FINAL REPORT

NSW Department of Planning and Environment

West Schofields Precinct - Northern

Detailed Site Investigation

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EXECUTIVE SUMMARY

Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by The Department of Planning and Environment (the Client) to undertake investigation works in the northern section of the future West Schofields Precinct, located in Schofields, Riverstone and Marsden Park, NSW. The northern Precinct is currently subject to planning considerations for redevelopment to include residential uses, open space and a proposed primary school. Presently the area consists of rural residential properties and commercial enterprises such as market gardens, warehousing/storage, former landfills and other miscellaneous operations.

The objectives of this investigation were to develop the Conceptual Site Model (CSM), specifically the source-pathway–receptor linkages through understanding the Site setting, Site history and potential sources of contamination; characterise the nature and extent of potential contamination at the Site; provide an assessment of whether the current contamination status of the Site presents a potentially unacceptable risk to human health and/or the environment under the current land use zoning and proposed future use. In order to meet the objectives ERM conducted the investigation in a staged manner, initially conducting a Preliminary Site Investigation (PSI) (DLA Environmental, August 2017, DL4101_S007192), which was then used to guide a subsequent Detailed Site Investigation (DSI) as required by the Client. Specifically, the PSI included desktop database searches and reviews and property inspections, with the later DSI designed to target current and historical potential contamination sources and provide an assessment of shallow soils.

The northern Precinct is zoned Primary Production Small Lots (RU4) and Public Recreation (Grange Reserve), and currently exists as mainly rural residential properties with some commercial operations. Historical sources indicate that parts of the Site have been under commercial occupation since before 1955, with uses of the Site reported to include agricultural practices and quarries, and later more intensive market gardening, scrapyards and mechanical storage/warehousing. Aerial photographs confirm that the Site and surrounding area appear to have undergone major changes from 1955 to the present, with the majority of the area now rural residential properties.

The PSI was conducted in 2017, involving desktop reviews and property inspections. The inspections covered the northern portion of the West Schofields Precinct, where access to properties was given by land owners. Through these inspections and aerial photograph reviews, Areas of Environmental Concern (AEC) were developed for further investigation in the DSI, with associated Contaminants of Potential Concern (COPC).

The DSI involved soil investigations at properties located within the area proposed to change to a higher density residential zone. This area falls between the 100 year average recurrence interval (ARI) and the Probable Maximum Flood (PMF) line, and was considered the Site for DSI investigation works. The number of properties investigated was constrained by property access restrictions, with only those properties with land owner approval able to be accessed for this investigation. Properties within AEC determined during the PSI, as well as general coverage areas, were investigated to assess the contamination risk and impact on future land use.

Soil sampling completed as part of the investigation of Site contamination consisted of 26 intrusive locations, with a maximum depth of 1.1 metre (m) below ground level (bgl)

reached. Representative samples were collected from each location and submitted for laboratory analysis of COPC identified for the Site to include; total recoverable hydrocarbons, benzene, toluene, ethylbenzene, xylenes, naphthalene (BTEXN), heavy metals (arsenic, cadmium, chromium, copper, lead, nickel, mercury, zinc), asbestos, polycyclic aromatic hydrocarbons (PAHs), organochlorines (OCs), organophosphates (OPs), polychlorinated biphenyls (PCBs), volatile and semi-volatile organic compounds (VOC/SVOCs).

Soil analytical results for all COPCs were reported below the adopted Tier 1 human health screening criteria. Two samples had detections of pesticides, however were below the assessment criteria, and are not believed they are a concern for future land use. Heavy metals (arsenic, chromium, copper, lead, nickel and zinc) were detected above the laboratory limit of reporting (LOR), however all were below the adopted assessment criteria. Isolated asbestos fragments were identified in the inspections for some properties outside of the DSI Site boundary.

The findings of this investigation have not positively identified complete source-pathway-receptor linkages under the current land use, or are considered likely under the proposed future use of the properties inspected within the Site. Areas of the Site inspected did not identify contamination to be present that would preclude the Site being considered suitable for both its current and proposed future use, with Site conditions requiring remediation not identified from the data collected. Data gaps do remain, due to a large number of properties that could not be accessed as part of this investigation. Further assessment of these areas would be required to assess their suitability for re-zoning.

