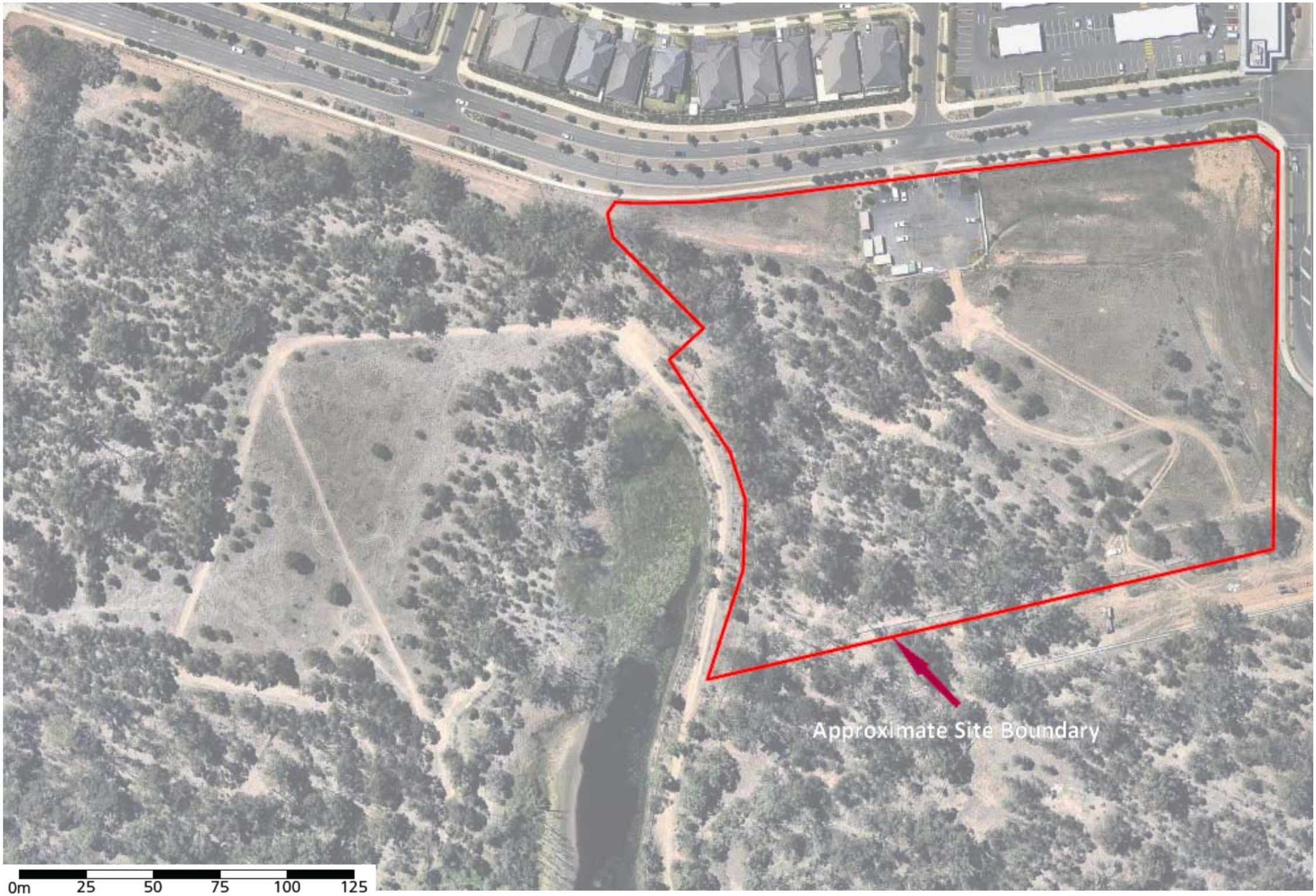
URS 2008, 'Contamination Management Plan, Western Precinct Development Phase' dated 7 July 2008, ref: 4321 7287.

WA DOH 2009, 'Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia' dated May 2009.

FIGURES



Alliance Geotechnical Pty Ltd ENGINEERING | ENVIRONMENTAL | TESTING **10 Welder Road, Seven Hills, NSW** **T: 1800 288 188 E: enviro@allgeo.com.au**	Project Address: Lot 3991 in DP1190132 Jordan Springs Boulevard, Jordan Springs, NSW	Client: LLRL Management Services as Trustee of LLRL Management Services Trust	Project Name: Stockpile Contamination Assessment	Report No: 7161-ER-1-4 Figure Date: 9 May 2018	N	Figure No: 1	Figure Title: Site Locality Plan



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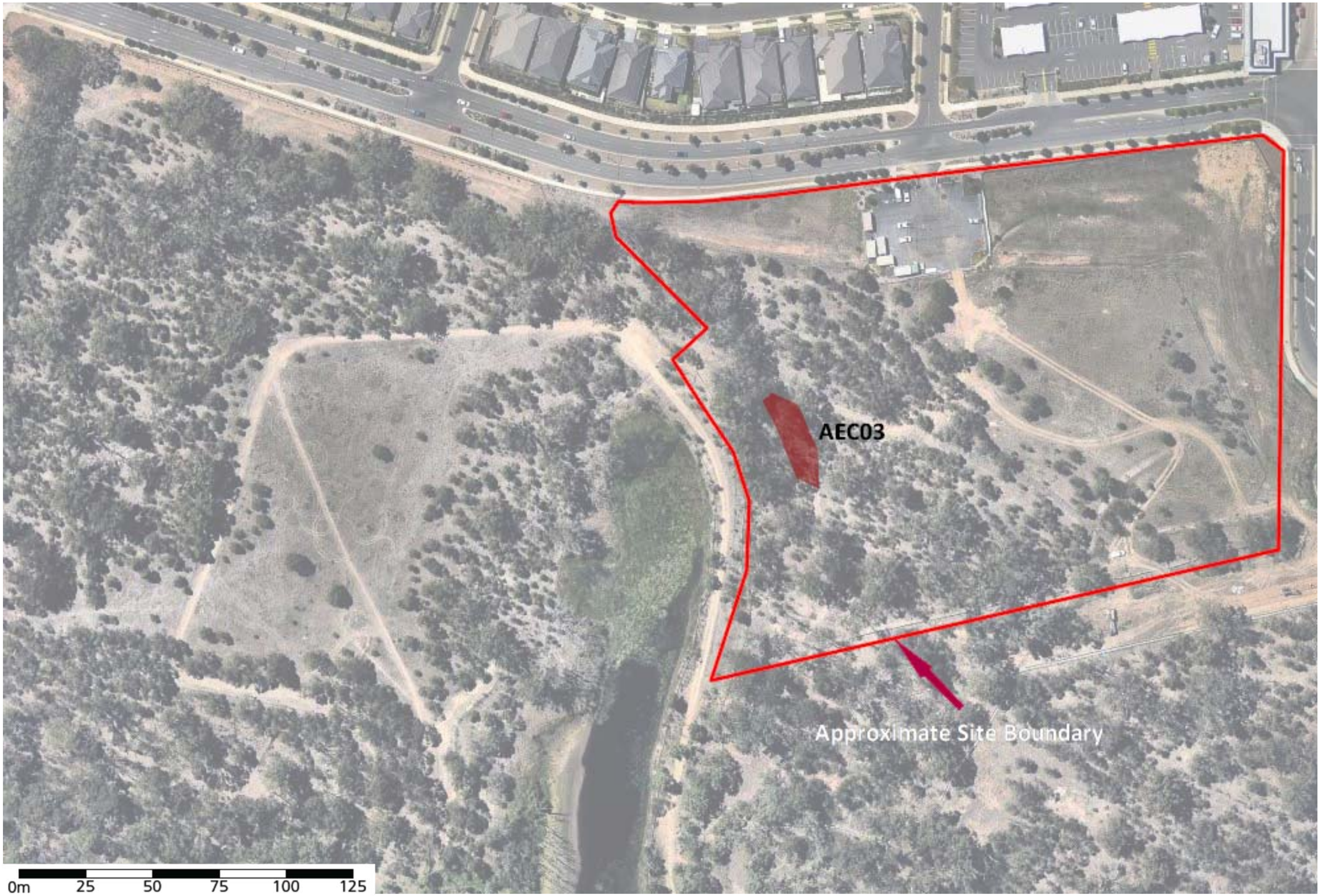

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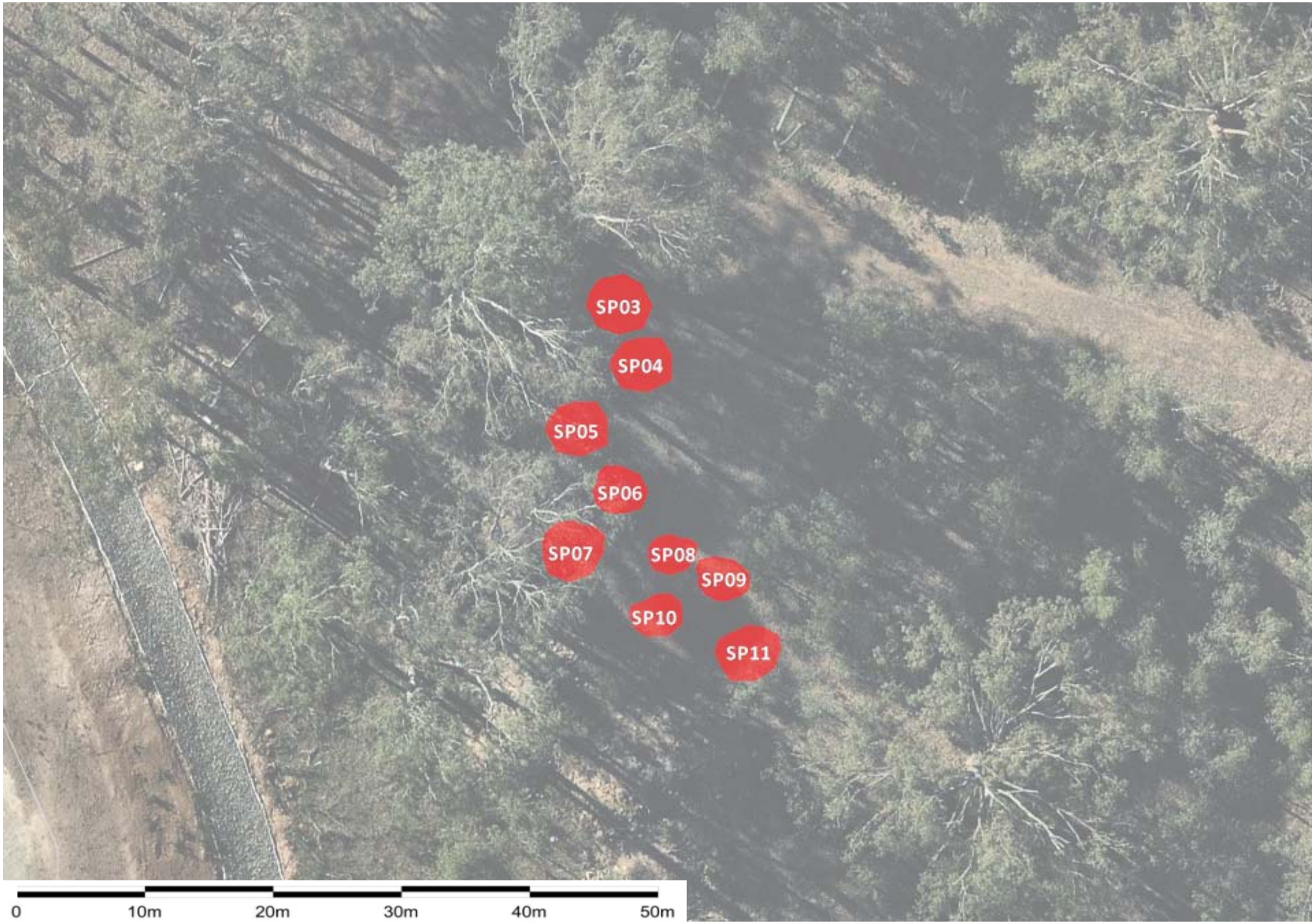

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TABLES

Alliance Geotechnical Pty Ltd **Report No. 7161-ER-1-4**
Table LAR1 Laboratory Analytical Results - Soils
Stockpile Contamination Assessment
Lot 3991 in DP1190132, Jordan Springs Boulevarde, Jordan Springs, NSW