Hazardous building materials, such as asbestos, may be present in residential dwellings within the Site, and did not form part of the scope of this assessment. These should be addressed on a property specific basis if demolition is to occur, with the completion of a Hazardous Materials Survey prior to commencing works. As such there is the potential for asbestos fragments to be present within the Site area, due to the weathering of associated building materials, however none were identified during Site visits within the properties inspected.

1 INTRODUCTION

Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by the NSW Department of Planning and Environment (the Client) to undertake site investigation works within the northern portion of the West Schofields Precinct located in Schofields, NSW 2762 (the Site). Further site identification details are presented in *Section 2*. The Site Location and Site Layout are provided as *Figure 1* and *Figure 2*, respectively.

1.1 PROJECT APPRECIATION

The Site is currently subject to planning considerations to include residential uses, open space and a proposed primary school. Specific considerations relating to Contaminated Land are to be met by the Client prior to proceeding with public presentation of the draft Indicative Layout Plan (ILP) of the Precinct.

The focus area is the land to the north of South Street (Schofields Rd), which is above the 100 year flood Average Recurrence Interval (ARI). This area has been flagged for potential rezoning to allow for higher density residential developments than is allowed for by current zoning requirements.

Refer to *Figure 1* – Site Location, for DSI boundary.

1.2 OBJECTIVES

ERM understands that the Client's overarching objective is to release a new layout plan of the Precinct area, to provide additional land for housing and employment.

The objectives of this Detailed Site Investigation (DSI) are to identify potential sources of contamination and the contaminants of concern resulting from past and present Site uses, evaluate the presence of contamination in the identified Areas of Environmental Concern (AEC) and assess the suitability of the Site for its intended land use.

In particular, this DSI provides conclusions regarding the suitability of accessible land for future land use consistent with *Residential A* in the National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1) ('NEPM', NEPC, 2013).

1.3 SCOPE OF WORK

The following scope of work is proposed based on the requirements outlined in the following documents:

- NSW and Office of Environment and Heritage (OEH) (2011), Guidelines for Consultants Reporting on Contaminated Sites;

- National Environment Protection Council (NEPC) (1999), National Environment Protection (Assessment of Site Contamination) Measure 1999 (the ASC NEPM) (as amended 2013) – Schedule B2: Guideline on Site Characterisation;

- NSW EPA (1995), Sampling Design Guidelines; and

- Acid Sulfate Soil Management Advisory Committee (ASSMAC) (1998), Acid Sulfate Soil Manual.

More specifically, to achieve the objectives above, the scope of works includes:

- Provide a summary of the history and environmental setting of the Site, including previous environmental investigations;
- Providing an overview of the Site's past and current land uses, potential contamination issues and AEC;
- Systematic and targeted soil sampling based on representative Site coverage and identified AECs;
- Laboratory testing of selected soil samples (including QA/QC) for a range of potential organic and inorganic contaminants;
- Interpretation of the results of laboratory testing in the context of the Assessment Criteria, field observations, local geology and hydrogeology and the history of the Site;
- Development and documentation of a Conceptual Site Model (CSM) based on the available information; and
- Provide an assessment of Site contamination and discuss the suitability of the Site for its intended land use including an outline of the requirements for further assessment, management or remediation works (if necessary).

1.3.1 Preliminary Site Investigation

The Preliminary Site Investigation (PSI) (DLA Environmental, August 2017, DL4101_S007192), covered the entire northern portion of the precinct, and included a preliminary desktop review to collect basic Site information, and Site walkovers with the landholders. This information has been used to develop the preliminary Conceptual Cite Model (CSM), and to guide further assessment of the Site via soil investigation. Specific tasks associated with the PSI are presented in the following subsections.

Desktop Searches and Review

- An understanding of the Site and environmental setting is necessary for developing the CSM, and has considered the following:
  - Site description;
  - Site activities (current and historic);
  - Site history; and
  - Local and regional geology, hydrogeology and hydrology.
- ERM has reviewed publically available information, including the following:
  - Land titles;
  - Aerial photographs;
  - Hazardous chemicals information;
  - Contaminated land register;
  - Groundwater bore register;
  - Environmental permit/license registers; and
  - Heritage databases.

Site Inspection

The Site inspection comprised a Site walkover, discussions with Site personnel, and review of desktop search information against observed Site conditions and the surrounds. The inspection was used to identify areas of environmental concern that may require further assessment during the DSI (intrusive) stage of works. Specifically the inspection included the following tasks:

- Interviews with personnel knowledgeable of the Site in order to collect information regarding current and historical Site operations;
- Site walkover to identify contamination indicators, confirm aerial photograph reviews and identify other AEC including areas of staining or evidence of environmental impact associated with current site use, former site uses and/or surrounding land uses; and
- Photographic survey of key site features and potential contamination sources/issues.

1.3.2 Detailed Site Investigation

The information obtained during the PSI was used to define the DSI scope of works which were proposed to include:

Preparations

- Development of site-specific Sampling Analysis Plan (SAP); and
- Client liaison.

Intrusive Investigation

- Review of "Dial Before You Dig"/client provided service plans;
- Clearance of proposed intrusive locations through the use of subcontracted locator utilising both Cable Avoidance Tool (CAT) and Ground Penetrating Radar (GPR);
- Assessment of the soil profile at 26 locations (across 14 properties) up to 1.1 metre (m) below ground level (bgl) using a hand auger;
- Collection of soil samples from each soil bore throughout the soil profile based on evidence of potential contamination (visual/olfactory). Soil samples were collected in appropriate laboratory supplied containers for analysis Contaminants Of Potential Concern (COPC) as detailed in *Section 6; and*
- Soil bores were backfilled with arisings following collection of samples.

1.3.3 Reporting

Following completion of the field based scope of works and in order to meet client requirements, the results of the PSI and DSI have been combined and presented within this comprehensive report.

2 2 SITE BACKGROUND

2.1 SITE IDENTIFICATION

Specific Site identification details are summarised in *Table* . The Site Location is presented in *Figure 1* and the Site Layout is presented in *Figure 2.*

Table 2.1.1: Site Identification

Item	Description
Site Name	West Schofields Precinct – Northern
Site Owner	Various
Site Occupier / Usage	Various including: rural/residential, market gardens, landfills, commercial
Site Address	Schofields, NSW 2762 and Riverstone, NSW 2765
Legal Description[1]	Various lots
Local Government Authority	Blacktown City Council
Current Zoning[2]	RU4 – Primary Production Small Lots Public Recreation (Grange Reserve)
Proposed Land Use	Residential uses, open space and a proposed primary school
Site Area[1]	~ 570 hectares (total) ~ 300 hectares (northern part)
DSI Investigation Area	90 hectares
Elevation[2]	Approximately 15 - 25 metres Australian Height Datum (m AHD)
Source: 1. https://maps.six.nsw.gov.au/ 2. NSW Government Planning Portal	

2.2 SITE DESCRIPTION AND CURRENT USE

This West Schofields Precinct comprises 570 hectares (ha) throughout Schofields, Riverstone and Marsden Park in Sydney's northwest.

The southern portion was investigated by DLA Environmental in 2016, and a PSI was conducted on the northern portion in 2017.

The focus of the DSI is on the land to the north of South Street, which is above the 100 year flood ARI, referred to as 'the Site'. This area has been flagged for potential rezoning to allow for higher density residential developments than is permitted under the current land zoning requirements.

This area covers approximately 90 ha, with the majority of properties being rural residential. These properties generally include a residence, sheds, and cleared paddocks with sparse tree cover. Commercial industries are also present, such as market gardens, scrap yards, warehousing/storage and truck/mechanical yards. Grange Reserve, a former landfill, is present along the southern boundary of the investigation area.

2.3 FUTURE SITE USE

- The Site is currently subject to planning considerations to include residential uses, open space and a proposed primary school. Specific considerations relating to Contaminated Land are to be met by the Client prior to proceeding with public presentation of the draft Indicative Layout Plan (ILP) of the West Schofields Precinct.

2.4 SURROUNDING LAND USE

The Site is surrounded by similar rural residential properties that will form part of the West Schofields Precinct, however these properties are below the 100 year flood ARI and as such their predicted end land use will differ from those within the Site.