Analyte Name	Units	Direct Contact HIL-A & HSL-A Residential (mg/kg)	Health Screening Levels Residential A	Inhalation / Vapour Intrusion HSL A 0m to <1m (mg/kg)	Management Limits - Residential (mg/kg)	Reporting Limit	SE178910.001 SP03-0.3 9/5/2018 Soil	SE178910.002 SP03-0.6 9/5/2018 Soil	SE178910.003 SP03-0.9 9/5/2018 Soil	SE178910.004 SP04-0.3 9/5/2018 Soil	SE178910.005 SP04-0.6 9/5/2018 Soil	SE178910.006 SP04-0.9 9/5/2018 Soil	SE178910.007 SP05-0.3 9/5/2018 Soil	SE178910.008 SP05-0.6 9/5/2018 Soil	SE178910.009 SP05-0.9 9/5/2018 Soil	SE178910.010 SP06-0.3 9/5/2018 Soil	SE178910.011 SP06-0.6 9/5/2018 Soil	SE178910.012 SP06-0.9 9/5/2018 Soil	SE178910.013 SP07-0.3 9/5/2018 Soil	SE178910.014 SP07-0.6 9/5/2018 Soil	SE178910.015 SP07-1.0 9/5/2018 Soil	SE178910.016 SP08-0.3 9/5/2018 Soil	SE178910.017 SP08-0.6 9/5/2018 Soil	SE178910.018 SP08-0.9 9/5/2018 Soil	SE178910.019 SP09-0.3 9/5/2018 Soil	SE178910.020 SP09-0.6 9/5/2018 Soil
BTEXN in Soil																											
Benzene	mg/kg	100		0.5		0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Toluene	mg/kg	14000		160		0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Ethylbenzene	mg/kg	4500		55		0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Total Xylenes	mg/kg	12000		40		0.3	<0.3	N.A.	N.A.	N.A.	<0.3	N.A.	N.A.	N.A.	<0.3	<0.3	N.A.	N.A.	N.A.	<0.3	N.A.	N.A.	N.A.	<0.3	<0.3	N.A.
Naphthalene	mg/kg	1400		3		0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
TRH in Soils																											
Benzene (F0)	mg/kg	100				0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
TRH C6-C10	mg/kg	4400			700	25	<25	N.A.	N.A.	N.A.	<25	N.A.	N.A.	N.A.	<25	<25	N.A.	N.A.	N.A.	<25	N.A.	N.A.	N.A.	<25	<25	N.A.
TRH C6-C10 minus BTEX (F1)	mg/kg			45		25	<25	N.A.	N.A.	N.A.	<25	N.A.	N.A.	N.A.	<25	<25	N.A.	N.A.	N.A.	<25	N.A.	N.A.	N.A.	<25	<25	N.A.
TRH >C10-C16	mg/kg	3300			1000	25	<25	N.A.	N.A.	N.A.	<25	N.A.	N.A.	N.A.	<25	<25	N.A.	N.A.	N.A.	<25	N.A.	N.A.	N.A.	<25	<25	N.A.
TRH >C10-C16 - Naphthalene (F2)	mg/kg			110		25	<25	N.A.	N.A.	N.A.	<25	N.A.	N.A.	N.A.	<25	<25	N.A.	N.A.	N.A.	<25	N.A.	N.A.	N.A.	<25	<25	N.A.
TRH >C16-C34 (F3)	mg/kg	4500			3500	90	**560**	N.A.	N.A.	N.A.	**160**	N.A.	N.A.	N.A.	**230**	**180**	N.A.	N.A.	N.A.	**220**	N.A.	N.A.	N.A.	**200**	**440**	N.A.
TRH >C34-C40 (F4)	mg/kg	6300			10000	120	<120	N.A.	N.A.	N.A.	<120	N.A.	N.A.	N.A.	<120	<120	N.A.	N.A.	N.A.	<120	N.A.	N.A.	N.A.	<120	<120	N.A.
PAH in Soils																											
Naphthalene	mg/kg	1400		3		0.1	**0.1**	<0.1	N.A.	N.A.	<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	**0.5**	**0.3**	<0.1	<0.1	N.A.	N.A.	**0.2**	**0.2**	**0.1**	<0.1
2-methylnaphthalene	mg/kg					0.1	<0.1	<0.1	N.A.	N.A.	<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	**0.4**	<0.1	<0.1	<0.1	N.A.	N.A.	<0.1	**0.1**	<0.1	<0.1
1-methylnaphthalene	mg/kg					0.1	**0.1**	<0.1	N.A.	N.A.	<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	**0.4**	**0.1**	<0.1	<0.1	N.A.	N.A.	<0.1	**0.1**	**0.2**	<0.1
Acenaphthylene	mg/kg					0.1	**0.8**	**0.5**	N.A.	N.A.	**0.4**	**0.2**	**0.2**	**0.2**	N.A.	N.A.	**1.4**	**0.5**	**0.3**	**0.4**	N.A.	N.A.	**1.2**	**1.0**	**1.2**	**0.2**
Acenaphthene	mg/kg					0.1	**0.5**	<0.1	N.A.	N.A.	<0.1	<0.1	<0.1	<0.1	N.A.	N.A.	**0.2**	<0.1	**0.2**	**0.2**	N.A.	N.A.	**0.1**	<0.1	**0.2**	<0.1
Fluorene	mg/kg					0.1	**0.3**	**0.1**	N.A.	N.A.	**0.2**	<0.1	<0.1	<0.1	N.A.	N.A.	**0.6**	**0.2**	**0.1**	<0.1	N.A.	N.A.	**0.2**	**0.2**	**0.5**	<0.1
Phenanthrene	mg/kg					0.1	**6.6**	**1.8**	N.A.	N.A.	**1.8**	**0.4**	**0.7**	**0.4**	N.A.	N.A.	**6.3**	**2.0**	**1.4**	**1.4**	N.A.	N.A.	**3.2**	**2.2**	**5.1**	**0.6**
Anthracene	mg/kg					0.1	**2.9**	**0.8**	N.A.	N.A.	**0.7**	**0.2**	**0.3**	**0.3**	N.A.	N.A.	**1.9**	**0.7**	**0.8**	**0.8**	N.A.	N.A.	**1.6**	**1.0**	**1.8**	**0.3**
Fluoranthene	mg/kg					0.1	**15**	**4.5**	N.A.	N.A.	**2.6**	**1.0**	**1.9**	**2.1**	N.A.	N.A.	**8.5**	**3.6**	**4.9**	**5.1**	N.A.	N.A.	**8.2**	**5.2**	**11**	**1.5**
Pyrene	mg/kg					0.1	**18**	**4.4**	N.A.	N.A.	**2.7**	**1.0**	**2.0**	**2.4**	N.A.	N.A.	**9.4**	**3.2**	**5.7**	**5.7**	N.A.	N.A.	**9.5**	**5.0**	**12**	**1.4**
Benzo(a)anthracene	mg/kg					0.1	**7.7**	**2.7**	N.A.	N.A.	**1.4**	**0.6**	**1.2**	**1.5**	N.A.	N.A.	**4.9**	**1.9**	**3.5**	**3.4**	N.A.	N.A.	**5.9**	**3.4**	**6.3**	**0.9**
Chrysene	mg/kg					0.1	**6.4**	**2.1**	N.A.	N.A.	**1.2**	**0.5**	**1.0**	**1.2**	N.A.	N.A.	**3.7**	**1.6**	**2.8**	**2.8**	N.A.	N.A.	**4.4**	**2.5**	**4.8**	**0.7**
Benzo(b&j)fluoranthene	mg/kg					0.1	**8.2**	**3.4**	N.A.	N.A.	**1.7**	**0.8**	**1.5**	**2.0**	N.A.	N.A.	**5.2**	**2.4**	**4.4**	**4.1**	N.A.	N.A.	**7.2**	**4.0**	**7.9**	**1.0**
Benzo(k)fluoranthene	mg/kg					0.1	**3.1**	**1.2**	N.A.	N.A.	**0.7**	**0.4**	**0.6**	**0.7**	N.A.	N.A.	**2.0**	**1.0**	**1.6**	**1.6**	N.A.	N.A.	**2.6**	**1.4**	**2.0**	**0.5**
Benzo(a)pyrene	mg/kg					0.1	**7.1**	**2.9**	N.A.	N.A.	**1.5**	**0.7**	**1.3**	**1.7**	N.A.	N.A.	**4.4**	**2.1**	**3.7**	**3.6**	N.A.	N.A.	**6.0**	**3.3**	**6.0**	**0.9**
Indeno(1,2,3-cd)pyrene	mg/kg					0.1	**4.2**	**1.9**	N.A.	N.A.	**0.9**	**0.5**	**0.8**	**1.0**	N.A.	N.A.	**2.6**	**1.4**	**2.3**	**2.2**	N.A.	N.A.	**3.8**	**2.2**	**3.7**	**0.6**
Dibenzo(ah)anthracene	mg/kg					0.1	**1.0**	**0.4**	N.A.	N.A.	**0.2**	**0.1**	**0.2**	**0.3**	N.A.	N.A.	**0.7**	**0.3**	**0.6**	**0.5**	N.A.	N.A.	**1.0**	**0.5**	**1.0**	**0.2**
Benzo(ghi)perylene	mg/kg					0.1	**4.3**	**2.0**	N.A.	N.A.	**1.0**	**0.5**	**0.9**	**1.1**	N.A.	N.A.	**2.5**	**1.4**	**2.3**	**2.2**	N.A.	N.A.	**3.7**	**2.1**	**3.6**	**0.6**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)					0.2	**11**	**4.3**	N.A.	N.A.	**2.2**	**1.1**	**2.0**	**2.5**	N.A.	N.A.	**6.5**	**3.1**	**5.5**	**5.3**	N.A.	N.A.	**9.0**	**5.0**	**9.0**	**1.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	3				0.3	**11**	**4.3**	N.A.	N.A.	**2.2**	**1.1**	**2.0**	**2.5**	N.A.	N.A.	**6.5**	**3.1**	**5.5**	**5.3**	N.A.	N.A.	**9.0**	**5.0**	**9.0**	**1.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)					0.2	**11**	**4.3**	N.A.	N.A.	**2.2**	**1.1**	**2.0**	**2.5**	N.A.	N.A.	**6.5**	**3.1**	**5.5**	**5.3**	N.A.	N.A.	**9.0**	**5.0**	**9.0**	**1.3**
Total PAH (18)	mg/kg					0.8	**86**	**29**	N.A.	N.A.	**17**	**7.0**	**13**	**15**	N.A.	N.A.	**55**	**23**	**35**	**34**	N.A.	N.A.	**59**	**34**	**66**	**9.2**
Total PAH (NEPM/WHO 16)	mg/kg	300				0.8	**86**	**29**	N.A.	N.A.	**17**	**7.0**	**13**	**15**	N.A.	N.A.	**55**	**22**	**35**	**34**	N.A.	N.A.	**59**	**34**	**66**	**9.2**
OCP in Soil																											
Hexachlorobenzene (HCB)	mg/kg	10				0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Alpha BHC	mg/kg					0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Lindane	mg/kg					0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Heptachlor	mg/kg	6				0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Aldrin	mg/kg	6				0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Dieldrin	mg/kg					0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.
Beta BHC	mg/kg					0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Delta BHC	mg/kg					0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Heptachlor epoxide	mg/kg					0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
o,p'-DDT	mg/kg					0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
p,p'-DDT	mg/kg					0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
o,p'-DDE	mg/kg	240				0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
p,p'-DDE	mg/kg					0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
o,p'-DDD	mg/kg					0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
p,p'-DDD	mg/kg					0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Alpha Endosulfan	mg/kg	270				0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.
Beta Endosulfan	mg/kg					0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.
Gamma Chlordane	mg/kg	50				0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Alpha Chlordane	mg/kg					0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
trans-Nonachlor	mg/kg					0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Endrin	mg/kg	10				0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.
Endosulfan sulphate	mg/kg					0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Endrin Aldehyde	mg/kg					0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Methoxychlor	mg/kg	300				0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Endrin Ketone	mg/kg					0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Isodrin	mg/kg					0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
Mirex	mg/kg	10				0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	N.A.
PCB in Soil																											
Arochlor 1016	mg/kg					0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.
Arochlor 1221	mg/kg					0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.
Arochlor 1232	mg/kg					0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.
Arochlor 1242	mg/kg					0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.
Arochlor 1248	mg/kg					0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.
Arochlor 1254	mg/kg					0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.
Arochlor 1260	mg/kg					0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.
Arochlor 1262	mg/kg					0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.
Arochlor 1268	mg/kg					0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	<0.2	N.A.
Total PCBs (Arochlors)	mg/kg	1				1	<1	N.A.	N.A.	N.A.	<1	N.A.	N.A.	N.A.	<1	<1	N.A.	N.A.	N.A.	<1	N.A.	N.A.	N.A.	<1	<1	N.A.
Metals in Soil																											
Arsenic, As	mg/kg	100				3	**9**	N.A.	**5**	**12**	**8**	N.A.	N.A.	**13**	**11**	**10**	N.A.	**11**	N.A.	**7**	**11**	**37**	N.A.	**61**	**17**	N.A.
Cadmium, Cd	mg/kg	20				0.3	**0.3**	N.A.	<0.3	**0.4**	<0.3	N.A.	N.A.	<0.3	**0.3**	**0.4**	N.A.	**0.6**	N.A.	<0.3	<0.3	**0.9**	N.A.	**1.3**	**1.4**	N.A.
Chromium, Cr	mg/kg	100				0.3	**12**	N.A.	**11**	**11**	**9.8**	N.A.	N.A.	**8.0**	**10**	**12**	N.A.	**19**	N.A.	**8.2**	**16**	**15**	N.A.	**14**	**10**	N.A.
Copper, Cu	mg/kg	6000				0.5	**25**	N.A.	**29**	**43**	**34**	N.A.	N.A.	**26**	**30**	**41**	N.A.	**40**	N.A.	**34**	**25**	**26**	N.A.	**21**	**35**	N.A.
Lead, Pb	mg/kg	300				1	**140**	N.A.	**120**	**93**	**91**	N.A.	N.A.	**58**	**62**	**110**	N.A.	**170**	N.A.	**63**	**53**	**100**	N.A.	**83**	**69**	N.A.
Nickel, Ni	mg/kg	400				0.5	**6.4**	N.A.	**6.6**	**17**	**18**	N.A.	N.A.	**25**	**26**	**16**	N.A.	**17**	N.A.	**27**	**16**	**5.8**	N.A.	**4.0**	**10**	N.A.
Zinc, Zn	mg/kg	7400				0.5	**320**	N.A.	**280**	**160**	**150**	N.A.	N.A.	**100**	**80**	**200**	N.A.	**550**	N.A.	**46**	**72**	**180**	N.A.	**260**	**96**	N.A.
Mercury	mg/kg	40				0.05	**0.11**	N.A.	**0.12**	**0.14**	**0.09**	N.A.	N.A.	**0.07**	**0.10**	**0.10**	N.A.	**0.13**	N.A.	<0.05	**0.06**	**0.51**	N.A.	**0.40**	**0.10**	N.A.
Asbestos in Soil																											
Total Sample Weight	g					1	N.A.	**931**	**803**	**881**	N.A.	**800**	**924**	**1084**	N.A.	N.A.	**1009**	**895**	**970**	N.A.	**855**	**851**	**922**	N.A.	N.A.	**874**
ACM in >7mm Sample	g					0.01	N.A.	<0.01	<0.01	<0.01	N.A.	<0.01	**0.77**	<0.01	N.A.	N.A.	<0.01	<0.01	<0.01	N.A.	<0.01	<0.01	<0.01	N.A.	N.A.	<0.01
AF/FA in >2mm to <7mm Sample	g					0.0001	N.A.	<0.0001	<0.0001	<0.0001	N.A.	<0.0001	<0.0001	<0.0001	N.A.	N.A.	<0.0001	<0.0001	<0.0001	N.A.	<0.0001	<0.0001	<0.0001	N.A.	N.A.	<0.0001
AF/FA in <2mm Sample	g					0.0001	N.A.	<0.0001	<0.0001	<0.0001	N.A.	<0.0001	<0.0001	<0.0001	N.A.	N.A.	<0.0001	<0.0001	<0.0001	N.A.	<0.0001	<0.0001	<0.0001	N.A.	N.A.	<0.0001
Asbestos in soil (>7mm ACM)	%w/w		0.01			0.01	N.A.	<0.01	<0.01	<0.01	N.A.	<0.01	**0.01**	<0.01	N.A.	N.A.	<0.01	<0.01	<0.01	N.A.	<0.01	<0.01	<0.01	N.A.	N.A.	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)	%w/w		0.001			0.001	N.A.	<0.001	<0.001	<0.001	N.A.	<0.001	<0.001	<0.001	N.A.	N.A.	<0.001	<0.001	<0.001	N.A.	<0.001	<0.001	<0.001	N.A.	N.A.	<0.001
Asbestos in soil (<2mm AF/FA)	%w/w		0.001			0.001	N.A.	<0.001	<0.001	<0.001	N.A.	<0.001	<0.001	<0.001	N.A.	N.A.	<0.001	<0.001	<0.001	N.A.	<0.001	<0.001	<0.001	N.A.	N.A.	<0.001
Asbestos in soil (<7mm AF/FA)	%w/w		0.001			0.001	N.A.	<0.001	<0.001	<0.001	N.A.	<0.001	<0.001	<0.001	N.A.	N.A.	<0.001	<0.001	<0.001	N.A.	<0.001	<0.001	<0.001	N.A.	N.A.	<0.001
Fibre Type	No unit					0	N.A.	ORG,NAD	ORG,NAD	ORG,NAD	N.A.	ORG,NAD	CRY,ORG	ORG,NAD	N.A.	N.A.	ORG,NAD	ORG,NAD	ORG,NAD	N.A.	ORG,NAD	ORG,NAD	ORG,NAD	N.A.	N.A.	ORG,NAD

Alliance Geotechnical Pty Ltd **Report No. 7161-ER-1-4**
Table LAR1 Laboratory Analytical Results - Soils
Stockpile Contamination Assessment
Lot 3991 in DP1190132, Jordan Springs Boulevarde, Jordan Springs, NSW

Analyte Name	Units	Direct Contact HIL-A & HSL-A Residential (mg/kg)	Health Screening Levels Residential A	Inhalation / Vapour Intrusion HSL A 0m to <1m (mg/kg)	Management Limits - Residential (mg/kg)	Reporting Limit	Sample Name	SE178910.021	SE178910.022	SE178910.023	SE178910.024	SE178910.025	SE178910.026	SE178910.027
							Description	SP09-0.9	SP10-0.3	SP10-0.6	SP10-0.9	SP11-0.3	SP11-0.6	SP11-0.9
							Sample Date	9/5/2018	9/5/2018	9/5/2018	9/5/2018	9/5/2018	9/5/2018	9/5/2018
							Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
BTEXN in Soil														
Benzene	mg/kg	100		0.5		0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Toluene	mg/kg	14000		160		0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Ethylbenzene	mg/kg	4500		55		0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Total Xylenes	mg/kg	12000		40		0.3		N.A.	N.A.	<0.3	N.A.	N.A.	N.A.	<0.3
Naphthalene	mg/kg	1400		3		0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
TRH in Soils														
Benzene (F0)	mg/kg	100				0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
TRH C6-C10	mg/kg	4400			700	25		N.A.	N.A.	<25	N.A.	N.A.	N.A.	<25
TRH C6-C10 minus BTEX (F1)	mg/kg			45		25		N.A.	N.A.	<25	N.A.	N.A.	N.A.	<25
TRH >C10-C16	mg/kg	3300			1000	25		N.A.	N.A.	<25	N.A.	N.A.	N.A.	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg			110		25		N.A.	N.A.	<25	N.A.	N.A.	N.A.	<25
TRH >C16-C34 (F3)	mg/kg	4500			3500	90		N.A.	N.A.	**470**	N.A.	N.A.	N.A.	**340**
TRH >C34-C40 (F4)	mg/kg	6300			10000	120		N.A.	N.A.	<120	N.A.	N.A.	N.A.	<120
PAH in Soils														
Naphthalene	mg/kg	1400		3		0.1		N.A.	N.A.	**0.2**	**0.1**	<0.1	**0.2**	N.A.
2-methylnaphthalene	mg/kg					0.1		N.A.	N.A.	<0.1	<0.1	<0.1	<0.1	N.A.
1-methylnaphthalene	mg/kg					0.1		N.A.	N.A.	<0.1	<0.1	<0.1	<0.1	N.A.
Acenaphthylene	mg/kg					0.1		N.A.	N.A.	**0.8**	**0.6**	**0.7**	**1.4**	N.A.
Acenaphthene	mg/kg					0.1		N.A.	N.A.	**0.3**	**0.2**	<0.1	**0.1**	N.A.
Fluorene	mg/kg					0.1		N.A.	N.A.	**0.3**	**0.2**	**0.1**	**0.2**	N.A.
Phenanthrene	mg/kg					0.1		N.A.	N.A.	**3.4**	**2.6**	**2.6**	**2.5**	N.A.
Anthracene	mg/kg					0.1		N.A.	N.A.	**1.6**	**1.3**	**1.2**	**1.7**	N.A.
Fluoranthene	mg/kg					0.1		N.A.	N.A.	**10**	**7.3**	**7.2**	**8.8**	N.A.
Pyrene	mg/kg					0.1		N.A.	N.A.	**12**	**8.3**	**8.0**	**12**	N.A.
Benzo(a)anthracene	mg/kg					0.1		N.A.	N.A.	**7.0**	**4.7**	**4.7**	**6.9**	N.A.
Chrysene	mg/kg					0.1		N.A.	N.A.	**5.4**	**3.9**	**3.7**	**5.3**	N.A.
Benzo(b&j)fluoranthene	mg/kg					0.1		N.A.	N.A.	**8.2**	**6.0**	**5.7**	**9.3**	N.A.
Benzo(k)fluoranthene	mg/kg					0.1		N.A.	N.A.	**3.2**	**2.3**	**2.2**	**3.4**	N.A.
Benzo(a)pyrene	mg/kg					0.1		N.A.	N.A.	**7.0**	**5.1**	**4.9**	**8.3**	N.A.
Indeno(1,2,3-cd)pyrene	mg/kg					0.1		N.A.	N.A.	**4.5**	**3.4**	**3.2**	**5.8**	N.A.
Dibenzo(ah)anthracene	mg/kg					0.1		N.A.	N.A.	**1.1**	**0.8**	**0.8**	**1.4**	N.A.
Benzo(ghi)perylene	mg/kg					0.1		N.A.	N.A.	**4.4**	**3.4**	**3.2**	**6.0**	N.A.
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)					0.2		N.A.	N.A.	**11**	**7.7**	**7.3**	**12**	N.A.
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	3				0.3		N.A.	N.A.	**11**	**7.7**	**7.3**	**12**	N.A.
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)					0.2		N.A.	N.A.	**11**	**7.7**	**7.3**	**12**	N.A.
Total PAH (18)	mg/kg					0.8		N.A.	N.A.	**69**	**50**	**48**	**73**	N.A.
Total PAH (NEPM/WHO 16)	mg/kg	300				0.8		N.A.	N.A.	**69**	**50**	**48**	**73**	N.A.
OCP in Soil														
Hexachlorobenzene (HCB)	mg/kg	10				0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Alpha BHC	mg/kg					0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Lindane	mg/kg					0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Heptachlor	mg/kg	6				0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Aldrin	mg/kg	6				0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Dieldrin	mg/kg					0.2		N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2
Beta BHC	mg/kg					0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Delta BHC	mg/kg					0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Heptachlor epoxide	mg/kg					0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
o,p'-DDT	mg/kg					0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
p,p'-DDT	mg/kg					0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
o,p'-DDE	mg/kg	240				0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
p,p'-DDE	mg/kg					0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
o,p'-DDD	mg/kg					0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
p,p'-DDD	mg/kg					0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Alpha Endosulfan	mg/kg	270				0.2		N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2
Beta Endosulfan	mg/kg					0.2		N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2
Gamma Chlordane	mg/kg	50				0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Alpha Chlordane	mg/kg					0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
trans-Nonachlor	mg/kg					0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Endrin	mg/kg	10				0.2		N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2
Endosulfan sulphate	mg/kg					0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Endrin Aldehyde	mg/kg					0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Methoxychlor	mg/kg	300				0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Endrin Ketone	mg/kg					0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Isodrin	mg/kg					0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Mirex	mg/kg	10				0.1		N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
PCB in Soil														
Arochlor 1016	mg/kg					0.2		N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2
Arochlor 1221	mg/kg					0.2		N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2
Arochlor 1232	mg/kg					0.2		N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2
Arochlor 1242	mg/kg					0.2		N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2
Arochlor 1248	mg/kg					0.2		N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2
Arochlor 1254	mg/kg					0.2		N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2
Arochlor 1260	mg/kg					0.2		N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2
Arochlor 1262	mg/kg					0.2		N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2
Arochlor 1268	mg/kg					0.2		N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2
Total PCBs (Arochlors)	mg/kg	1				1		N.A.	N.A.	<1	N.A.	N.A.	N.A.	<1
Metals in Soil														
Arsenic, As	mg/kg	100				3		**15**	**19**	**13**	N.A.	**13**	N.A.	**13**
Cadmium, Cd	mg/kg	20				0.3		**0.6**	**0.5**	**0.4**	N.A.	**0.4**	N.A.	**0.4**
Chromium, Cr	mg/kg	100				0.3		**17**	**13**	**15**	N.A.	**13**	N.A.	**10**
Copper, Cu	mg/kg	6000				0.5		**34**	**30**	**32**	N.A.	**27**	N.A.	**31**
Lead, Pb	mg/kg	300				1		**120**	**110**	**130**	N.A.	**120**	N.A.	**81**
Nickel, Ni	mg/kg	400				0.5		**16**	**4.5**	**4.4**	N.A.	**6.9**	N.A.	**13**
Zinc, Zn	mg/kg	7400				0.5		**570**	**210**	**150**	N.A.	**180**	N.A.	**110**
Mercury	mg/kg	40				0.05		**0.09**	**0.36**	**0.33**	N.A.	**0.25**	N.A.	**0.16**
Asbestos in Soil														
Total Sample Weight	g					1		**1089**	**979**	N.A.	**793**	**1114**	**944**	N.A.
ACM in >7mm Sample	g					0.01		<0.01	<0.01	N.A.	<0.01	<0.01	<0.01	N.A.
AF/FA in >2mm to <7mm Sample	g					0.0001		<0.0001	<0.0001	N.A.	<0.0001	<0.0001	<0.0001	N.A.
AF/FA in <2mm Sample	g					0.0001		<0.0001	<0.0001	N.A.	<0.0001	<0.0001	<0.0001	N.A.
Asbestos in soil (>7mm ACM)	%w/w		0.01			0.01		<0.01	<0.01	N.A.	<0.01	<0.01	<0.01	N.A.
Asbestos in soil (>2mm to <7mm AF/FA)	%w/w		0.001			0.001		<0.001	<0.001	N.A.	<0.001	<0.001	<0.001	N.A.
Asbestos in soil (<2mm AF/FA)	%w/w		0.001			0.001		<0.001	<0.001	N.A.	<0.001	<0.001	<0.001	N.A.
Asbestos in soil (<7mm AF/FA)	%w/w		0.001			0.001		<0.001	<0.001	N.A.	<0.001	<0.001	<0.001	N.A.
Fibre Type	No unit					0		ORG,NAD	ORG,NAD	N.A.	ORG,NAD	ORG,NAD	ORG,NAD	N.A.

Alliance Geotechnical Pty Ltd **Report No. 7161-ER-1-4**

Table LAR2 Laboratory Analytical Results - RPD

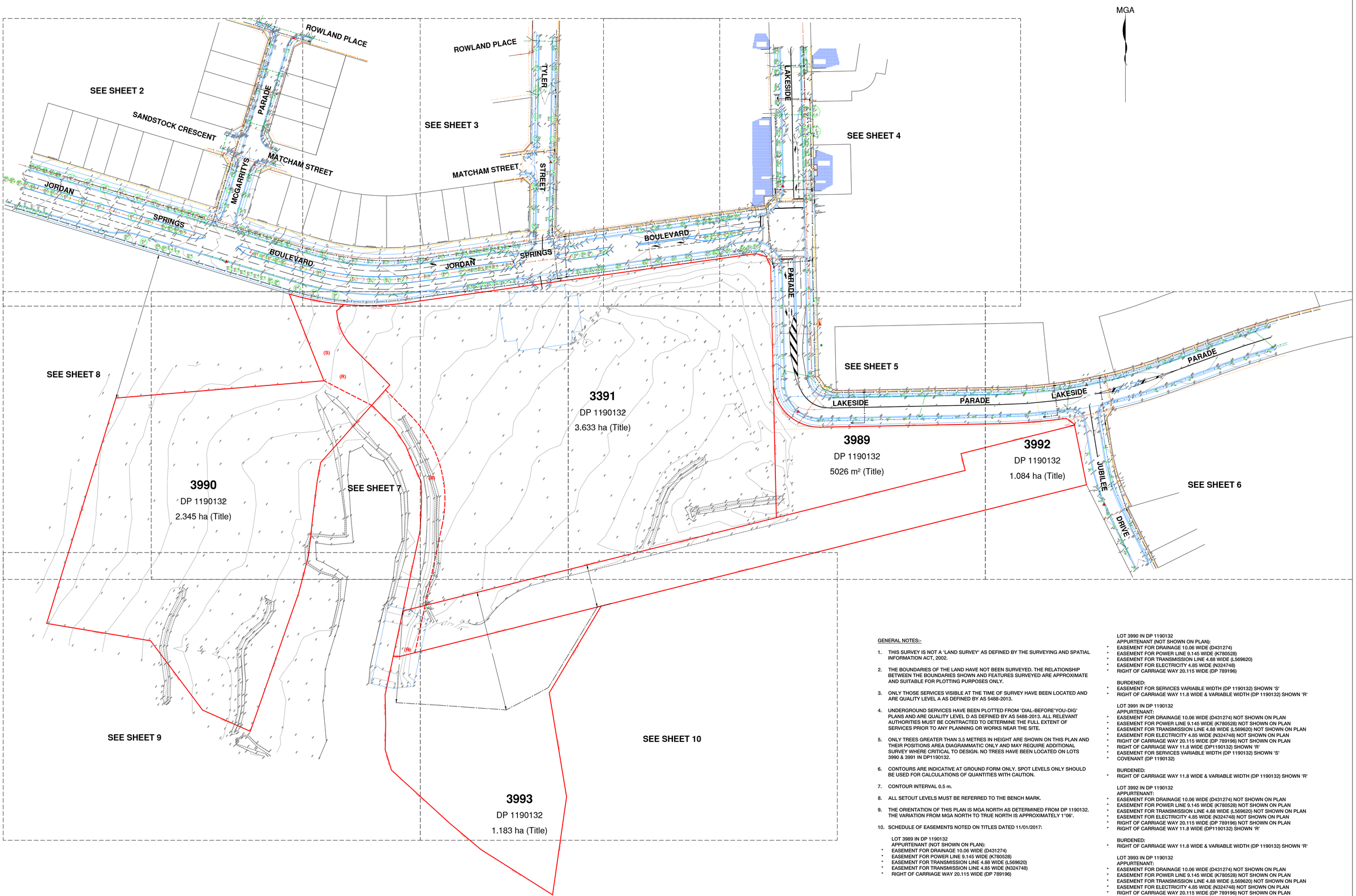
Stockpile Contamination Assessment

Lot 3991 in DP1190132, Jordan Springs Boulevarde, Jordan Springs, NSW

Analyte Name	Units	Sample Name	SE178910.002	SE178910.028		S18-My13998			SE178910.008	SE178910.029		S18-My13999	
		Description	SP03-0.6	DUP1		DUP1A			SP05-0.6	DUP2		DUP2A	
		Sample Date	9/5/2018	9/5/2018	RPD %	9/4/2018	RPD %		9/5/2018	9/5/2018	RPD %	9/4/2018	RPD %
		Matrix	Soil	Soil		Soil			Soil	Soil		Soil	
		Reporting Limit	Result	Result		Result			Result	Result		Result	
Metals in Soil													
Arsenic, As	mg/kg	3	N.A.	7	#VALUE!	9.3	28		13	9	36	9.3	33
Cadmium, Cd	mg/kg	0.3	N.A.	0.3	#VALUE!	< 0.4	#VALUE!		<0.3	<0.3	#VALUE!	< 0.4	#VALUE!
Chromium, Cr	mg/kg	0.3	N.A.	19	#VALUE!	16	17		8.0	9.5	17	16	67
Copper, Cu	mg/kg	0.5	N.A.	33	#VALUE!	24	32		26	31	18	24	8
Lead, Pb	mg/kg	1	N.A.	190	#VALUE!	110	53		58	110	62	110	62
Nickel, Ni	mg/kg	0.5	N.A.	9.5	#VALUE!	13	31		25	19	27	13	63
Zinc, Zn	mg/kg	0.5	N.A.	430	#VALUE!	220	65		100	160	46	220	75
Mercury	mg/kg	0.05	N.A.	0.29	#VALUE!	0.2	37		0.07	0.09	25	0.2	96

APPENDIX A

SURVEY



SEE SHEET 2 FOR LEGEND AND UNDERGROUND SERVICES

10 20 30 40 50 100
1:1000

GENERAL NOTES:-

1. THIS SURVEY IS NOT A 'LAND SURVEY' AS DEFINED BY THE SURVEYING AND SPATIAL INFORMATION ACT, 2002.
2. THE BOUNDARIES OF THE LAND HAVE NOT BEEN SURVEYED. THE RELATIONSHIP BETWEEN THE BOUNDARIES SHOWN AND FEATURES SURVEYED ARE APPROXIMATE AND SUITABLE FOR PLOTTING PURPOSES ONLY.
3. ONLY THOSE SERVICES VISIBLE AT THE TIME OF SURVEY HAVE BEEN LOCATED AND ARE QUALITY LEVEL A AS DEFINED BY AS 5488-2013.
4. UNDERGROUND SERVICES HAVE BEEN PLOTTED FROM 'DIAL-BEFORE'YOU-DIG' PLANS AND ARE QUALITY LEVEL D AS DEFINED BY AS 5488-2013. ALL RELEVANT AUTHORITIES MUST BE CONTRACTED TO DETERMINE THE FULL EXTENT OF SERVICES PRIOR TO ANY PLANNING OR WORKS NEAR THE SITE.
5. ONLY TREES GREATER THAN 3.5 METRES IN HEIGHT ARE SHOWN ON THIS PLAN AND THEIR POSITIONS AREA DIAGRAMMATIC ONLY AND MAY REQUIRE ADDITIONAL SURVEY WHERE CRITICAL TO DESIGN. NO TREES HAVE BEEN LOCATED ON LOTS 3990 & 3991 IN DP1190132.
6. CONTOURS ARE INDICATIVE AT GROUND FORM ONLY. SPOT LEVELS ONLY SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.
7. CONTOUR INTERVAL 0.5 m.
8. ALL SETOUT LEVELS MUST BE REFERRED TO THE BENCH MARK.
9. THE ORIENTATION OF THIS PLAN IS MGA NORTH AS DETERMINED FROM DP 1190132. THE VARIATION FROM MGA NORTH TO TRUE NORTH IS APPROXIMATELY 1°06'.
10. SCHEDULE OF EASEMENTS NOTED ON TITLES DATED 11/01/2017:

LOT 3989 IN DP 1190132
APPURTENANT (NOT SHOWN ON PLAN):
* EASEMENT FOR DRAINAGE 10.06 WIDE (D431274)
* EASEMENT FOR POWER LINE 9.145 WIDE (K780528)
* EASEMENT FOR TRANSMISSION LINE 4.88 WIDE (L569620)
* EASEMENT FOR TRANSMISSION LINE 4.85 WIDE (N324748)
* RIGHT OF CARRIAGE WAY 20.115 WIDE (DP 789196)

LOT 3990 IN DP 1190132
APPURTENANT (NOT SHOWN ON PLAN):
* EASEMENT FOR DRAINAGE 10.06 WIDE (D431274)
* EASEMENT FOR POWER LINE 9.145 WIDE (K780528)
* EASEMENT FOR TRANSMISSION LINE 4.88 WIDE (L569620)
* EASEMENT FOR ELECTRICITY 4.85 WIDE (N324748)
* RIGHT OF CARRIAGE WAY 20.115 WIDE (DP 789196)

BURDENED:
* EASEMENT FOR SERVICES VARIABLE WIDTH (DP 1190132) SHOWN 'S'
* RIGHT OF CARRIAGE WAY 11.8 WIDE & VARIABLE WIDTH (DP 1190132) SHOWN 'R'

LOT 3991 IN DP 1190132
APPURTENANT:
* EASEMENT FOR DRAINAGE 10.06 WIDE (D431274) NOT SHOWN ON PLAN
* EASEMENT FOR POWER LINE 9.145 WIDE (K780528) NOT SHOWN ON PLAN
* EASEMENT FOR TRANSMISSION LINE 4.88 WIDE (L569620) NOT SHOWN ON PLAN
* EASEMENT FOR ELECTRICITY 4.85 WIDE (N324748) NOT SHOWN ON PLAN
* RIGHT OF CARRIAGE WAY 20.115 WIDE (DP 789196) NOT SHOWN ON PLAN
* RIGHT OF CARRIAGE WAY 11.8 WIDE (DP1190132) SHOWN 'R'
* EASEMENT FOR SERVICES VARIABLE WIDTH (DP 1190132) SHOWN 'S'
* COVENANT (DP 1190132)

BURDENED:
* RIGHT OF CARRIAGE WAY 11.8 WIDE & VARIABLE WIDTH (DP 1190132) SHOWN 'R'

LOT 3992 IN DP 1190132
APPURTENANT:
* EASEMENT FOR DRAINAGE 10.06 WIDE (D431274) NOT SHOWN ON PLAN
* EASEMENT FOR POWER LINE 9.145 WIDE (K780528) NOT SHOWN ON PLAN
* EASEMENT FOR TRANSMISSION LINE 4.88 WIDE (L569620) NOT SHOWN ON PLAN
* EASEMENT FOR ELECTRICITY 4.85 WIDE (N324748) NOT SHOWN ON PLAN
* RIGHT OF CARRIAGE WAY 20.115 WIDE (DP 789196) NOT SHOWN ON PLAN
* RIGHT OF CARRIAGE WAY 11.8 WIDE (DP1190132) SHOWN 'R'

BURDENED:
* RIGHT OF CARRIAGE WAY 11.8 WIDE & VARIABLE WIDTH (DP 1190132) SHOWN 'R'

LOT 3993 IN DP 1190132
APPURTENANT:
* EASEMENT FOR DRAINAGE 10.06 WIDE (D431274) NOT SHOWN ON PLAN
* EASEMENT FOR POWER LINE 9.145 WIDE (K780528) NOT SHOWN ON PLAN
* EASEMENT FOR TRANSMISSION LINE 4.88 WIDE (L569620) NOT SHOWN ON PLAN
* EASEMENT FOR ELECTRICITY 4.85 WIDE (N324748) NOT SHOWN ON PLAN
* RIGHT OF CARRIAGE WAY 20.115 WIDE (DP 789196) NOT SHOWN ON PLAN
* RIGHT OF CARRIAGE WAY 11.8 WIDE (DP 1190132) SHOWN 'R'

11. COVENANTS AND RESTRICTIONS ARE NOTED ON ALL TITLES. THESE HAVE NOT BEEN INVESTIGATED.
12. MGA COORDINATES ARE BASED ON SSM 175299 (CLASS C ORDER 3)

DIAL BEFORE YOU DIG www.1100.com.au

ISSUE	DATE	AMENDMENT
A	20/12/16	ORIGINAL ISSUE
B	15/02/17	ADDITIONAL INFORMATION LOT 3993 DP1190132
C	15/01/18	ADDITIONAL INFORMATION LOTS 3390 & 3391 DP1190132

CLIENT: LENDLEASE

SCALE 1:1000
ORIGIN OF LEVELS: SSM 80426 RL 47.288
DATUM: A.H.D.
REF.: 7202
DATE: 15/01/2018
SURV/CHK: SW/CT
SHEET 1 OF 10 SHEETS
PLAN A1
ISSUE C

DETAIL AND LEVEL SURVEY OF PART OF JORDAN SPRINGS BOULEVARD, LAKESIDE PARADE & JUBILEE DRIVE JORDAN SPRINGS

SDG LAND DEVELOPMENT SOLUTIONS A.B.N. 80 213 023 631
Suite 1 3 Railway Street BAULKHAM HILLS 2153
P.O.Box 2572 NORTH PARRAMATTA 1750
t: (02) 9630 7955
e: office@sdg.net.au
w: www.sdg.net.au

Document Set ID: 9092847
Version: 1, Version Date: 08/04/2020

APPENDIX B

LOGS

Alliance Geotechnical
Manage the earth, eliminate the risk

Alliance Geotechnical Pty Ltd
T: 02 9675 1777
F: 02 9675 1888
E: office@allgeo.com.au
W: www.allgeo.com.au

BH No: SP03
Sheet: 1 of 1
Job No: 7161

Borehole Log

Client: LLRL Management Services Pty Ltd as Trustee of LLRL Management Services Trust
Project: Stockpile Waste Classification and Validation
Location: Jordan Springs Boulevard, Jordan Springs NSW

Started: 9/5/18
Finished: 9/5/18
Borehole Size:

Rig Type: 3.5T Excavator
Driller: Ken Coles
Northing:
Logged: JW

RL Surface:
Contractor: Ken Coles
Easting:
Checked: CC

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Additional Observations
3.5T Excavator			0.5			FILL: Silty CLAY, brown, soft, dry.	SP03-0.3 SP03-0.6 SP03-0.9	D	Some brick fragments, concrete cobbles/boulders and metal fragments, with trace glass and tile fragments, and potential ACM fragments observed.
			1.0			End of hole at 1.0m - target depth			

BOREHOLE / TEST PIT 7161-ER-1-4-LOGS.GPJ GINT STD AUSTRALIA.GDT 9/5/18

Alliance Geotechnical
Manage the earth, eliminate the risk

Alliance Geotechnical Pty Ltd
T: 02 9675 1777
F: 02 9675 1888
E: office@allgeo.com.au
W: www.allgeo.com.au

BH No: SP04
Sheet: 1 of 1
Job No: 7161

Borehole Log

Client: LLRL Management Services Pty Ltd as Trustee of LLRL Management Services Trust
Started: 9/5/18
Project: Stockpile Waste Classification and Validation
Finished: 9/5/18
Location: Jordan Springs Boulevard, Jordan Springs NSW
Borehole Size:

Rig Type: 3.5T Excavator
Driller: Ken Coles
Northing:
Logged: JW
RL Surface:
Contractor: Ken Coles
Easting:
Checked: CC

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Additional Observations
3.5T Excavator			0.5			FILL: Silty CLAY, brown, soft, dry.	SP04-0.3	D	Some rootlets and weeds, concrete cobbles/boulders and metal fragments, with brick fragments, trace glass and tile fragments, and potential ACM fragments observed.
							SP04-0.6		
			1.0				SP04-0.9		
						End of hole at 1.0m - target depth			

BOREHOLE / TEST PIT 7161-ER-1-4-LOGS.GPJ GINT STD AUSTRALIA.GDT 9/5/18

Alliance Geotechnical
Manage the earth, eliminate the risk

Alliance Geotechnical Pty Ltd
T: 02 9675 1777
F: 02 9675 1888
E: office@allgeo.com.au
W: www.allgeo.com.au

BH No: SP05
Sheet: 1 of 1
Job No: 7161

Borehole Log

Client: LLRL Management Services Pty Ltd as Trustee of LLRL Management Services Trust
Started: 9/5/18
Project: Stockpile Waste Classification and Validation
Finished: 9/5/18
Location: Jordan Springs Boulevard, Jordan Springs NSW
Borehole Size:
Rig Type: 3.5T Excavator **Driller:** Ken Coles **Northing:** **Logged:** JW
RL Surface: **Contractor:** Ken Coles **Easting:** **Checked:** CC