Land use features surrounding the site are summarised below:

North: Vacant lots with abundant tree cover. Further north is a large rural residential property including; residence, sheds, stables and horse racing track/arenas.

East: Carnarvon Road and rural residential properties. Further to the east is Eastern Creek and associated riparian zone (*E2 - Environmental Conservation* zone).

South: South Street, which has recently undergone widening works, and rural residential properties. Further to the south is another closed landfill, former quarry and PGH brick making facility.

West: Rural residential properties. Further to the west is Bells Creek and associated riparian zone (*E2 - Environmental Conservation* zone).

2.5 DESKTOP REGULATORY RECORDS SEARCH

2.5.1 Hazardous Chemicals Information

Site occupiers are required to notify SafeWork NSW if they store, handle or process hazardous chemicals that exceed quantities specified in the relevant legislation. A search of the storage of hazardous chemicals database held by SafeWork NSW (*Annex B*) indicated that no hazardous chemicals have been recorded on properties within the northern portion of the West Schofields Precinct.

2.5.2 Blacktown City Council Planning Information

Due to the large number of lots and part lots within the northern part precinct, Planning Certificates from Blacktown City Council under Section 149 of the *Environmental Planning and Assessment Act 1979 (NSW)* were obtained for three lots considered representative of the overarching Site (each with different land use scenarios).

The Planning Certificates for all three lots are combined below, unless otherwise stated:

- The zoning and land use provisions of Zone RU4– Primary Production Small Lots under the Blacktown Local Environmental Plan 2015 apply to this land;
- The land does not include or comprise critical habitat and is not located in a Conservation Area;
- The Site does not contain Aboriginal archaeological sites under the protection of the *National Parks and Wildlife Service Act 1974 (*NSW);
- Lot 214 DP 1204436 and Lot 3 DP 857963 are not affected by Local Road Widening, Lot A DP 331511 is affected by a road pattern;
- No matters apply to this property under the *Contaminated Land Management Act 1997* (NSW);
- The land is not affected by the operation Sections 38 or 39 of the *Coastal Protection Act 1979* (NSW);
- The land has not been proclaimed to be within a mine subsidence district; and
- Lot 214 DP 1204436 and Lot 3 DP 857963 are not located within areas that are bush fire prone land as defined by the *Environmental Planning and Assessment Act 1979 (NSW)*. Lot A DP 331511 is located within bushfire prone land (100m buffer) as defined by the *Environmental Planning and Assessment Act 1979 (NSW)*.

2.5.3 Regulatory Agency Search

- A search of licences issued under the NSW EPA *Protection of the Environment Operations Act 1997* identified a number of properties within the boundaries of the northern part precinct, and within close proximity to the Site that hold licences. These are summarised in *Table 2.5.3*

Table 2.5.3 Current POEO Licences

SITE NAME / ORGANISATION	SITE ADDRESS	ACTIVITY
On-site Licences		
Grange Avenue Power Station	Grange Avenue (West), Marsden Park	Generation of electrical power from gas
Hlebar; Vinko And Draga	North Street, Schofields	Non-thermal treatment of general waste

		Waste disposal by application to land. Non-thermal treatment of general waste Waste disposal by application to land
North West Recycling Centre	132 Burfitt Road, Riverstone	Composting
Off-site Licences		
PGH Bricks & Pavers Pty Limited	75 Townson Road, Schofields	Ceramic waste generation Ceramics production Crushing, grinding or separating Land-based extractive activity Mining for minerals
Aymsheen Pty Ltd	51 Townson Road, Marsden Park	Transport of category 1 trackable waste
Marsden Park Landfill	Richmond Road, Marsden Park	Land-based extractive activity Non-thermal treatment of general waste Waste disposal by application to land Waste storage - other types of waste Waste storage - waste tyres
Suspended Licences		
Riverstone Earthmoving Pty Ltd	"Riverstone Landfill" 127 Burfitt Road, Riverstone	Solid Waste Landfilling

- The NSW EPA Contaminated Land Record is a searchable database of sites that present a significant risk of harm to human health and /or the environment under the NSW Contaminated Land Management Act 1997. The register shows that there are no notices issued for the Site and surrounding properties under the *Contaminated Land Management Act 1997.* The following properties are listed as being under assessment, however are outside the current investigation boundary:

  - 55 Garfield Road East, Riverstone, located approximately 350m to the north-west of the West Schofields Precinct boundary, is occupied by a 7-Eleven Service Station; and
  - 226 Grange Avenue, Marsden Park, located approximately 950m to the west of the West Schofields Precinct boundary is occupied by Norwest Sand & Soil Supplies Pty Ltd.