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Additional Observations
3.5T Excavator						FILL: Silty CLAY, brown, soft, dry.		D	Some brick fragments, concrete cobbles/boulders and metal fragments, with trace glass and tile fragments and rubber sheeting observed.
			0.5				SP05-0.3		
							SP05-0.6		
			1.0				SP05-0.9		
						End of hole at 1.0m - target depth			

BOREHOLE / TEST PIT 7161-ER-1-4-LOGS.GPJ GINT STD AUSTRALIA.GDT 9/5/18

Alliance Geotechnical
Manage the earth, eliminate the risk

Alliance Geotechnical Pty Ltd
T: 02 9675 1777
F: 02 9675 1888
E: office@allgeo.com.au
W: www.allgeo.com.au

BH No: SP06
Sheet: 1 of 1
Job No: 7161

Borehole Log

Client: LLRL Management Services Pty Ltd as Trustee of LLRL Management Services Trust
Started: 9/5/18
Project: Stockpile Waste Classification and Validation
Finished: 9/5/18
Location: Jordan Springs Boulevard, Jordan Springs NSW
Borehole Size:
Rig Type: 3.5T Excavator **Driller:** Ken Coles **Northing:** **Logged:** JW
RL Surface: **Contractor:** Ken Coles **Easting:** **Checked:** CC

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Additional Observations
3.5T Excavator			0.5			FILL: Silty CLAY, brown/yellow, soft, dry with some sand.	SP06-0.3	D	Some brick fragments, concrete cobbles/boulders and metal fragments, with trace glass and tile fragments observed.
							SP06-0.6		
			1.0				SP06-0.9		
						End of hole at 1.0m - target depth			

BOREHOLE / TEST PIT 7161-ER-1-4-LOGS.GPJ GINT STD AUSTRALIA.GDT 9/5/18

Alliance Geotechnical
Manage the earth, eliminate the risk

Alliance Geotechnical Pty Ltd
T: 02 9675 1777
F: 02 9675 1888
E: office@allgeo.com.au
W: www.allgeo.com.au

BH No: SP07
Sheet: 1 of 1
Job No: 7161

Borehole Log

Client: LLRL Management Services Pty Ltd as Trustee of LLRL Management Services Trust
Started: 9/5/18
Project: Stockpile Waste Classification and Validation
Finished: 9/5/18
Location: Jordan Springs Boulevard, Jordan Springs NSW
Borehole Size:
Rig Type: 3.5T Excavator **Driller:** Ken Coles **Northing:** **Logged:** JW
RL Surface: **Contractor:** Ken Coles **Easting:** **Checked:** CC

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Additional Observations
3.5T Excavator						FILL: Silty CLAY, brown, soft, dry.		D	Some brick fragments, concrete cobbles/boulders and metal fragments, with trace glass and tile fragments, and potential ACM fragments observed.
							SP07-0.3		
			0.5						
							SP07-0.6		
			1.0				SP07-1.0		
						End of hole at 1.1m - target depth			

BOREHOLE / TEST PIT 7161-ER-1-4-LOGS.GPJ GINT STD AUSTRALIA.GDT 9/5/18

Alliance Geotechnical
Manage the earth, eliminate the risk

Alliance Geotechnical Pty Ltd
T: 02 9675 1777
F: 02 9675 1888
E: office@allgeo.com.au
W: www.allgeo.com.au

BH No: SP08
Sheet: 1 of 1
Job No: 7161

Borehole Log

Client: LLRL Management Services Pty Ltd as Trustee of LLRL Management Services Trust
Started: 9/5/18
Project: Stockpile Waste Classification and Validation
Finished: 9/5/18
Location: Jordan Springs Boulevard, Jordan Springs NSW
Borehole Size:

Rig Type: 3.5T Excavator **Driller:** Ken Coles **Northing:** **Logged:** JW
RL Surface: **Contractor:** Ken Coles **Easting:** **Checked:** CC

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Additional Observations
3.5T Excavator			0.5			FILL: Silty CLAY, pale brown/grey, soft, dry with trace sand and gravels.	SP08-0.3	D	Some brick fragments, concrete boulders/cobbles and metal fragments, with trace glass and tile fragments, and potential ACM fragments observed.
							SP08-0.6		
			1.0				SP08-0.9		
						End of hole at 1.0m - target depth			

BOREHOLE / TEST PIT 7161-ER-1-4-LOGS.GPJ GINT STD AUSTRALIA.GDT 9/5/18

Alliance Geotechnical
Manage the earth, eliminate the risk

Alliance Geotechnical Pty Ltd
T: 02 9675 1777
F: 02 9675 1888
E: office@allgeo.com.au
W: www.allgeo.com.au

BH No: SP09
Sheet: 1 of 1
Job No: 7161

Borehole Log

Client: LLRL Management Services Pty Ltd as Trustee of LLRL Management Services Trust
Project: Stockpile Waste Classification and Validation
Location: Jordan Springs Boulevard, Jordan Springs NSW

Started: 9/5/18
Finished: 9/5/18
Borehole Size:

Rig Type: 3.5T Excavator
Driller: Ken Coles
Northing:
Logged: JW

RL Surface:
Contractor: Ken Coles
Easting:
Checked: CC

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Additional Observations
3.5T Excavator			0.5			FILL: Silty CLAY, brown, soft, dry.	SP09-0.3 SP09-0.6 SP09-0.9	D	Large rusted metal pole, some brick fragments, concrete cobbles/boulders/small slabs, with trace glass and tile fragments, and potential ACM fragments observed.
			1.0			End of hole at 1.0m - target depth			

BOREHOLE / TEST PIT 7161-ER-1-4-LOGS.GPJ GINT STD AUSTRALIA.GDT 9/5/18

Alliance Geotechnical
Manage the earth, eliminate the risk

Alliance Geotechnical Pty Ltd
T: 02 9675 1777
F: 02 9675 1888
E: office@allgeo.com.au
W: www.allgeo.com.au

BH No: SP10
Sheet: 1 of 1
Job No: 7161

Borehole Log

Client: LLRL Management Services Pty Ltd as Trustee of LLRL Management Services Trust
Project: Stockpile Waste Classification and Validation
Location: Jordan Springs Boulevard, Jordan Springs NSW

Started: 9/5/18
Finished: 9/5/18
Borehole Size:

Rig Type: 3.5T Excavator
Driller: Ken Coles
Northing:
Logged: JW

RL Surface:
Contractor: Ken Coles
Easting:
Checked: CC

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Additional Observations
3.5T Excavator			0.5			FILL: Sandy CLAY, pale brown/pale yellow, medium grained, soft, dry.	SP10-0.3	D	Some brick fragments, concrete cobbles and metal fragments, with trace glass and tile fragments, and potential ACM fragments observed.
							SP10-0.6		
			1.0				SP10-0.9		
						End of hole at 1.0m - target depth			

BOREHOLE / TEST PIT 7161-ER-1-4-LOGS.GPJ GINT STD AUSTRALIA.GDT 9/5/18

Alliance Geotechnical
Manage the earth, eliminate the risk

Alliance Geotechnical Pty Ltd
T: 02 9675 1777
F: 02 9675 1888
E: office@allgeo.com.au
W: www.allgeo.com.au

BH No: SP11
Sheet: 1 of 1
Job No: 7161

Borehole Log

Client: LLRL Management Services Pty Ltd as Trustee of LLRL Management Services Trust
Started: 9/5/18
Project: Stockpile Waste Classification and Validation
Finished: 9/5/18
Location: Jordan Springs Boulevard, Jordan Springs NSW
Borehole Size:

Rig Type: 3.5T Excavator **Driller:** Ken Coles **Northing:** **Logged:** JW
RL Surface: **Contractor:** Ken Coles **Easting:** **Checked:** CC

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture Condition	Additional Observations
3.5T Excavator			0.5			FILL: Silty CLAY, pale brown/brown, soft, dry with some sand.	SP11-0.3	D	Some clay boulders, concrete cobbles/boulders and metal fragments, with trace glass and tile fragments, and potential ACM fragments observed.
							SP11-0.6		
			1.0				SP11-0.9		
						End of hole at 1.0m - target depth			

BOREHOLE / TEST PIT 7161-ER-1-4-LOGS.GPJ GINT STD AUSTRALIA.GDT 9/5/18

APPENDIX C

LABORATORY

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Craig Cowper
Client	ALLIANCE GEOTECHNICAL PTY LTD
Address	10 Welder Road Seven Hills NSW 2147
Telephone	0407 989 885
Facsimile	02 9675 1888
Email	c.cowper@allgeo.com.au
Project	**7161 - Jorden Springs**
Order Number	**P1185**
Samples	31

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE178910 R0**
Date Received	9/5/2018
Date Reported	16/5/2018

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

No respirable fibres detected in soil samples using trace analysis technique as per AS 4964-2004.

Sample # 7 : Asbestos found in cement sheet fragment in >7mm fraction.

Asbestos analysed by approved identifiers Ravee Sivasubramaniam and Yusuf Kuthpudin .

SIGNATORIES

Akheeqar Beniameen
Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Hygiene Team Leader

VOC's in Soil [AN433] Tested: 11/5/2018

PARAMETER	UOM	LOR	SP03-0.3 SOIL - 9/5/2018 SE178910.001	SP04-0.6 SOIL - 9/5/2018 SE178910.005	SP05-0.9 SOIL - 9/5/2018 SE178910.009	SP06-0.3 SOIL - 9/5/2018 SE178910.010	SP07-0.6 SOIL - 9/5/2018 SE178910.014
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	SP08-0.9 SOIL - 9/5/2018 SE178910.018	SP09-0.3 SOIL - 9/5/2018 SE178910.019	SP10-0.6 SOIL - 9/5/2018 SE178910.023	SP11-0.9 SOIL - 9/5/2018 SE178910.027
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 11/5/2018

PARAMETER	UOM	LOR	SP03-0.3 SOIL - 9/5/2018 SE178910.001	SP04-0.6 SOIL - 9/5/2018 SE178910.005	SP05-0.9 SOIL - 9/5/2018 SE178910.009	SP06-0.3 SOIL - 9/5/2018 SE178910.010	SP07-0.6 SOIL - 9/5/2018 SE178910.014
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	SP08-0.9 SOIL - 9/5/2018 SE178910.018	SP09-0.3 SOIL - 9/5/2018 SE178910.019	SP10-0.6 SOIL - 9/5/2018 SE178910.023	SP11-0.9 SOIL - 9/5/2018 SE178910.027
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 11/5/2018

PARAMETER	UOM	LOR	SP03-0.3 SOIL - 9/5/2018 SE178910.001	SP04-0.6 SOIL - 9/5/2018 SE178910.005	SP05-0.9 SOIL - 9/5/2018 SE178910.009	SP06-0.3 SOIL - 9/5/2018 SE178910.010	SP07-0.6 SOIL - 9/5/2018 SE178910.014
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	**390**	**97**	**160**	**120**	**150**
TRH C29-C36	mg/kg	45	**230**	**92**	**100**	**70**	**90**
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	**560**	**160**	**230**	**180**	**220**
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	**620**	**190**	**260**	**190**	**240**
TRH C10-C40 Total (F bands)	mg/kg	210	**560**	<210	**230**	<210	**220**

PARAMETER	UOM	LOR	SP08-0.9 SOIL - 9/5/2018 SE178910.018	SP09-0.3 SOIL - 9/5/2018 SE178910.019	SP10-0.6 SOIL - 9/5/2018 SE178910.023	SP11-0.9 SOIL - 9/5/2018 SE178910.027
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	**150**	**300**	**320**	**220**
TRH C29-C36	mg/kg	45	**70**	**190**	**200**	**170**
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	**200**	**440**	**470**	**340**
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	**220**	**490**	**520**	**390**
TRH C10-C40 Total (F bands)	mg/kg	210	<210	**440**	**470**	**340**

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 11/5/2018

PARAMETER	UOM	LOR	SP03-0.3 SOIL - 9/5/2018 SE178910.001	SP03-0.6 SOIL - 9/5/2018 SE178910.002	SP04-0.6 SOIL - 9/5/2018 SE178910.005	SP04-0.9 SOIL - 9/5/2018 SE178910.006	SP05-0.3 SOIL - 9/5/2018 SE178910.007
Naphthalene	mg/kg	0.1	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	0.8	0.5	0.4	0.2	0.2
Acenaphthene	mg/kg	0.1	0.5	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	0.3	0.1	0.2	<0.1	<0.1
Phenanthrene	mg/kg	0.1	6.6	1.8	1.8	0.4	0.7
Anthracene	mg/kg	0.1	2.9	0.8	0.7	0.2	0.3
Fluoranthene	mg/kg	0.1	15	4.5	2.6	1.0	1.9
Pyrene	mg/kg	0.1	18	4.4	2.7	1.0	2.0
Benzo(a)anthracene	mg/kg	0.1	7.7	2.7	1.4	0.6	1.2
Chrysene	mg/kg	0.1	6.4	2.1	1.2	0.5	1.0
Benzo(b&j)fluoranthene	mg/kg	0.1	8.2	3.4	1.7	0.8	1.5
Benzo(k)fluoranthene	mg/kg	0.1	3.1	1.2	0.7	0.4	0.6
Benzo(a)pyrene	mg/kg	0.1	7.1	2.9	1.5	0.7	1.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	4.2	1.9	0.9	0.5	0.8
Dibenzo(ah)anthracene	mg/kg	0.1	1.0	0.4	0.2	0.1	0.2
Benzo(ghi)perylene	mg/kg	0.1	4.3	2.0	1.0	0.5	0.9
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	11	4.3	2.2	1.1	2.0
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	11	4.3	2.2	1.1	2.0
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	11	4.3	2.2	1.1	2.0
Total PAH (18)	mg/kg	0.8	86	29	17	7.0	13
Total PAH (NEPM/WHO 16)	mg/kg	0.8	86	29	17	7.0	13

PARAMETER	UOM	LOR	SP05-0.6 SOIL - 9/5/2018 SE178910.008	SP06-0.6 SOIL - 9/5/2018 SE178910.011	SP06-0.9 SOIL - 9/5/2018 SE178910.012	SP07-0.3 SOIL - 9/5/2018 SE178910.013	SP07-0.6 SOIL - 9/5/2018 SE178910.014
Naphthalene	mg/kg	0.1	<0.1	0.5	0.3	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	0.4	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	0.4	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	0.2	1.4	0.5	0.3	0.4
Acenaphthene	mg/kg	0.1	<0.1	0.2	<0.1	0.2	0.2
Fluorene	mg/kg	0.1	<0.1	0.6	0.2	0.1	<0.1
Phenanthrene	mg/kg	0.1	0.4	6.3	2.0	1.4	1.4
Anthracene	mg/kg	0.1	0.3	1.9	0.7	0.8	0.8
Fluoranthene	mg/kg	0.1	2.1	8.5	3.6	4.9	5.1
Pyrene	mg/kg	0.1	2.4	9.4	3.2	5.7	5.7
Benzo(a)anthracene	mg/kg	0.1	1.5	4.9	1.9	3.5	3.4
Chrysene	mg/kg	0.1	1.2	3.7	1.6	2.8	2.8
Benzo(b&j)fluoranthene	mg/kg	0.1	2.0	5.2	2.4	4.4	4.1
Benzo(k)fluoranthene	mg/kg	0.1	0.7	2.0	1.0	1.6	1.6
Benzo(a)pyrene	mg/kg	0.1	1.7	4.4	2.1	3.7	3.6
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1.0	2.6	1.4	2.3	2.2
Dibenzo(ah)anthracene	mg/kg	0.1	0.3	0.7	0.3	0.6	0.5
Benzo(ghi)perylene	mg/kg	0.1	1.1	2.5	1.4	2.3	2.2
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	2.5	6.5	3.1	5.5	5.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	2.5	6.5	3.1	5.5	5.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	2.5	6.5	3.1	5.5	5.3
Total PAH (18)	mg/kg	0.8	15	55	23	35	34
Total PAH (NEPM/WHO 16)	mg/kg	0.8	15	55	22	35	34

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 11/5/2018 (continued)

PARAMETER	UOM	LOR	SP08-0.6 SOIL - 9/5/2018 SE178910.017	SP08-0.9 SOIL - 9/5/2018 SE178910.018	SP09-0.3 SOIL - 9/5/2018 SE178910.019	SP09-0.6 SOIL - 9/5/2018 SE178910.020	SP10-0.6 SOIL - 9/5/2018 SE178910.023
Naphthalene	mg/kg	0.1	0.2	0.2	0.1	<0.1	0.2
2-methylnaphthalene	mg/kg	0.1	<0.1	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	0.1	0.2	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	1.2	1.0	1.2	0.2	0.8
Acenaphthene	mg/kg	0.1	0.1	<0.1	0.2	<0.1	0.3
Fluorene	mg/kg	0.1	0.2	0.2	0.5	<0.1	0.3
Phenanthrene	mg/kg	0.1	3.2	2.2	5.1	0.6	3.4
Anthracene	mg/kg	0.1	1.6	1.0	1.8	0.3	1.6
Fluoranthene	mg/kg	0.1	8.2	5.2	11	1.5	10
Pyrene	mg/kg	0.1	9.5	5.0	12	1.4	12
Benzo(a)anthracene	mg/kg	0.1	5.9	3.4	6.3	0.9	7.0
Chrysene	mg/kg	0.1	4.4	2.5	4.8	0.7	5.4
Benzo(b&j)fluoranthene	mg/kg	0.1	7.2	4.0	7.9	1.0	8.2
Benzo(k)fluoranthene	mg/kg	0.1	2.6	1.4	2.0	0.5	3.2
Benzo(a)pyrene	mg/kg	0.1	6.0	3.3	6.0	0.9	7.0
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	3.8	2.2	3.7	0.6	4.5
Dibenzo(ah)anthracene	mg/kg	0.1	1.0	0.5	1.0	0.2	1.1
Benzo(ghi)perylene	mg/kg	0.1	3.7	2.1	3.6	0.6	4.4
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	9.0	5.0	9.0	1.3	11
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	9.0	5.0	9.0	1.3	11
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	9.0	5.0	9.0	1.3	11
Total PAH (18)	mg/kg	0.8	59	34	66	9.2	69
Total PAH (NEPM/WHO 16)	mg/kg	0.8	59	34	66	9.2	69

PARAMETER	UOM	LOR	SP10-0.9 SOIL - 9/5/2018 SE178910.024	SP11-0.3 SOIL - 9/5/2018 SE178910.025	SP11-0.6 SOIL - 9/5/2018 SE178910.026
Naphthalene	mg/kg	0.1	0.1	<0.1	0.2
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	0.6	0.7	1.4
Acenaphthene	mg/kg	0.1	0.2	<0.1	0.1
Fluorene	mg/kg	0.1	0.2	0.1	0.2
Phenanthrene	mg/kg	0.1	2.6	2.6	2.5
Anthracene	mg/kg	0.1	1.3	1.2	1.7
Fluoranthene	mg/kg	0.1	7.3	7.2	8.8
Pyrene	mg/kg	0.1	8.3	8.0	12
Benzo(a)anthracene	mg/kg	0.1	4.7	4.7	6.9
Chrysene	mg/kg	0.1	3.9	3.7	5.3
Benzo(b&j)fluoranthene	mg/kg	0.1	6.0	5.7	9.3
Benzo(k)fluoranthene	mg/kg	0.1	2.3	2.2	3.4
Benzo(a)pyrene	mg/kg	0.1	5.1	4.9	8.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	3.4	3.2	5.8
Dibenzo(ah)anthracene	mg/kg	0.1	0.8	0.8	1.4
Benzo(ghi)perylene	mg/kg	0.1	3.4	3.2	6.0
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	7.7	7.3	12
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	7.7	7.3	12
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	7.7	7.3	12
Total PAH (18)	mg/kg	0.8	50	48	73
Total PAH (NEPM/WHO 16)	mg/kg	0.8	50	48	73

OC Pesticides in Soil [AN420] Tested: 11/5/2018

PARAMETER	UOM	LOR	SP03-0.3 SOIL - 9/5/2018 SE178910.001	SP04-0.6 SOIL - 9/5/2018 SE178910.005	SP05-0.9 SOIL - 9/5/2018 SE178910.009	SP06-0.3 SOIL - 9/5/2018 SE178910.010	SP07-0.6 SOIL - 9/5/2018 SE178910.014
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 11/5/2018 (continued)

PARAMETER	UOM	LOR	SP08-0.9 SOIL - 9/5/2018 SE178910.018	SP09-0.3 SOIL - 9/5/2018 SE178910.019	SP10-0.6 SOIL - 9/5/2018 SE178910.023	SP11-0.9 SOIL - 9/5/2018 SE178910.027
Hexachlorobenzene (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
Lindane	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
Aldrin	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
Delta BHC	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
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
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
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	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
Endrin Aldehyde	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
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1

PCBs in Soil [AN420] Tested: 11/5/2018

PARAMETER	UOM	LOR	SP03-0.3 SOIL - 9/5/2018 SE178910.001	SP04-0.6 SOIL - 9/5/2018 SE178910.005	SP05-0.9 SOIL - 9/5/2018 SE178910.009	SP06-0.3 SOIL - 9/5/2018 SE178910.010	SP07-0.6 SOIL - 9/5/2018 SE178910.014
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	SP08-0.9 SOIL - 9/5/2018 SE178910.018	SP09-0.3 SOIL - 9/5/2018 SE178910.019	SP10-0.6 SOIL - 9/5/2018 SE178910.023	SP11-0.9 SOIL - 9/5/2018 SE178910.027
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 14/5/2018

PARAMETER	UOM	LOR	SP03-0.3 SOIL - 9/5/2018 SE178910.001	SP03-0.9 SOIL - 9/5/2018 SE178910.003	SP04-0.3 SOIL - 9/5/2018 SE178910.004	SP04-0.6 SOIL - 9/5/2018 SE178910.005	SP05-0.6 SOIL - 9/5/2018 SE178910.008
Arsenic, As	mg/kg	3	9	5	12	8	13
Cadmium, Cd	mg/kg	0.3	0.3	<0.3	0.4	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	12	11	11	9.8	8.0
Copper, Cu	mg/kg	0.5	25	29	43	34	26
Lead, Pb	mg/kg	1	140	120	93	91	58
Nickel, Ni	mg/kg	0.5	6.4	6.6	17	18	25
Zinc, Zn	mg/kg	0.5	320	280	160	150	100

PARAMETER	UOM	LOR	SP05-0.9 SOIL - 9/5/2018 SE178910.009	SP06-0.3 SOIL - 9/5/2018 SE178910.010	SP06-0.9 SOIL - 9/5/2018 SE178910.012	SP07-0.6 SOIL - 9/5/2018 SE178910.014	SP07-1.0 SOIL - 9/5/2018 SE178910.015
Arsenic, As	mg/kg	3	11	10	11	7	11
Cadmium, Cd	mg/kg	0.3	0.3	0.4	0.6	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	10	12	19	8.2	16
Copper, Cu	mg/kg	0.5	30	41	40	34	25
Lead, Pb	mg/kg	1	62	110	170	63	53
Nickel, Ni	mg/kg	0.5	26	16	17	27	16
Zinc, Zn	mg/kg	0.5	80	200	550	46	72

PARAMETER	UOM	LOR	SP08-0.3 SOIL - 9/5/2018 SE178910.016	SP08-0.9 SOIL - 9/5/2018 SE178910.018	SP09-0.3 SOIL - 9/5/2018 SE178910.019	SP09-0.9 SOIL - 9/5/2018 SE178910.021	SP10-0.3 SOIL - 9/5/2018 SE178910.022
Arsenic, As	mg/kg	3	37	61	17	15	19
Cadmium, Cd	mg/kg	0.3	0.9	1.3	1.4	0.6	0.5
Chromium, Cr	mg/kg	0.3	15	14	10	17	13
Copper, Cu	mg/kg	0.5	26	21	35	34	30
Lead, Pb	mg/kg	1	100	83	69	120	110
Nickel, Ni	mg/kg	0.5	5.8	4.0	10	16	4.5
Zinc, Zn	mg/kg	0.5	180	260	96	570	210

PARAMETER	UOM	LOR	SP10-0.6 SOIL - 9/5/2018 SE178910.023	SP11-0.3 SOIL - 9/5/2018 SE178910.025	SP11-0.9 SOIL - 9/5/2018 SE178910.027	DUP1 SOIL - 9/5/2018 SE178910.028	DUP2 SOIL - 9/5/2018 SE178910.029
Arsenic, As	mg/kg	3	13	13	13	7	9
Cadmium, Cd	mg/kg	0.3	0.4	0.4	0.4	0.3	<0.3
Chromium, Cr	mg/kg	0.3	15	13	10	19	9.5
Copper, Cu	mg/kg	0.5	32	27	31	33	31
Lead, Pb	mg/kg	1	130	120	81	190	110
Nickel, Ni	mg/kg	0.5	4.4	6.9	13	9.5	19
Zinc, Zn	mg/kg	0.5	150	180	110	430	160

Mercury in Soil [AN312] Tested: 14/5/2018

PARAMETER	UOM	LOR	SP03-0.3 SOIL - 9/5/2018 SE178910.001	SP03-0.9 SOIL - 9/5/2018 SE178910.003	SP04-0.3 SOIL - 9/5/2018 SE178910.004	SP04-0.6 SOIL - 9/5/2018 SE178910.005	SP05-0.6 SOIL - 9/5/2018 SE178910.008
Mercury	mg/kg	0.05	0.11	0.12	0.14	0.09	0.07

PARAMETER	UOM	LOR	SP05-0.9 SOIL - 9/5/2018 SE178910.009	SP06-0.3 SOIL - 9/5/2018 SE178910.010	SP06-0.9 SOIL - 9/5/2018 SE178910.012	SP07-0.6 SOIL - 9/5/2018 SE178910.014	SP07-1.0 SOIL - 9/5/2018 SE178910.015
Mercury	mg/kg	0.05	0.10	0.10	0.13	<0.05	0.06

PARAMETER	UOM	LOR	SP08-0.3 SOIL - 9/5/2018 SE178910.016	SP08-0.9 SOIL - 9/5/2018 SE178910.018	SP09-0.3 SOIL - 9/5/2018 SE178910.019	SP09-0.9 SOIL - 9/5/2018 SE178910.021	SP10-0.3 SOIL - 9/5/2018 SE178910.022
Mercury	mg/kg	0.05	0.51	0.40	0.10	0.09	0.36

PARAMETER	UOM	LOR	SP10-0.6 SOIL - 9/5/2018 SE178910.023	SP11-0.3 SOIL - 9/5/2018 SE178910.025	SP11-0.9 SOIL - 9/5/2018 SE178910.027	DUP1 SOIL - 9/5/2018 SE178910.028	DUP2 SOIL - 9/5/2018 SE178910.029
Mercury	mg/kg	0.05	0.33	0.25	0.16	0.29	0.09

Moisture Content [AN002] Tested: 14/5/2018

PARAMETER	UOM	LOR	SP03-0.3 SOIL - 9/5/2018 SE178910.001	SP03-0.6 SOIL - 9/5/2018 SE178910.002	SP03-0.9 SOIL - 9/5/2018 SE178910.003	SP04-0.3 SOIL - 9/5/2018 SE178910.004	SP04-0.6 SOIL - 9/5/2018 SE178910.005
% Moisture	%w/w	0.5	9.7	8.9	7.8	11	7.2

PARAMETER	UOM	LOR	SP04-0.9 SOIL - 9/5/2018 SE178910.006	SP05-0.3 SOIL - 9/5/2018 SE178910.007	SP05-0.6 SOIL - 9/5/2018 SE178910.008	SP05-0.9 SOIL - 9/5/2018 SE178910.009	SP06-0.3 SOIL - 9/5/2018 SE178910.010
% Moisture	%w/w	0.5	8.2	8.7	9.5	11	8.5

PARAMETER	UOM	LOR	SP06-0.6 SOIL - 9/5/2018 SE178910.011	SP06-0.9 SOIL - 9/5/2018 SE178910.012	SP07-0.3 SOIL - 9/5/2018 SE178910.013	SP07-0.6 SOIL - 9/5/2018 SE178910.014	SP07-1.0 SOIL - 9/5/2018 SE178910.015
% Moisture	%w/w	0.5	9.5	8.0	8.8	9.0	8.7

PARAMETER	UOM	LOR	SP08-0.3 SOIL - 9/5/2018 SE178910.016	SP08-0.6 SOIL - 9/5/2018 SE178910.017	SP08-0.9 SOIL - 9/5/2018 SE178910.018	SP09-0.3 SOIL - 9/5/2018 SE178910.019	SP09-0.6 SOIL - 9/5/2018 SE178910.020
% Moisture	%w/w	0.5	9.5	7.8	8.1	10	8.0

PARAMETER	UOM	LOR	SP09-0.9 SOIL - 9/5/2018 SE178910.021	SP10-0.3 SOIL - 9/5/2018 SE178910.022	SP10-0.6 SOIL - 9/5/2018 SE178910.023	SP10-0.9 SOIL - 9/5/2018 SE178910.024	SP11-0.3 SOIL - 9/5/2018 SE178910.025
% Moisture	%w/w	0.5	7.5	12	12	11	7.9

PARAMETER	UOM	LOR	SP11-0.6 SOIL - 9/5/2018 SE178910.026	SP11-0.9 SOIL - 9/5/2018 SE178910.027	DUP1 SOIL - 9/5/2018 SE178910.028	DUP2 SOIL - 9/5/2018 SE178910.029
% Moisture	%w/w	0.5	8.9	8.0	8.5	10

Gravimetric Determination of Asbestos in Soil [AN605] Tested: 14/5/2018

PARAMETER	UOM	LOR	SP03-0.6 SOIL - 9/5/2018 SE178910.002	SP03-0.9 SOIL - 9/5/2018 SE178910.003	SP04-0.3 SOIL - 9/5/2018 SE178910.004	SP04-0.9 SOIL - 9/5/2018 SE178910.006	SP05-0.3 SOIL - 9/5/2018 SE178910.007
Total Sample Weight*	g	1	**931**	**803**	**881**	**800**	**924**
ACM in >7mm Sample*	g	0.01	<0.01	<0.01	<0.01	<0.01	**0.77**
AF/FA in >2mm to <7mm Sample*	g	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
AF/FA in <2mm Sample*	g	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	**0.01**
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	ORG,NAD	ORG,NAD	ORG,NAD	ORG,NAD	CRY,ORG

PARAMETER	UOM	LOR	SP05-0.6 SOIL - 9/5/2018 SE178910.008	SP06-0.6 SOIL - 9/5/2018 SE178910.011	SP06-0.9 SOIL - 9/5/2018 SE178910.012	SP07-0.3 SOIL - 9/5/2018 SE178910.013	SP07-1.0 SOIL - 9/5/2018 SE178910.015
Total Sample Weight*	g	1	**1084**	**1009**	**895**	**970**	**855**
ACM in >7mm Sample*	g	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
AF/FA in >2mm to <7mm Sample*	g	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
AF/FA in <2mm Sample*	g	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	ORG,NAD	ORG,NAD	ORG,NAD	ORG,NAD	ORG,NAD

PARAMETER	UOM	LOR	SP08-0.3 SOIL - 9/5/2018 SE178910.016	SP08-0.6 SOIL - 9/5/2018 SE178910.017	SP09-0.6 SOIL - 9/5/2018 SE178910.020	SP09-0.9 SOIL - 9/5/2018 SE178910.021	SP10-0.3 SOIL - 9/5/2018 SE178910.022
Total Sample Weight*	g	1	**851**	**922**	**874**	**1089**	**979**
ACM in >7mm Sample*	g	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
AF/FA in >2mm to <7mm Sample*	g	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
AF/FA in <2mm Sample*	g	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	ORG,NAD	ORG,NAD	ORG,NAD	ORG,NAD	ORG,NAD

PARAMETER	UOM	LOR	SP10-0.9 SOIL - 9/5/2018 SE178910.024	SP11-0.3 SOIL - 9/5/2018 SE178910.025	SP11-0.6 SOIL - 9/5/2018 SE178910.026
Total Sample Weight*	g	1	**793**	**1114**	**944**
ACM in >7mm Sample*	g	0.01	<0.01	<0.01	<0.01
AF/FA in >2mm to <7mm Sample*	g	0.0001	<0.0001	<0.0001	<0.0001
AF/FA in <2mm Sample*	g	0.0001	<0.0001	<0.0001	<0.0001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001
Fibre Type*	No unit	-	ORG,NAD	ORG,NAD	ORG,NAD

VOCs in Water [AN433] Tested: 11/5/2018

PARAMETER	UOM	LOR	TRIP BLANK WATER - 9/5/2018 SE178910.030	TRIP SPIKE WATER - 9/5/2018 SE178910.031
Benzene	µg/L	0.5	<0.5	[93%]
Toluene	µg/L	0.5	<0.5	[96%]
Ethylbenzene	µg/L	0.5	<0.5	[89%]
m/p-xylene	µg/L	1	<1	[91%]
o-xylene	µg/L	0.5	<0.5	[92%]
Naphthalene	µg/L	0.5	<0.5	-
Total Xylenes	µg/L	1.5	<1.5	-
Total BTEX	µg/L	3	<3	-

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN605	This technique gravimetrically determines the mass of Asbestos Containing Material retained on a 7mm Sieve and assumes that 15% of this ACM is asbestos. This calculated asbestos weight is then calculated as a percentage of the total sample weight.
AN605	This technique also gravimetrically determines the mass of Fibrous Asbestos (FA) and Asbestos Fines (AF) Containing Material retained on and passing a 2mm sieve post 7mm sieving. Assumes that FA and AF are 100% asbestos containing. This calculated asbestos weight is then calculated as a percentage of the total sample weight. This does not include free fibres which are only observed by standard trace analysis as per AN 602.
AN605	AMO = Amosite Detected CRY = Chrysotile Detected CRO = Crocidolite Detected ORG = Organic Fibres Detected SMF = Synthetic Mineral Fibres Detected UMF = Unknown Mineral Fibres Detected NAD = No Asbestos Detected
AN605	Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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STATEMENT OF QA/QC PERFORMANCE

SE178910 R0

CLIENT DETAILS

Contact	Craig Cowper
Client	ALLIANCE GEOTECHNICAL PTY LTD
Address	10 Welder Road Seven Hills NSW 2147
Telephone	0407 989 885
Facsimile	02 9675 1888
Email	c.cowper@allgeo.com.au
Project	**7161 - Jorden Springs**
Order Number	**P1185**
Samples	31

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE178910 R0**
Date Received	09 May 2018
Date Reported	16 May 2018

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	3 items
Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
	TRH (Total Recoverable Hydrocarbons) in Soil	1 item

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	29 Soil, 2 Water
Date documentation received	9/5/2018	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	6.3°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

HOLDING TIME SUMMARY

SE178910 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Gravimetric Determination of Asbestos in Soil

Method: ME-(AU)-[ENV]AN605

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SP03-0.6	SE178910.002	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP03-0.9	SE178910.003	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP04-0.3	SE178910.004	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP04-0.9	SE178910.006	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP05-0.3	SE178910.007	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP05-0.6	SE178910.008	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP06-0.6	SE178910.011	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP06-0.9	SE178910.012	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP07-0.3	SE178910.013	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP07-1.0	SE178910.015	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP08-0.3	SE178910.016	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP08-0.6	SE178910.017	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP09-0.6	SE178910.020	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP09-0.9	SE178910.021	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP10-0.3	SE178910.022	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP10-0.9	SE178910.024	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP11-0.3	SE178910.025	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP11-0.6	SE178910.026	LB147732	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SP03-0.3	SE178910.001	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP03-0.9	SE178910.003	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP04-0.3	SE178910.004	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP04-0.6	SE178910.005	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP05-0.6	SE178910.008	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP05-0.9	SE178910.009	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP06-0.3	SE178910.010	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP06-0.9	SE178910.012	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP07-0.6	SE178910.014	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP07-1.0	SE178910.015	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP08-0.3	SE178910.016	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP08-0.9	SE178910.018	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP09-0.3	SE178910.019	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP09-0.9	SE178910.021	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP10-0.3	SE178910.022	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP10-0.6	SE178910.023	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP11-0.3	SE178910.025	LB147722	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
SP11-0.9	SE178910.027	LB147723	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
DUP1	SE178910.028	LB147723	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018
DUP2	SE178910.029	LB147723	09 May 2018	09 May 2018	06 Jun 2018	14 May 2018	06 Jun 2018	16 May 2018

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SP03-0.3	SE178910.001	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP03-0.6	SE178910.002	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP03-0.9	SE178910.003	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP04-0.3	SE178910.004	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP04-0.6	SE178910.005	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP04-0.9	SE178910.006	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP05-0.3	SE178910.007	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP05-0.6	SE178910.008	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP05-0.9	SE178910.009	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP06-0.3	SE178910.010	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP06-0.6	SE178910.011	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP06-0.9	SE178910.012	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP07-0.3	SE178910.013	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP07-0.6	SE178910.014	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP07-1.0	SE178910.015	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP08-0.3	SE178910.016	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP08-0.6	SE178910.017	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018

HOLDING TIME SUMMARY

SE178910 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Moisture Content (continued)

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SP08-0.9	SE178910.018	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP09-0.3	SE178910.019	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP09-0.6	SE178910.020	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP09-0.9	SE178910.021	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP10-0.3	SE178910.022	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP10-0.6	SE178910.023	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP10-0.9	SE178910.024	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP11-0.3	SE178910.025	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP11-0.6	SE178910.026	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
SP11-0.9	SE178910.027	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
DUP1	SE178910.028	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018
DUP2	SE178910.029	LB147689	09 May 2018	09 May 2018	23 May 2018	14 May 2018	19 May 2018	16 May 2018