2.5.4 Ecological Constraints

Although potential wildlife habitat is available in some areas of the Site, no endangered populations are known to reside within 2 km of the Site.

2.6 SITE HISTORY SUMMARY

The Site appears to have been a largely rural residential area, with commercial enterprises such as market gardens, Grange Reserve landfill, scrap yards, horse racing tracks and warehousing/storage. The area is largely cleared of vegetation, though few properties have sparsely forested areas. Review of the historical aerial photographs provided progress of site changes over time.

2.7 HISTORICAL AERIAL PHOTOGRAPHS

Aerial photographs of the northern part precinct dated between 1955 and 2017 were reviewed for the PSI. A summary of each photograph is presented below and the selected photographs are provided in *Annex A*.

Table 2.7.1: Aerial Photograph Review

YEAR	DETAILS
1954	The Site comprises approximately 50% uncleared bushland, and 50% rural residential land that includes market gardens and paddocks. Small market garden plots are visible in the north-eastern portion of the Site between Neville Road and Eastern Creek, and to the north of Carnarvon Road adjacent to Bells Creek. A large area being used for agricultural purposes, including market gardens, is present in the southern part of the Site in the area of land in

YEAR	DETAILS
	the immediate vicinity of the intersection Grange Avenue and Carnarvon Road. A quarry is visible in the central portion of the Site (i.e. within the future Riverstone Landfill site). This area of land exhibits several large water-filled excavations. The land directly south/south-west of the quarry, on the southern side of Burfitt Road, also appears to be occupied by water-filled excavations. Network of main roads that have been constructed throughout the Site, no other significant infrastructure is visible.
1965	Further clearing of bushland has occurred across the Site and agricultural use of the land has increased in some areas. A circular racecourse is visible in the northern part of the Site, in the current location of Basil Andrews Park. Residential dwellings have been constructed to the east and west of the racecourse along West Parade and Creek Street, respectively. The northern-most corner of the Site on the corner of Garfield Road West and West Parade appears to have been developed for commercial (retail) purposes. A newly established area of agricultural land, possibly market gardens, is visible in the northern part of Site between Carnarvon Road and Eastern Creek, just north of Neville Road. The excavations within the land occupied by the quarry, and within the land to the south/south-west, have increased laterally however still remain filled with water. Market gardens have been established on the land immediately east of the quarry between Neville Road and Eastern Creek, and to the west of Carnarvon Road, between Burfitt Road and Vine Street. Market gardening activities have intensified on the land located to the north-west of the junction of Grange Avenue and Carnarvon Road. A series of small huts and larger buildings has been constructed on a parcel of land in the south-western portion of the Site, to the north of Grange Avenue. The arrangement of the buildings suggests that the Site may have been a military camp, or similar.
1970	A second circular racecourse has been constructed to the west of the aforementioned racecourse. The number of residential dwellings in the northern areas of the Site have marginally increased. The quarry located within the central portion of the Site has been extended laterally towards the north, however continues to comprise several individual water-filled excavations. The area of land occupied by the future Grange Avenue Reserve has been cleared of most of the remnant bushland.

YEAR	DETAILS
	The land use across the rest of the Site area remains largely unchanged, however residential dwellings are being constructed in areas established for agricultural use.
1978	The excavations in the quarry site have been combined to create a single large excavation pit that remains filled with water. Most of the land to the west of Carnarvon Road, between Burfitt Street and Vine Street is occupied by market gardens and associated residential dwellings. Earthworks are visible within the area of land occupied by the future Grange Avenue Reserve. The land use across the rest of the Site area remains largely unchanged.
1982	The eastern-most racecourse has been removed and it is evident that the land is being redeveloped for recreational purposes (i.e. tennis courts and playing fields have been constructed). The land to the south of Trevithick Street in the northern portion of the Site has been developed as horse yards. Small scale market gardens have been established immediately to the south of this along Bridge Street. Major earthworks are visible within the former quarry. Several structures have been built within the south-eastern quadrant of the property which suggests that landfilling activities have commenced on-site. The land to the west of the quarry, on the corner of Burfitt Road and Carnarvon Street, shows evidence of uncontrolled storage of miscellaneous materials within a residential allotment. Evidence of continued ground disturbance is visible within the land occupied by the future Grange Avenue Reserve. Whilst large areas of the Site continue to be occupied by market gardens, many of the smaller, isolated market gardens previously present on-site have been removed. Further clearing of remnant bushland areas is also visible, particularly in the western half of the Site. The land use across the rest of the Site area remains largely unchanged.
1986	Significant vertical excavation of the former quarry is visible. The disturbed land to the south/south-west of the former quarry, on the southern side of Burfitt Road, has been fenced and buildings have been constructed in the western half of the property. Minor earthworks appear to be ongoing. A parcel of land located on the north-eastern corner of the intersection of Grange Avenue and Carnarvon Road shows evidence of earthworks

YEAR	DETAILS
	and uncontrolled storage of miscellaneous materials within a residential allotment. Several of the huts and larger buildings within the aforementioned 'camp' located in the south-western part of the Site have been removed. It is unclear whether ongoing use of the property is occurring. Evidence of continued ground disturbance is visible within the land occupied by the future Grange Avenue Reserve. The land use across the rest of the Site area remains largely unchanged.
1991	The former quarry has been extended laterally towards the north and covers an area approximately twice its original size. Excavation pits within the fenced property to the south/south-west appear to have been reinstated. The property immediately to the east of this has been cleared and is undergoing redevelopment, while the property beyond that (to the east), immediately adjacent to Eastern Creek, show evidence of uncontrolled storage of miscellaneous materials. The land located on the north-eastern corner of the intersection of Grange Avenue and Carnarvon Road has been cleared and graded and all waste materials previously visible have been removed. Evidence of continued ground disturbance is visible within the land occupied by the future Grange Avenue Reserve. The land use across the rest of the Site area remains largely unchanged.
1994	A large area of market gardens has been re-established in the north-eastern part of the Site between Neville Road and Eastern Creek. Evidence of continued ground disturbance is visible within the land occupied by the former quarry and the future Grange Avenue Reserve. The land use across the rest of the Site area remains largely unchanged.
1998	Land immediately to the west of the former quarry has been cleared and established as future market gardens. Evidence of continued ground disturbance is visible within the land occupied by the former quarry and the future Grange Avenue Reserve. The land use across the rest of the Site area remains largely unchanged.
2005	Small scale market gardens have been established to the west of the horse yards in the northern portion of the Site. The excavations within the former quarry site have been reinstated to ground level. Earthworks appear to be ongoing within the fenced property to the south/south-west. The mulch recycling facility has been established in

YEAR	DETAILS
	the adjacent property to the east. Uncontrolled storage continues in the property further to the east. Evidence of continued ground disturbance is visible within the land occupied by the future Grange Avenue Reserve. The land use across the rest of the Site area remains largely unchanged.
2010	Minimal changes to land use and vegetation cover
2017	Activities at Grange Avenue Reserve landfill and Riverstone Landfill have ceased since 2010, and both sites have been capped with vegetation cover appearing to have grown over both sites. Minimal land use changes across the remaining site area.

2.8 TITLE DEED INFORMATION

Land title records for selected properties within the northern portion of the West Schofields Precinct were obtained for review by ERM to assess changes in land ownership overtime. Given the area of the precinct and the large number of properties therein, it was outside the scope of this investigation to undertake a land title search for all properties. As such, three properties have been selected that are considered to represent typical land uses within the Precinct.

91 Carnarvon Road, Schofields - Lot A in Deposited Plan 331511

The land title records for 91 Carnarvon Road, Schofields are summarised in **Table 2.8.1**.