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SP03-0.3	SE178910.001	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP03-0.6	SE178910.002	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP04-0.6	SE178910.005	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP04-0.9	SE178910.006	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP05-0.3	SE178910.007	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP05-0.6	SE178910.008	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP05-0.9	SE178910.009	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP06-0.3	SE178910.010	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP06-0.6	SE178910.011	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP06-0.9	SE178910.012	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP07-0.3	SE178910.013	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP07-0.6	SE178910.014	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP08-0.6	SE178910.017	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP08-0.9	SE178910.018	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP09-0.3	SE178910.019	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP09-0.6	SE178910.020	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP10-0.6	SE178910.023	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP10-0.9	SE178910.024	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP11-0.3	SE178910.025	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP11-0.6	SE178910.026	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP11-0.9	SE178910.027	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SP03-0.3	SE178910.001	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP03-0.6	SE178910.002	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP04-0.6	SE178910.005	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP04-0.9	SE178910.006	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP05-0.3	SE178910.007	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP05-0.6	SE178910.008	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP05-0.9	SE178910.009	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP06-0.3	SE178910.010	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP06-0.6	SE178910.011	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP06-0.9	SE178910.012	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP07-0.3	SE178910.013	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP07-0.6	SE178910.014	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP08-0.6	SE178910.017	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP08-0.9	SE178910.018	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP09-0.3	SE178910.019	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP09-0.6	SE178910.020	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP10-0.6	SE178910.023	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP10-0.9	SE178910.024	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP11-0.3	SE178910.025	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP11-0.6	SE178910.026	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP11-0.9	SE178910.027	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018

HOLDING TIME SUMMARY

SE178910 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SP03-0.3	SE178910.001	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP03-0.6	SE178910.002	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP04-0.6	SE178910.005	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP04-0.9	SE178910.006	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP05-0.3	SE178910.007	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP05-0.6	SE178910.008	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP05-0.9	SE178910.009	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP06-0.3	SE178910.010	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP06-0.6	SE178910.011	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP06-0.9	SE178910.012	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP07-0.3	SE178910.013	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP07-0.6	SE178910.014	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP08-0.6	SE178910.017	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP08-0.9	SE178910.018	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP09-0.3	SE178910.019	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP09-0.6	SE178910.020	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP10-0.6	SE178910.023	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP10-0.9	SE178910.024	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP11-0.3	SE178910.025	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP11-0.6	SE178910.026	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP11-0.9	SE178910.027	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SP03-0.3	SE178910.001	LB147742	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP03-0.9	SE178910.003	LB147742	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP04-0.3	SE178910.004	LB147742	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP04-0.6	SE178910.005	LB147742	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP05-0.6	SE178910.008	LB147743	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP05-0.9	SE178910.009	LB147743	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP06-0.3	SE178910.010	LB147743	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP06-0.9	SE178910.012	LB147743	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP07-0.6	SE178910.014	LB147743	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP07-1.0	SE178910.015	LB147743	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP08-0.3	SE178910.016	LB147743	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP08-0.9	SE178910.018	LB147743	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP09-0.3	SE178910.019	LB147743	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP09-0.9	SE178910.021	LB147743	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP10-0.3	SE178910.022	LB147743	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP10-0.6	SE178910.023	LB147743	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP11-0.3	SE178910.025	LB147743	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
SP11-0.9	SE178910.027	LB147743	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
DUP1	SE178910.028	LB147743	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018
DUP2	SE178910.029	LB147743	09 May 2018	09 May 2018	05 Nov 2018	14 May 2018	05 Nov 2018	16 May 2018

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SP03-0.3	SE178910.001	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP03-0.6	SE178910.002	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP04-0.6	SE178910.005	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP04-0.9	SE178910.006	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP05-0.3	SE178910.007	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP05-0.6	SE178910.008	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP05-0.9	SE178910.009	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP06-0.3	SE178910.010	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP06-0.6	SE178910.011	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP06-0.9	SE178910.012	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP07-0.3	SE178910.013	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP07-0.6	SE178910.014	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP08-0.6	SE178910.017	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP08-0.9	SE178910.018	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018

HOLDING TIME SUMMARY

SE178910 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SP09-0.3	SE178910.019	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP09-0.6	SE178910.020	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP10-0.6	SE178910.023	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP10-0.9	SE178910.024	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP11-0.3	SE178910.025	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP11-0.6	SE178910.026	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018
SP11-0.9	SE178910.027	LB147632	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	16 May 2018

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SP03-0.3	SE178910.001	LB147606	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	15 May 2018
SP04-0.6	SE178910.005	LB147606	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	15 May 2018
SP05-0.9	SE178910.009	LB147606	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	15 May 2018
SP06-0.3	SE178910.010	LB147606	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	15 May 2018
SP07-0.6	SE178910.014	LB147606	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	15 May 2018
SP08-0.9	SE178910.018	LB147606	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	15 May 2018
SP09-0.3	SE178910.019	LB147606	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	15 May 2018
SP10-0.6	SE178910.023	LB147614	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	14 May 2018
SP11-0.9	SE178910.027	LB147614	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	14 May 2018

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TRIP BLANK	SE178910.030	LB147735	09 May 2018	09 May 2018	16 May 2018	11 May 2018	20 Jun 2018	15 May 2018
TRIP SPIKE	SE178910.031	LB147735	09 May 2018	09 May 2018	16 May 2018	11 May 2018	20 Jun 2018	15 May 2018

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SP03-0.3	SE178910.001	LB147606	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	15 May 2018
SP04-0.6	SE178910.005	LB147606	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	15 May 2018
SP05-0.9	SE178910.009	LB147606	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	15 May 2018
SP06-0.3	SE178910.010	LB147606	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	15 May 2018
SP07-0.6	SE178910.014	LB147606	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	15 May 2018
SP08-0.9	SE178910.018	LB147606	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	15 May 2018
SP09-0.3	SE178910.019	LB147606	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	15 May 2018
SP10-0.6	SE178910.023	LB147614	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	14 May 2018
SP11-0.9	SE178910.027	LB147614	09 May 2018	09 May 2018	23 May 2018	11 May 2018	20 Jun 2018	14 May 2018

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	SP03-0.3	SE178910.001	%	60 - 130%	97
	SP04-0.6	SE178910.005	%	60 - 130%	105
	SP05-0.9	SE178910.009	%	60 - 130%	101
	SP06-0.3	SE178910.010	%	60 - 130%	97
	SP07-0.6	SE178910.014	%	60 - 130%	85
	SP08-0.9	SE178910.018	%	60 - 130%	89
	SP09-0.3	SE178910.019	%	60 - 130%	102
	SP10-0.6	SE178910.023	%	60 - 130%	93
	SP11-0.9	SE178910.027	%	60 - 130%	88

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	SP03-0.3	SE178910.001	%	70 - 130%	86
	SP03-0.6	SE178910.002	%	70 - 130%	92
	SP04-0.6	SE178910.005	%	70 - 130%	90
	SP04-0.9	SE178910.006	%	70 - 130%	92
	SP05-0.3	SE178910.007	%	70 - 130%	90
	SP05-0.6	SE178910.008	%	70 - 130%	88
	SP06-0.6	SE178910.011	%	70 - 130%	90
	SP06-0.9	SE178910.012	%	70 - 130%	88
	SP07-0.3	SE178910.013	%	70 - 130%	90
	SP07-0.6	SE178910.014	%	70 - 130%	94
	SP08-0.6	SE178910.017	%	70 - 130%	90
	SP08-0.9	SE178910.018	%	70 - 130%	94
	SP09-0.3	SE178910.019	%	70 - 130%	92
	SP09-0.6	SE178910.020	%	70 - 130%	90
	SP10-0.6	SE178910.023	%	70 - 130%	90
	SP10-0.9	SE178910.024	%	70 - 130%	102
	SP11-0.3	SE178910.025	%	70 - 130%	90
	SP11-0.6	SE178910.026	%	70 - 130%	96
d14-p-terphenyl (Surrogate)	SP03-0.3	SE178910.001	%	70 - 130%	88
	SP03-0.6	SE178910.002	%	70 - 130%	94
	SP04-0.6	SE178910.005	%	70 - 130%	92
	SP04-0.9	SE178910.006	%	70 - 130%	98
	SP05-0.3	SE178910.007	%	70 - 130%	94
	SP05-0.6	SE178910.008	%	70 - 130%	94
	SP06-0.6	SE178910.011	%	70 - 130%	96
	SP06-0.9	SE178910.012	%	70 - 130%	92
	SP07-0.3	SE178910.013	%	70 - 130%	92
	SP07-0.6	SE178910.014	%	70 - 130%	96
	SP08-0.6	SE178910.017	%	70 - 130%	92
	SP08-0.9	SE178910.018	%	70 - 130%	96
	SP09-0.3	SE178910.019	%	70 - 130%	96
	SP09-0.6	SE178910.020	%	70 - 130%	94
	SP10-0.6	SE178910.023	%	70 - 130%	92
	SP10-0.9	SE178910.024	%	70 - 130%	102
	SP11-0.3	SE178910.025	%	70 - 130%	92
	SP11-0.6	SE178910.026	%	70 - 130%	96
d5-nitrobenzene (Surrogate)	SP03-0.3	SE178910.001	%	70 - 130%	80
	SP03-0.6	SE178910.002	%	70 - 130%	86
	SP04-0.6	SE178910.005	%	70 - 130%	84
	SP04-0.9	SE178910.006	%	70 - 130%	84
	SP05-0.3	SE178910.007	%	70 - 130%	80
	SP05-0.6	SE178910.008	%	70 - 130%	78
	SP06-0.6	SE178910.011	%	70 - 130%	82
	SP06-0.9	SE178910.012	%	70 - 130%	82
	SP07-0.3	SE178910.013	%	70 - 130%	80
	SP07-0.6	SE178910.014	%	70 - 130%	88
	SP08-0.6	SE178910.017	%	70 - 130%	84
	SP08-0.9	SE178910.018	%	70 - 130%	88
	SP09-0.3	SE178910.019	%	70 - 130%	88

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d5-nitrobenzene (Surrogate)	SP09-0.6	SE178910.020	%	70 - 130%	84
	SP10-0.6	SE178910.023	%	70 - 130%	86
	SP10-0.9	SE178910.024	%	70 - 130%	98
	SP11-0.3	SE178910.025	%	70 - 130%	90
	SP11-0.6	SE178910.026	%	70 - 130%	96

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	SP03-0.3	SE178910.001	%	60 - 130%	97
	SP04-0.6	SE178910.005	%	60 - 130%	105
	SP05-0.9	SE178910.009	%	60 - 130%	101
	SP06-0.3	SE178910.010	%	60 - 130%	97
	SP07-0.6	SE178910.014	%	60 - 130%	85
	SP08-0.9	SE178910.018	%	60 - 130%	89
	SP09-0.3	SE178910.019	%	60 - 130%	102
	SP10-0.6	SE178910.023	%	60 - 130%	93
	SP11-0.9	SE178910.027	%	60 - 130%	88

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	SP03-0.3	SE178910.001	%	60 - 130%	76
	SP04-0.6	SE178910.005	%	60 - 130%	97
	SP05-0.9	SE178910.009	%	60 - 130%	81
	SP06-0.3	SE178910.010	%	60 - 130%	77
	SP07-0.6	SE178910.014	%	60 - 130%	74
	SP08-0.9	SE178910.018	%	60 - 130%	76
	SP09-0.3	SE178910.019	%	60 - 130%	75
	SP10-0.6	SE178910.023	%	60 - 130%	79
	SP11-0.9	SE178910.027	%	60 - 130%	76
d4-1,2-dichloroethane (Surrogate)	SP03-0.3	SE178910.001	%	60 - 130%	103
	SP04-0.6	SE178910.005	%	60 - 130%	93
	SP05-0.9	SE178910.009	%	60 - 130%	103
	SP06-0.3	SE178910.010	%	60 - 130%	108
	SP07-0.6	SE178910.014	%	60 - 130%	95
	SP08-0.9	SE178910.018	%	60 - 130%	99
	SP09-0.3	SE178910.019	%	60 - 130%	100
	SP10-0.6	SE178910.023	%	60 - 130%	90
	SP11-0.9	SE178910.027	%	60 - 130%	99
d8-toluene (Surrogate)	SP03-0.3	SE178910.001	%	60 - 130%	103
	SP04-0.6	SE178910.005	%	60 - 130%	84
	SP05-0.9	SE178910.009	%	60 - 130%	101
	SP06-0.3	SE178910.010	%	60 - 130%	91
	SP07-0.6	SE178910.014	%	60 - 130%	96
	SP08-0.9	SE178910.018	%	60 - 130%	102
	SP09-0.3	SE178910.019	%	60 - 130%	96
	SP10-0.6	SE178910.023	%	60 - 130%	94
	SP11-0.9	SE178910.027	%	60 - 130%	85
Dibromofluoromethane (Surrogate)	SP03-0.3	SE178910.001	%	60 - 130%	100
	SP04-0.6	SE178910.005	%	60 - 130%	91
	SP05-0.9	SE178910.009	%	60 - 130%	109
	SP06-0.3	SE178910.010	%	60 - 130%	98
	SP07-0.6	SE178910.014	%	60 - 130%	95
	SP08-0.9	SE178910.018	%	60 - 130%	96
	SP09-0.3	SE178910.019	%	60 - 130%	101
	SP10-0.6	SE178910.023	%	60 - 130%	80
	SP11-0.9	SE178910.027	%	60 - 130%	121

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TRIP BLANK	SE178910.030	%	40 - 130%	98
	TRIP SPIKE	SE178910.031	%	40 - 130%	95
d4-1,2-dichloroethane (Surrogate)	TRIP BLANK	SE178910.030	%	40 - 130%	114

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOCs in Water (continued) — Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	TRIP SPIKE	SE178910.031	%	40 - 130%	97
d8-toluene (Surrogate)	TRIP BLANK	SE178910.030	%	40 - 130%	103
	TRIP SPIKE	SE178910.031	%	40 - 130%	97
Dibromofluoromethane (Surrogate)	TRIP BLANK	SE178910.030	%	40 - 130%	118
	TRIP SPIKE	SE178910.031	%	40 - 130%	97

Volatile Petroleum Hydrocarbons in Soil — Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	SP03-0.3	SE178910.001	%	60 - 130%	76
	SP04-0.6	SE178910.005	%	60 - 130%	97
	SP05-0.9	SE178910.009	%	60 - 130%	81
	SP06-0.3	SE178910.010	%	60 - 130%	77
	SP07-0.6	SE178910.014	%	60 - 130%	74
	SP08-0.9	SE178910.018	%	60 - 130%	76
	SP09-0.3	SE178910.019	%	60 - 130%	75
	SP10-0.6	SE178910.023	%	60 - 130%	79
	SP11-0.9	SE178910.027	%	60 - 130%	76
d4-1,2-dichloroethane (Surrogate)	SP03-0.3	SE178910.001	%	60 - 130%	103
	SP04-0.6	SE178910.005	%	60 - 130%	93
	SP05-0.9	SE178910.009	%	60 - 130%	103
	SP06-0.3	SE178910.010	%	60 - 130%	108
	SP07-0.6	SE178910.014	%	60 - 130%	95
	SP08-0.9	SE178910.018	%	60 - 130%	99
	SP09-0.3	SE178910.019	%	60 - 130%	100
	SP10-0.6	SE178910.023	%	60 - 130%	90
	SP11-0.9	SE178910.027	%	60 - 130%	99
d8-toluene (Surrogate)	SP03-0.3	SE178910.001	%	60 - 130%	103
	SP04-0.6	SE178910.005	%	60 - 130%	84
	SP05-0.9	SE178910.009	%	60 - 130%	101
	SP06-0.3	SE178910.010	%	60 - 130%	91
	SP07-0.6	SE178910.014	%	60 - 130%	96
	SP08-0.9	SE178910.018	%	60 - 130%	102
	SP09-0.3	SE178910.019	%	60 - 130%	96
	SP10-0.6	SE178910.023	%	60 - 130%	94
	SP11-0.9	SE178910.027	%	60 - 130%	85
Dibromofluoromethane (Surrogate)	SP03-0.3	SE178910.001	%	60 - 130%	100
	SP04-0.6	SE178910.005	%	60 - 130%	91
	SP05-0.9	SE178910.009	%	60 - 130%	109
	SP06-0.3	SE178910.010	%	60 - 130%	98
	SP07-0.6	SE178910.014	%	60 - 130%	95
	SP08-0.9	SE178910.018	%	60 - 130%	96
	SP09-0.3	SE178910.019	%	60 - 130%	101
	SP10-0.6	SE178910.023	%	60 - 130%	80
	SP11-0.9	SE178910.027	%	60 - 130%	121

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB147722.001	Mercury	mg/kg	0.05	<0.05
LB147723.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB147632.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	91

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB147632.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	104
		2-fluorobiphenyl (Surrogate)	%	-	112
		d14-p-terphenyl (Surrogate)	%	-	116

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB147632.001	Arochlor 1016	mg/kg	0.2	<0.2
	Arochlor 1221	mg/kg	0.2	<0.2
	Arochlor 1232	mg/kg	0.2	<0.2
	Arochlor 1242	mg/kg	0.2	<0.2
	Arochlor 1248	mg/kg	0.2	<0.2
	Arochlor 1254	mg/kg	0.2	<0.2

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB147632.001		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	91

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number		Parameter	Units	LOR	Result
LB147742.001		Arsenic, As	mg/kg	3	<3
		Cadmium, Cd	mg/kg	0.3	<0.3
		Chromium, Cr	mg/kg	0.3	<0.3
		Copper, Cu	mg/kg	0.5	<0.5
		Nickel, Ni	mg/kg	0.5	<0.5
		Lead, Pb	mg/kg	1	<1
		Zinc, Zn	mg/kg	0.5	<0.5
LB147743.001		Arsenic, As	mg/kg	3	<3
		Cadmium, Cd	mg/kg	0.3	<0.3
		Chromium, Cr	mg/kg	0.3	<0.3
		Copper, Cu	mg/kg	0.5	<0.5
		Nickel, Ni	mg/kg	0.5	<0.5
		Lead, Pb	mg/kg	1	<1
		Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result
LB147632.001		TRH C10-C14	mg/kg	20	<20
		TRH C15-C28	mg/kg	45	<45
		TRH C29-C36	mg/kg	45	<45
		TRH C37-C40	mg/kg	100	<100
		TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB147606.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	95
		d4-1,2-dichloroethane (Surrogate)	%	-	93
		d8-toluene (Surrogate)	%	-	96
		Bromofluorobenzene (Surrogate)	%	-	87
	Totals	Total BTEX	mg/kg	0.6	<0.6
LB147614.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	118
		d4-1,2-dichloroethane (Surrogate)	%	-	108
		d8-toluene (Surrogate)	%	-	97
		Bromofluorobenzene (Surrogate)	%	-	85
	Totals	Total BTEX	mg/kg	0.6	<0.6

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB147735.001	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5
	Hydrocarbons	Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB147735.001	Polycyclic VOCs	Naphthalene	µg/L	0.5	<0.5
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	116
		d4-1,2-dichloroethane (Surrogate)	%	-	114
		d8-toluene (Surrogate)	%	-	101
		Bromofluorobenzene (Surrogate)	%	-	98

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB147606.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	95
		d4-1,2-dichloroethane (Surrogate)	%	-	93
		d8-toluene (Surrogate)	%	-	96
LB147614.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	118
		d4-1,2-dichloroethane (Surrogate)	%	-	108
		d8-toluene (Surrogate)	%	-	97

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178910.012	LB147722.014	Mercury	mg/kg	0.05	0.13	0.11	71	15
SE178910.025	LB147722.024	Mercury	mg/kg	0.05	0.25	0.22	51	14
SE178919.016	LB147723.014	Mercury	mg/kg	0.05	0.016092951	40.012381870	8 200	0
SE178919.023	LB147723.022	Mercury	mg/kg	0.05	0.092775509	20.100215205	8 82	8

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178910.010	LB147689.011	% Moisture	%w/w	0.5	8.5	8.0	42	6
SE178910.020	LB147689.022	% Moisture	%w/w	0.5	8.0	8.2	42	1
SE178910.029	LB147689.032	% Moisture	%w/w	0.5	10	11	39	6

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178910.027	LB147632.030	Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Lindane	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
		Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
		Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
		Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
		o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
		Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
		Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
		trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
		Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
		Endrin	mg/kg	0.2	<0.2	<0.2	200	0
		o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
		p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
		Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
		Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
		Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
		Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
		Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.14	30	9

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178910.020	LB147632.031	Naphthalene	mg/kg	0.1	<0.1	0.04	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	0.02	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	0.02	200	0
		Acenaphthylene	mg/kg	0.1	0.2	0.16	87	17
		Acenaphthene	mg/kg	0.1	<0.1	0.01	200	0
		Fluorene	mg/kg	0.1	<0.1	0.04	200	0
		Phenanthrene	mg/kg	0.1	0.6	0.5	48	20
		Anthracene	mg/kg	0.1	0.3	0.21	73	21
		Fluoranthene	mg/kg	0.1	1.5	1.29	37	13
		Pyrene	mg/kg	0.1	1.4	1.24	38	14
		Benzo(a)anthracene	mg/kg	0.1	0.9	0.69	43	23
		Chrysene	mg/kg	0.1	0.7	0.59	46	17
		Benzo(b&j)fluoranthene	mg/kg	0.1	1.0	0.82	41	24
		Benzo(k)fluoranthene	mg/kg	0.1	0.5	0.41	53	11
		Benzo(a)pyrene	mg/kg	0.1	0.9	0.77	42	12
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.6	0.44	50	27
		Dibenzo(ah)anthracene	mg/kg	0.1	0.2	0.09	113	40

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178910.020	LB147632.031		Benzo(ghi)perylene	mg/kg	0.1	0.6	0.51	48	13
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	1.3	1.013	27	27
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	1.3	1.113	35	18
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	1.3	1.063	27	22
			Total PAH (18)	mg/kg	0.8	9.2	7.59	40	19
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.38	30	10
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.41	30	9
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.41	30	14

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178910.027	LB147632.030		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	9

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178910.005	LB147742.024		Arsenic, As	mg/kg	3	8	11	41	26
			Cadmium, Cd	mg/kg	0.3	<0.3	0.3	134	0
			Chromium, Cr	mg/kg	0.3	9.8	9.6	35	2
			Copper, Cu	mg/kg	0.5	34	31	32	10
			Nickel, Ni	mg/kg	0.5	18	13	33	30
			Lead, Pb	mg/kg	1	91	95	31	5
			Zinc, Zn	mg/kg	0.5	150	140	31	6
SE178910.021	LB147743.014		Arsenic, As	mg/kg	3	15	36	34	80 ②
			Cadmium, Cd	mg/kg	0.3	0.6	1.6	58	94 ②
			Chromium, Cr	mg/kg	0.3	17	17	33	2
			Copper, Cu	mg/kg	0.5	34	36	31	6
			Nickel, Ni	mg/kg	0.5	16	13	33	23
			Lead, Pb	mg/kg	1	120	140	31	19
			Zinc, Zn	mg/kg	0.5	570	220	31	88 ②
SE178919.002	LB147743.024		Lead, Pb	mg/kg	1	13.745117187	9.653320312	36	35
SE178959.041	LB147742.014		Arsenic, As	mg/kg	3	7.31000832	7.2080361339	44	1
			Cadmium, Cd	mg/kg	0.3	0.044627645	0.0963641194	200	0
			Chromium, Cr	mg/kg	0.3	24.790657062	24.775215107	32	0
			Copper, Cu	mg/kg	0.5	14.802990004	15.341167814	33	4
			Nickel, Ni	mg/kg	0.5	4.60557301	4.9145700913	41	6
			Lead, Pb	mg/kg	1	23.764221216	23.503208731	34	1
			Zinc, Zn	mg/kg	0.5	26.865842577	27.367409920	37	2

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178910.010	LB147632.032		TRH C10-C14	mg/kg	20	<20	0	200	0
			TRH C15-C28	mg/kg	45	120	118	68	3
			TRH C29-C36	mg/kg	45	70	111	80	45
			TRH C37-C40	mg/kg	100	<100	0	200	0
			TRH C10-C36 Total	mg/kg	110	190	229	82	18
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	194	143	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	0	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	180	194	79	9
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0
SE178910.027	LB147632.030		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	220	170	53	29

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178910.027	LB147632.030		TRH C29-C36	mg/kg	45	170	140	60	20
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	390	300	62	25
			TRH C10-C40 Total (F bands)	mg/kg	210	340	270	99	25
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	340	270	60	25
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178849.008	LB147606.014	Monocyclic	Benzene	mg/kg	0.1	0.02	0.02	200	0
		Aromatic	Toluene	mg/kg	0.1	0	0	200	0
			Ethylbenzene	mg/kg	0.1	0	0	200	0
			m/p-xylene	mg/kg	0.2	0	0	200	0
			o-xylene	mg/kg	0.1	0	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.99	5.37	50	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.4	6.08	50	12
			d8-toluene (Surrogate)	mg/kg	-	4.72	5.01	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.81	3.84	50	1
		Totals	Total Xylenes	mg/kg	0.3	0	0	200	0
			Total BTEX	mg/kg	0.6	0.02	0.02	200	0
SE178910.019	LB147606.025	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.0	5.0	50	1
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	5.2	50	4
			d8-toluene (Surrogate)	mg/kg	-	4.8	5.1	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.8	50	2
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE178910.027	LB147614.020	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	6.1	4.8	50	23
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	4.2	50	17
			d8-toluene (Surrogate)	mg/kg	-	4.2	4.7	50	11
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.7	50	3
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE178991.010	LB147614.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	4.4	50	20
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	4.7	50	7
			d8-toluene (Surrogate)	mg/kg	-	4.4	4.4	50	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.9	3.8	50	2
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178796.001	LB147735.022	Monocyclic	Benzene	µg/L	0.5	<0.5	0.05	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	0.06	200	0
			Ethylbenzene	µg/L	0.5	<0.5	0.02	200	0
			m/p-xylene	µg/L	1	<1	0.03	200	0
			o-xylene	µg/L	0.5	<0.5	0.02	200	0
		Polycyclic	Naphthalene	µg/L	0.5	<0.5	0.07	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.4	5.42	30	0
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.4	5.44	30	1
			d8-toluene (Surrogate)	µg/L	-	4.7	4.71	30	0
			Bromofluorobenzene (Surrogate)	µg/L	-	4.8	4.85	30	1
SE178837.001	LB147735.023	Monocyclic	Benzene	µg/L	0.5	<0.5	<0.5	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	<0.5	200	0
			Ethylbenzene	µg/L	0.5	<0.5	<0.5	200	0
			m/p-xylene	µg/L	1	<1	<1	200	0
			o-xylene	µg/L	0.5	<0.5	<0.5	200	0
		Polycyclic	Naphthalene	µg/L	0.5	<0.5	<0.5	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.9	4.9	30	1
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.2	5.2	30	1
			d8-toluene (Surrogate)	µg/L	-	4.9	4.9	30	0
			Bromofluorobenzene (Surrogate)	µg/L	-	4.8	4.8	30	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178849.008	LB147606.014		TRH C6-C10	mg/kg	25	0	0	200	0
			TRH C6-C9	mg/kg	20	0	0.15	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.99	5.37	30	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.4	6.08	30	12
			d8-toluene (Surrogate)	mg/kg	-	4.72	5.01	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.81	3.84	30	1
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0.02	0.02	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	-0.02	-0.02	200	0
SE178910.019	LB147606.025		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.0	5.0	30	1
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	5.2	30	4
			d8-toluene (Surrogate)	mg/kg	-	4.8	5.1	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.8	30	2
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE178910.027	LB147614.020		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	6.1	4.8	30	23
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	4.2	30	17
			d8-toluene (Surrogate)	mg/kg	-	4.2	4.7	30	11
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.7	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE178991.010	LB147614.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	4.4	30	20
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	4.7	30	7
			d8-toluene (Surrogate)	mg/kg	-	4.4	4.4	30	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.9	3.8	30	2
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147722.002	Mercury	mg/kg	0.05	0.23	0.2	70 - 130	113
LB147723.002	Mercury	mg/kg	0.05	0.22	0.2	70 - 130	111

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147632.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	89
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	102
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	96
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	96
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	83
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	76
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	40 - 130	99

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147632.002		Naphthalene	mg/kg	0.1	3.5	4	60 - 140	87
		Acenaphthylene	mg/kg	0.1	3.5	4	60 - 140	87
		Acenaphthene	mg/kg	0.1	3.3	4	60 - 140	82
		Phenanthrene	mg/kg	0.1	3.3	4	60 - 140	83
		Anthracene	mg/kg	0.1	3.4	4	60 - 140	85
		Fluoranthene	mg/kg	0.1	3.3	4	60 - 140	82
		Pyrene	mg/kg	0.1	3.1	4	60 - 140	78
		Benzo(a)pyrene	mg/kg	0.1	3.5	4	60 - 140	87
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	78
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147632.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	103

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147742.002	Arsenic, As	mg/kg	3	310	336.32	79 - 120	93
	Cadmium, Cd	mg/kg	0.3	420	416.6	69 - 131	101
	Chromium, Cr	mg/kg	0.3	29	35.2	80 - 120	83
	Copper, Cu	mg/kg	0.5	310	370.46	80 - 120	84
	Nickel, Ni	mg/kg	0.5	170	210.88	79 - 120	82
	Lead, Pb	mg/kg	1	88	107.87	79 - 120	82
	Zinc, Zn	mg/kg	0.5	270	301.27	80 - 121	91
LB147743.002	Arsenic, As	mg/kg	3	340	336.32	79 - 120	101
	Cadmium, Cd	mg/kg	0.3	440	416.6	69 - 131	105
	Chromium, Cr	mg/kg	0.3	38	35.2	80 - 120	108
	Copper, Cu	mg/kg	0.5	380	370.46	80 - 120	102
	Nickel, Ni	mg/kg	0.5	200	210.88	79 - 120	96
	Lead, Pb	mg/kg	1	100	107.87	79 - 120	95
	Zinc, Zn	mg/kg	0.5	310	301.27	80 - 121	101

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147632.002		TRH C10-C14	mg/kg	20	34	40	60 - 140	85
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	110
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	90
	TRH F Bands	TRH >C10-C16	mg/kg	25	39	40	60 - 140	98
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	100
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	90

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147606.002	Monocyclic	Benzene	mg/kg	0.1	2.2	2.9	60 - 140	74
	Aromatic	Toluene	mg/kg	0.1	2.4	2.9	60 - 140	84
		Ethylbenzene	mg/kg	0.1	2.4	2.9	60 - 140	81
		m/p-xylene	mg/kg	0.2	4.8	5.8	60 - 140	82
		o-xylene	mg/kg	0.1	2.4	2.9	60 - 140	83
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	83
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	84
		d8-toluene (Surrogate)	mg/kg	-	5.2	5	60 - 140	103
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	5	60 - 140	94
LB147614.002	Monocyclic	Benzene	mg/kg	0.1	2.3	2.9	60 - 140	80
	Aromatic	Toluene	mg/kg	0.1	2.7	2.9	60 - 140	92
		Ethylbenzene	mg/kg	0.1	2.3	2.9	60 - 140	81
		m/p-xylene	mg/kg	0.2	4.5	5.8	60 - 140	78
		o-xylene	mg/kg	0.1	2.3	2.9	60 - 140	80
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	6.0	5	60 - 140	120
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.1	5	60 - 140	103
		d8-toluene (Surrogate)	mg/kg	-	5.1	5	60 - 140	102
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	5	60 - 140	101

VOCs in Water

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147735.002	Monocyclic	Benzene	µg/L	0.5	51	45.45	60 - 140	112
	Aromatic	Toluene	µg/L	0.5	51	45.45	60 - 140	112
		Ethylbenzene	µg/L	0.5	51	45.45	60 - 140	113
		m/p-xylene	µg/L	1	100	90.9	60 - 140	112
		o-xylene	µg/L	0.5	51	45.45	60 - 140	112
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.3	5	60 - 140	86
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.4	5	60 - 140	87
		d8-toluene (Surrogate)	µg/L	-	4.5	5	60 - 140	91
		Bromofluorobenzene (Surrogate)	µg/L	-	4.6	5	60 - 140	93

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147606.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	78
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	69
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	83
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	84
		d8-toluene (Surrogate)	mg/kg	-	5.2	5	60 - 140	103
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	5	60 - 140	94
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	71
LB147614.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	89
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	80
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	6.0	5	60 - 140	120
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.1	5	60 - 140	103
		d8-toluene (Surrogate)	mg/kg	-	5.1	5	60 - 140	102
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	5	60 - 140	101
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	105

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178910.027	LB147723.004	Mercury	mg/kg	0.05	0.40	0.16	0.2	123
SE178959.045	LB147722.004	Mercury	mg/kg	0.05	0.24	0.03292042322	0.2	103

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE178910.005	LB147632.032		Naphthalene	mg/kg	0.1	<0.1	4	91
			2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	0.4	4	89
			Acenaphthene	mg/kg	0.1	<0.1	4	86
			Fluorene	mg/kg	0.1	0.2	-	-
			Phenanthrene	mg/kg	0.1	1.8	4	67
			Anthracene	mg/kg	0.1	0.7	4	80
			Fluoranthene	mg/kg	0.1	2.6	4	69
			Pyrene	mg/kg	0.1	2.7	4	71
			Benzo(a)anthracene	mg/kg	0.1	1.4	-	-
			Chrysene	mg/kg	0.1	1.2	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	1.7	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	0.7	-	-
			Benzo(a)pyrene	mg/kg	0.1	1.5	4	95
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.9	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	0.2	-	-
			Benzo(ghi)perylene	mg/kg	0.1	1.0	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	2.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	2.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	2.2	-	-
			Total PAH (18)	mg/kg	0.8	17	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	88
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	-	88
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	90

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178897.003	LB147742.004	Arsenic, As	mg/kg	3	51	3.60216873678	50	95
		Cadmium, Cd	mg/kg	0.3	49	0.12115962115	50	99
		Chromium, Cr	mg/kg	0.3	55	7.96391509853	50	94
		Copper, Cu	mg/kg	0.5	160	05.2224709917	50	104
		Nickel, Ni	mg/kg	0.5	59	15.96511008049	50	87
		Lead, Pb	mg/kg	1	64	35.57432876663	50	58 ④
		Zinc, Zn	mg/kg	0.5	91	54.75482879329	50	72
SE178910.008	LB147743.004	Arsenic, As	mg/kg	3	51	13	50	77
		Cadmium, Cd	mg/kg	0.3	48	<0.3	50	95
		Chromium, Cr	mg/kg	0.3	57	8.0	50	97
		Copper, Cu	mg/kg	0.5	77	26	50	101
		Nickel, Ni	mg/kg	0.5	61	25	50	73
		Lead, Pb	mg/kg	1	140	58	50	169 ④
		Zinc, Zn	mg/kg	0.5	150	100	50	107

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE178910.005	LB147632.031		TRH C10-C14	mg/kg	20	<20	40	90
			TRH C15-C28	mg/kg	45	97	40	138
			TRH C29-C36	mg/kg	45	92	40	100
			TRH C37-C40	mg/kg	100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	190	-	-
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	40	108
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	160	40	150 ⑨
			TRH >C34-C40 (F4)	mg/kg	120	<120	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178849.003	LB147606.026	Monocyclic	Benzene	mg/kg	0.1		0.01	2.9	67
		Aromatic	Toluene	mg/kg	0.1		0	2.9	64
			Ethylbenzene	mg/kg	0.1		0	2.9	65
			m/p-xylene	mg/kg	0.2		0	5.8	83
			o-xylene	mg/kg	0.1		0	2.9	77
		Polycyclic	Naphthalene	mg/kg	0.1		0.01	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-		4.95	-	81
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-		4.76	-	81
			d8-toluene (Surrogate)	mg/kg	-		4.82	-	88
			Bromofluorobenzene (Surrogate)	mg/kg	-		3.58	-	118
		Totals	Total Xylenes	mg/kg	0.3		0	-	-
			Total BTEX	mg/kg	0.6		0.01	-	-
SE178991.001	LB147614.004	Monocyclic	Benzene	mg/kg	0.1	2.3	<0.1	2.9	79
		Aromatic	Toluene	mg/kg	0.1	2.4	<0.1	2.9	82
			Ethylbenzene	mg/kg	0.1	2.3	<0.1	2.9	79
			m/p-xylene	mg/kg	0.2	4.6	<0.2	5.8	79
			o-xylene	mg/kg	0.1	2.3	<0.1	2.9	80
		Polycyclic	Naphthalene	mg/kg	0.1	0.7	0.2	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.7	3.8	-	114
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.9	-	92
			d8-toluene (Surrogate)	mg/kg	-	4.2	4.3	-	84
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	3.9	-	90
		Totals	Total Xylenes	mg/kg	0.3	6.9	<0.3	-	-
			Total BTEX	mg/kg	0.6	14	<0.6	-	-

VOCs in Water

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178919.024	LB147735.024	Monocyclic	Benzene	µg/L	0.5	48	0.14	45.45	105
		Aromatic	Toluene	µg/L	0.5	54	0.1	45.45	119
			Ethylbenzene	µg/L	0.5	47	0.06	45.45	104
			m/p-xylene	µg/L	1	100	0.09	90.9	112
			o-xylene	µg/L	0.5	52	0.03	45.45	115
		Polycyclic	Naphthalene	µg/L	0.5	56	0.12	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.2	5.9	-	85
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.2	5.63	-	84
			d8-toluene (Surrogate)	µg/L	-	4.5	5	-	89
			Bromofluorobenzene (Surrogate)	µg/L	-	5.4	4.89	-	108

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178849.003	LB147606.026		TRH C6-C10	mg/kg	25		0	24.65	85
			TRH C6-C9	mg/kg	20		0	23.2	79
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-		4.95	-	81
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-		4.76	-	81
			d8-toluene (Surrogate)	mg/kg	-		4.82	-	88
			Bromofluorobenzene (Surrogate)	mg/kg	-		3.58	-	118
		VPH F	Benzene (F0)	mg/kg	0.1		0.01	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25		-0.01	7.25	113
SE178991.001	LB147614.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	89
			TRH C6-C9	mg/kg	20	22	<20	23.2	94
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.7	3.8	-	114
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	4.9	-	92
			d8-toluene (Surrogate)	mg/kg	-	4.2	4.3	-	84
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	3.9	-	90
		VPH F	Benzene (F0)	mg/kg	0.1	2.3	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	110

MATRIX SPIKE DUPLICATES

SE178910 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

SAMPLE RECEIPT ADVICE

SE178910

CLIENT DETAILS

Contact	Craig Cowper
Client	ALLIANCE GEOTECHNICAL PTY LTD
Address	10 Welder Road Seven Hills NSW 2147
Telephone	0407 989 885
Facsimile	02 9675 1888
Email	c.cowper@allgeo.com.au
Project	**7161 - Jorden Springs**
Order Number	**P1185**
Samples	31

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 9/5/2018
Report Due	Wed 16/5/2018
SGS Reference	**SE178910**

SUBMISSION DETAILS

This is to confirm that 31 samples were received on Wednesday 9/5/2018. Results are expected to be ready by COB Wednesday 16/5/2018.
Please quote SGS reference SE178910 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	29 Soil, 2 Water
Date documentation received	9/5/2018	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	6.3°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

DUP1A and DUP2A have been forwarded to Eurofins.