Table 2.8.1: Historical Title Search

YEAR	SITE OWNER	LAND USE / OCCUPATION
1930	John S. Archer	Farmer
1935	Huon Lane	Farmer
1950	Jeffrey B. Morcom	Labourer
1951	Claude and Oliven J. I. Mason	Labourer and wife
1951	Walter Karl	Technician
1963	Helmut Karl	Motor mechanic
1973	Helmut and Eva Karl	Motor mechanic and wife
1976	Ronald K. and Adi Herrlich	Plumber and wife

YEAR	SITE OWNER	LAND USE / OCCUPATION
1986	Dennis R. King and Barry E. King	Unknown
2012	Dennis R. King	Unknown

Dennis R. King remains the registered proprietor of 91 Carnarvon Road, Schofields (Lot A in Deposited Plan 331511).

98 Vine Street, Schofields - Lot 3 in Deposited Plan 857963

The land title records for 98 Vine Street, Schofields are summarised in *Table 2.8.2*.

Table 2.8.2: Historical Title Search

YEAR	SITE OWNER	LAND USE / OCCUPATION
1931	William A. Bradbury	Carrier
1989	Ada E. K. Bradbury	Unknown
1989	Winifred Bodenham and Wilma Roberts	Unknown
1996	Henry W. and Catherine A. Cattell	Unknown
1996	David P. Naylor	Unknown

David P. Naylor remains the registered proprietor of 98 Vine Street, Schofields - Lot 3 in Deposited Plan 857963.

175 Grange Avenue, Schofields - Lot 214 in Deposited Plan 1204436

The land title records for 98 Vine Street, Schofields are summarised in *Table 2.8.3*.

Table 2.8.3: Historical Title Search

YEAR	SITE OWNER	LAND USE / OCCUPATION
1921	Annie E. Palmer	Unknown
1945	Charles A. A. Olson	Poultry farmer
1950	Bernard S. Crawley and Alfred E. Crawley	Electrician and refrigeration engineer

YEAR	SITE OWNER	LAND USE / OCCUPATION
1951	George and Elizabeth A. Bailey	Farmer and wife
1960	Hubertus J. and Anna C. Van Der Burg	Cotton farmer and wife
1970	Domenic and Angela Schembri	Market gardener and wife

Domenic and Angela Schembri remain the registered proprietors of 175 Grange Avenue, Schofields - Lot 214 in Deposited Plan 1204436.

Refer to *Annex C* – Land Title Records.

2.9 SUMMARY OF PREVIOUS INVESTIGATIONS

2.9.1 Grange Reserve Landfill

Various reports have been written in the past six years, including a Landfill Closure Plan (GHD, 2012), Landfill Gas Risk Assessment (GHD, 2015) and Annual Environmental Monitoring Report (GHD, 2015).

Assessment of the impacts of this landfill on surrounding land use will be provided in a separate updated Landfill Gas Risk Assessment (LFGRA), and as such reports pertaining to the Grange Reserve will form part of the LFGRA.

2.9.2 Salinity and Aggressivity Assessment (DLA, 2017; DL4101_S006978)

This report covered the entire northern portion of the West Schofields Precinct, however the majority of sample locations were within the area above the 100 year flood ARI. This area will be the main focus of planning for the Precinct, with potential changes to more conservative residential zones from primary production small lots.

The assessment included salinity analysis of 48 samples and aggressivity analysis of 24 samples, from a total of 18 properties and nine verges. Laboratory testing concluded that the majority of soils on site were non-saline and non-aggressive, with the exception of soils in lower lying areas are Bells Creek and Eastern Creek.

It was determined that a Salinity or Aggressivity Management Plan is not required for the northern part precinct if the intended land use of residential is implemented without development in the riparian zone of Bells Creek or Eastern Creek.

2.10 HERITAGE

2.10.1 Local and State Heritage

A review of the Blacktown LEP 2015 has not identified any items of local environmental heritage within the Site, however there are two local environmental heritage items within 1 km.

2.10.2 National and Commonwealth Heritage

A review of National and Commonwealth Heritage database listings (Australian Government Department of the Environment and Energy 2017a, 2017b) has not identified the Site as an item of natural, historic and Indigenous places of outstanding significance to the nation or Commonwealth.

2.10.3 Aboriginal Heritage

A review of the Review of the Aboriginal Heritage Information Management System (AIHMS) (NSW OEH, 2017a) has not identified items of aboriginal heritage at the Site or within 500 m of the surrounding area.