SAMPLE RECEIPT ADVICE

SE178910

CLIENT DETAILS

Client ALLIANCE GEOTECHNICAL PTY LTD

Project 7161 - Jorden Springs

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	SP03-0.3	29	26	11	7	10	12	8
002	SP03-0.6	-	26	-	-	-	-	-
003	SP03-0.9	-	-	-	7	-	-	-
004	SP04-0.3	-	-	-	7	-	-	-
005	SP04-0.6	29	26	11	7	10	12	8
006	SP04-0.9	-	26	-	-	-	-	-
007	SP05-0.3	-	26	-	-	-	-	-
008	SP05-0.6	-	26	-	7	-	-	-
009	SP05-0.9	29	-	11	7	10	12	8
010	SP06-0.3	29	-	11	7	10	12	8
011	SP06-0.6	-	26	-	-	-	-	-
012	SP06-0.9	-	26	-	7	-	-	-
013	SP07-0.3	-	26	-	-	-	-	-
014	SP07-0.6	29	26	11	7	10	12	8
015	SP07-1.0	-	-	-	7	-	-	-
016	SP08-0.3	-	-	-	7	-	-	-
017	SP08-0.6	-	26	-	-	-	-	-
018	SP08-0.9	29	26	11	7	10	12	8
019	SP09-0.3	29	26	11	7	10	12	8
020	SP09-0.6	-	26	-	-	-	-	-
021	SP09-0.9	-	-	-	7	-	-	-
022	SP10-0.3	-	-	-	7	-	-	-
023	SP10-0.6	29	26	11	7	10	12	8
024	SP10-0.9	-	26	-	-	-	-	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE178910

CLIENT DETAILS

Client ALLIANCE GEOTECHNICAL PTY LTD

Project 7161 - Jorden Springs

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
025	SP11-0.3	-	26	-	7	-	-	-
026	SP11-0.6	-	26	-	-	-	-	-
027	SP11-0.9	29	-	11	7	10	12	8
028	DUP1	-	-	-	7	-	-	-
029	DUP2	-	-	-	7	-	-	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
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Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE178910

CLIENT DETAILS

Client ALLIANCE GEOTECHNICAL PTY LTD

Project 7161 - Jorden Springs

SUMMARY OF ANALYSIS

No.	Sample ID	Gravimetric Determination of Asbestos in Soil	Mercury in Soil	Moisture Content
001	SP03-0.3	-	1	1
002	SP03-0.6	9	-	1
003	SP03-0.9	9	1	1
004	SP04-0.3	9	1	1
005	SP04-0.6	-	1	1
006	SP04-0.9	9	-	1
007	SP05-0.3	9	-	1
008	SP05-0.6	9	1	1
009	SP05-0.9	-	1	1
010	SP06-0.3	-	1	1
011	SP06-0.6	9	-	1
012	SP06-0.9	9	1	1
013	SP07-0.3	9	-	1
014	SP07-0.6	-	1	1
015	SP07-1.0	9	1	1
016	SP08-0.3	9	1	1
017	SP08-0.6	9	-	1
018	SP08-0.9	-	1	1
019	SP09-0.3	-	1	1
020	SP09-0.6	9	-	1
021	SP09-0.9	9	1	1
022	SP10-0.3	9	1	1
023	SP10-0.6	-	1	1
024	SP10-0.9	9	-	1

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE178910

CLIENT DETAILS

Client ALLIANCE GEOTECHNICAL PTY LTD

Project 7161 - Jorden Springs

SUMMARY OF ANALYSIS

No.	Sample ID	Gravimetric Determination of Asbestos in Soil	Mercury in Soil	Moisture Content	VOCs in Water
025	SP11-0.3	9	1	1	-
026	SP11-0.6	9	-	1	-
027	SP11-0.9	-	1	1	-
028	DUP1	-	1	1	-
029	DUP2	-	1	1	-
030	TRIP BLANK	-	-	-	12
031	TRIP SPIKE	-	-	-	12

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
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Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	Alliance Geotechnical Pty Ltd	Project Name/No:	7161 – Jordan Springs
Address:	10 Welder Road,	Purchase Order No:	SGS – P1185 Eurofins – P1186
	Seven Hills NSW	Results Required By:	5 day turnaround
Contact Name:	Craig Cowper	Telephone:	0407 989 885
		Facsimile:	
		Email Results:	c.cowper@allgeo.com.au

Client Sample ID	Date Sampled	Lab Sample ID	BUILDING MATERIAL	SOIL	PRESERVATIVE	NO OF CONTAINERS	TRH / BTEX	PAH	OCP	PCB	Metals (8)	Asbestos (0.001%)	Asbestos ID (Build Mat)	BTEX
SP03-0.3	9/5/2018	1		X	Ice	2	X	X	X	X	X			
SP03-0.6	9/5/2018	2		X	Ice	2		X				X		
SP03-0.9	9/5/2018	3		X	Ice	2					X	X		
SP04-0.3	9/5/2018	4		X	Ice	2					X	X		
SP04-0.6	9/5/2018	5		X	Ice	2	X	X	X	X	X			
SP04-0.9	9/5/2018	6		X	Ice	2		X				X		
SP05-0.3	9/5/2018	7		X	Ice	2		X				X		
SP05-0.6	9/5/2018	8		X	Ice	2		X			X	X		
SP05-0.9	9/5/2018	9		X	Ice	2	X		X	X	X			
SP06-0.3	9/5/2018	10		X	Ice	2	X		X	X	X			

SGS EHS Alexandria Laboratory

SE178910 COC

Received: 09 – May – 2018

Relinquished By: Craig Cowper	Date/Time: 09/05/2018 @ 1200hrs	Received By: A. Odisho	Date/Time 9/5/18 @ 2:50pm
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments:		

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	Alliance Geotechnical Pty Ltd	Project Name/No:	7161 – Jordan Springs
Address:	10 Welder Road,	Purchase Order No:	
	Seven Hills NSW	Results Required By:	
Contact Name:	Craig Cowper	Telephone:	0407 989 885
		Facsimile:	
		Email Results:	c.cowper@allgeo.com.au

Client Sample ID	Date Sampled	Lab Sample ID	BUILDING MATERIAL	SOIL	PRESERVATIVE	NO OF CONTAINERS	TRH / BTEX	PAH	OCP	PCB	Metals (8)	Asbestos (0.001%)	Asbestos ID (Build Mat)	BTEX
SP06-0.6	9/5/2018	11		X	Ice	2		X				X		
SP06-0.9	9/5/2018	12		X	Ice	2		X			X	X		
SP07-0.3	9/5/2018	13		X	Ice	2		X				X		
SP07-0.6	9/5/2018	14		X	Ice	2	X	X	X	X	X			
SP07-1.0	9/5/2018	15		X	Ice	2					X	X		
SP08-0.3	9/5/2018	16		X	Ice	2					X	X		
SP08-0.6	9/5/2018	17		X	Ice	2		X				X		
SP08-0.9	9/5/2018	18		X	Ice	2	X	X	X	X	X			
SP09-0.3	9/5/2018	19		X	Ice	2	X	X	X	X	X			
SP09-0.6	9/5/2018	20		X	Ice	2		X				X		

Relinquished By: Craig Cowper	Date/Time: 09/05/2018 @ 1200hrs	Received By: A. Odisho	Date/Time 9/5/18 @ 2:50pm
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes / No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes / No	Laboratory Quotation No:
	Comments:		

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	Alliance Geotechnical Pty Ltd	Project Name/No:	7161 – Jordan Springs
Address:	10 Welder Road,	Purchase Order No:	
	Seven Hills NSW	Results Required By:	
		Telephone:	0407 989 885
Contact Name:	Craig Cowper	Facsimile:	
		Email Results:	c.cowper@allgeo.com.au

Client Sample ID	Date Sampled	Lab Sample ID	BUILDING MATERIAL	SOIL	PRESERVATIVE	NO OF CONTAINERS	TRH / BTEX	PAH	OCP	PCB	Metals (8)	Asbestos (0.001%)	Asbestos ID (Build Mat)	BTEX
SP09-0.9	9/5/2018	21		X	Ice	2					X	X		
SP10-0.3	9/5/2018	22		X	Ice	2					X	X		
SP10-0.6	9/5/2018	23		X	Ice	2	X	X	X	X	X			
SP10-0.9	9/5/2018	24		X	Ice	2		X				X		
SP11-0.3	9/5/2018	25		X	Ice	2		X			X	X		
SP11-0.6	9/5/2018	26		X	Ice	2		X				X		
SP11-0.9	9/5/2018	27		X	Ice	2	X		X	X	X			
DUP1	9/5/2018	28		X	Ice	1					X			
DUP1A	9/5/2018			X	Ice	1					X			
DUP2	9/5/2018	29		X	Ice	1					X			

Send to Eurofins

Relinquished By: Craig Cowper	Date/Time: 09/05/2018 @ 1200hrs	Received By: A. Odisho	Date/Time 9/5/18 @ 2:50pm
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No:
	Comments:		

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	Alliance Geotechnical Pty Ltd	Project Name/No:	7161 – Jordan Springs
Address:	10 Welder Road,	Purchase Order No:	
	Seven Hills NSW	Results Required By:	
		Telephone:	0407 989 885
Contact Name:	Craig Cowper	Facsimile:	
		Email Results:	c.cowper@allgeo.com.au

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	TRH / BTEX	PAH	OCP	PCB	Metals (8)	Asbestos (0.001%)	Asbestos ID (Build Mat)	BTEX								
DUP2A	9/5/2018			X	Ice	1					X											Send To Eurofins
TRIP-BLANK	9/5/2018	30	X		Ice	1								X								
TRIP-SPIKE	9/5/2018	31	X		Ice	1								X								

Relinquished By: Craig Cowper	Date/Time: 09/05/2018 @ 1200hrs	Received By: A. Odisho	Date/Time 9/5/18 @ 2:50pm
Relinquished By:	Date/Time:	Received By:	Date/Time
Samples Intact: (Yes) No	Temperature: Ambient / (Chilled)	Sample Cooler Sealed: (Yes) No	Laboratory Quotation No:
	Comments:		

Certificate of Analysis

Alliance Geotechnical
10 Welder Road
Seven Hills
NSW 2147

Attention: **Craig Cowper**

Report **597827-S**
Project name JORDAN SPRINGS
Project ID 7161
Received Date May 10, 2018

Client Sample ID			**DUP1A**	**DUP2A**
Sample Matrix			**Soil**	**Soil**
Eurofins | mgt Sample No.			**S18-My13998**	**S18-My13999**
Date Sampled			**May 09, 2018**	**May 09, 2018**
Test/Reference	LOR	Unit		
Heavy Metals				
Arsenic	2	mg/kg	9.3	15
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	16	20
Copper	5	mg/kg	24	39
Lead	5	mg/kg	110	150
Mercury	0.1	mg/kg	0.2	0.1
Nickel	5	mg/kg	13	26
Zinc	5	mg/kg	220	230
% Moisture	1	%	9.1	11

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Metals M8	Sydney	May 15, 2018	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	May 10, 2018	14 Day
- Method: LTM-GEN-7080 Moisture			

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
2-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	Alliance Geotechnical	**Order No.:**	**Received:** May 10, 2018 3:26 PM
Address:	10 Welder Road Seven Hills NSW 2147	**Report #:** 597827 **Phone:** 1800 288 188 **Fax:** 02 9675 1888	**Due:** May 17, 2018 **Priority:** 5 Day **Contact Name:** Craig Cowper
Project Name:	JORDAN SPRINGS		
Project ID:	7161		

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Metals M8	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217						X	X
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	DUP1A	May 09, 2018		Soil	S18-My13998	X	X
2	DUP2A	May 09, 2018		Soil	S18-My13999	X	X
Test Counts						2	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	Quality Systems Manual ver 5.1 US Department of Defense
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	115			70-130	Pass	
Cadmium	%	103			70-130	Pass	
Chromium	%	116			70-130	Pass	
Copper	%	119			70-130	Pass	
Lead	%	125			70-130	Pass	
Mercury	%	119			70-130	Pass	
Nickel	%	122			70-130	Pass	
Zinc	%	119			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S18-My17381	NCP	%	110			70-130	Pass	
Cadmium	S18-My17381	NCP	%	111			70-130	Pass	
Chromium	S18-My17381	NCP	%	106			70-130	Pass	
Copper	S18-My17381	NCP	%	105			70-130	Pass	
Lead	S18-My17381	NCP	%	96			70-130	Pass	
Mercury	S18-My17381	NCP	%	109			70-130	Pass	
Nickel	S18-My17381	NCP	%	104			70-130	Pass	
Zinc	S18-My17381	NCP	%	84			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S18-My17380	NCP	mg/kg	3.8	3.5	7.0	30%	Pass	
Cadmium	S18-My17380	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S18-My17380	NCP	mg/kg	13	12	11	30%	Pass	
Copper	S18-My17380	NCP	mg/kg	18	16	16	30%	Pass	
Lead	S18-My17380	NCP	mg/kg	64	58	10	30%	Pass	
Mercury	S18-My18035	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S18-My17380	NCP	mg/kg	9.0	9.6	6.0	30%	Pass	
Zinc	S18-My18035	NCP	mg/kg	6.6	6.9	5.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S18-My13998	CP	%	9.1	9.6	5.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised By

Nibha Vaidya Analytical Services Manager

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
2-5 Kingston Town Close
Oakleigh VIC 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name:	Alliance Geotechnical	**Order No.:**		**Received:**	May 10, 2018 3:26 PM
Address:	10 Welder Road	**Report #:**	597827	**Due:**	May 17, 2018
	Seven Hills	**Phone:**	1800 288 188	**Priority:**	5 Day
	NSW 2147	**Fax:**	02 9675 1888	**Contact Name:**	Craig Cowper
Project Name:	JORDAN SPRINGS				
Project ID:	7161				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Metals M8	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217						X	X
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	DUP1A	May 09, 2018		Soil	S18-My13998	X	X
2	DUP2A	May 09, 2018		Soil	S18-My13999	X	X
Test Counts						2	2

eurofins | mgt

Melbourne
3-5 Kingston Town Close
Oakleigh Vic 3166
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**Alliance Geotechnical**
Contact name:	Craig Cowper
Project name:	JORDAN SPRINGS
Project ID:	7161
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	May 10, 2018 3:26 PM
Eurofins | mgt reference:	**597827**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8400 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Craig Cowper - c.cowper@allgeo.com.au.

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	Alliance Geotechnical Pty Ltd	Project Name/No:	7161 – Jordan Springs
Address:	10 Welder Road,	Purchase Order No:	
	Seven Hills NSW	Results Required By:	
		Telephone:	0407 989 885
Contact Name:	Craig Cowper	Facsimile:	
		Email Results:	c.cowper@allgeo.com.au

Client Sample ID	Date Sampled	Lab Sample ID	BUILDING MATERIAL	SOIL	PRESERVATIVE	NO OF CONTAINERS	TRH / BTEX	PAH	OCP	PCB	Metals (8)	Asbestos (0.001%)	Asbestos ID (Build Mat)	BTEX								
SP09-0.9	9/5/2018			X	Ice	2					X	X										
SP10-0.3	9/5/2018			X	Ice	2					X	X										
SP10-0.6	9/5/2018			X	Ice	2	X	X	X	X	X											
SP10-0.9	9/5/2018			X	Ice	2		X				X										
SP11-0.3	9/5/2018			X	Ice	2		X			X	X										
SP11-0.6	9/5/2018			X	Ice	2		X				X										
SP11-0.9	9/5/2018			X	Ice	2	X		X	X	X											
DUP1	9/5/2018			X	Ice	1					X											
DUP1A	9/5/2018			X	Ice	1					X											Send to Eurofins
DUP2	9/5/2018			X	Ice	1					X											

Relinquished By: Craig Cowper	Date/Time: 09/05/2018 @ 1200hrs	Received By: A. Odisho	Date/Time 9/5/18 @ 1550hrs
Relinquished By:	Date/Time:	Received By: Jadon	Date/Time 10/05/18 @ 3:26pm.
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No: #97827.
	Comments:		

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name: Alliance Geotechnical Pty Ltd
Address: 10 Welder Road, Seven Hills NSW
Contact Name: Craig Cowper

Project Name/No: 7161 – Jordan Springs
Purchase Order No:
Results Required By:
Telephone: 0407 989 885
Facsimile:
Email Results: c.cowper@allgeo.com.au

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	TRH / BTEX	PAH	OCP	PCB	Metals (8)	Asbestos (0.001%)	Asbestos ID (Build Mat)	BTEX
DUP2A	9/5/2018			X	Ice	1					X			
TRIP-BLANK	9/5/2018		X		Ice	1								X
TRIP-SPIKE	9/5/2018		X		Ice	1								X

Send To Eurofins

Relinquished By: Craig Cowper
Date/Time: 09/05/2018 @ 1200hrs
Received By: [illegible]
Date/Time [illegible]

Relinquished By:
Date/Time:
Received By: [illegible]
Date/Time 9/5/18 @ 3:26pm.

Samples Intact: Yes/ No
Temperature: Ambient / Chilled
Sample Cooler Sealed: Yes/ No
Laboratory Quotation No.

Comments