3 ENVIRONMENTAL SETTING

The following description of the northern part precinct's environmental setting is based on observations from the site inspection (see *Section 5*), other publically available databases and reference sources cited.

3.1 LOCAL TOPOGRAPHY AND HYDROLOGY

Topographic information pertaining to the Site was obtained using *Nearmap* (www.nearmap.com).

The northern part precinct lies at elevations between approximately 14 m AHD in the north and 30 m AHD in the south, with an overall gradient down towards the north. The land exhibits a series of undulations between North Street and Grange Avenue with changes in elevation of approximately 10 m. These undulations coincide with an area of uncleared bushland.

Undulating landscapes are present in the north-eastern quadrant of the Site in the vicinity of the Eastern Creek with elevations ranging between 8 m and 38 m AHD. Elevations along the western boundary of the area range between 11 m and 20 m AHD. A topographic ridge is also apparent running on a north-south axis in the western third of the Site with elevations of up to 30 m AHD.

Artificial mounding of the land surface is evident within the boundaries of the former Riverstone Landfill site bound by Neville and Burfitt Roads, and within the boundaries of Grange Avenue Reserve ("Reserve 478", a former landfill).

3.2 GEOLOGY AND SOILS

The 1:100,000 Penrith Geological Series Sheet (9030) indicates that most of the area is underlain by Middle Triassic-aged Bringelly Shale of the Wianamatta Group. This formation comprises shale, carbonaceous claystone, laminite, fine to medium grained lithic sandstone, rare coal and tuff derived from alluvial and estuarine environments.

Areas of the northern part precinct in the immediate vicinity of either Eastern Creek or Bells Creek, forming the eastern and western boundaries of the Precinct, respectively, are underlain by Quaternary-aged unconsolidated sediments consisting of fine grained sand, silt and clay derived from fluvial environments.

The 1:100,000 Penrith Soil Landscape Map (9030) indicates that most of the eastern half lies within the South Creek Soil Landscape Group, while most of the western half lies within the Blacktown Soil Landscape group.

The South Creek soil landscape comprises very deep layered sediments over bedrock or relict soils. Where pedogenesis has occurred, structured plastic clays or loams occur in and immediately adjacent to drainage lines; red and yellow podzolic soils are most common in terraces with small areas of structured grey clays, leached clay and yellow solodic soils. This group is typically affected by

seasonal waterlogging, localised permanently, high water tables, localised water erosion hazard, and localised surface movement potential.

The Blacktown soil landscape comprises shallow to moderately deep hardsetting mottled texture contrast soils, with red and brown podzolic soils on crests grading to yellow podzolic soils on lower slopes and in drainage lines. This group is typically affected by localised seasonal waterlogging, localised water erosion hazard, moderately reactive highly plastic subsoil, and localised surface movement potential.

3.3 HYDROLOGY AND HYDROGEOLOGY

The northern part precinct is bounded by Eastern Creek to the east, and Bells Creek to the west. Both waterways flow in a broadly northerly direction. Bells Creek discharges to Eastern Creek on the northern boundary of the Site. Eastern Creek ultimately discharges to South Creek and the Hawkesbury River.

Several dams and drainage lines are also present throughout the area. These are largely engineered features and used for agricultural purposes.

Given that a large proportion of the northern part precinct comprises rural residential land use or vacant grass covered open space, it is likely that most of the Site would be unsealed. In these areas, it is expected that rainfall would infiltrate into the subsurface of the Site, particularly in areas underlain by unconsolidated sediments. Where heavy or prolonged rainfall events cause waterlogging of the soils, and in areas where the surface of the Site is sealed, runoff water would form overland flow and follow the gradient of the land, flowing into the local underground stormwater collection system or nearby waterways.

A search of the NSW Office of Water groundwater database indicates that there are two registered bores within the northern part precinct boundaries, and a further nine registered bores within 500 m of this area.

The information presented in the Work Summary Report for each bore is summarised in *Table 3.3.1.*

Table 3.3.1: Regional Groundwater Summary Data

WELL ID	LOCATION	PURPOSE	DEPTH (m)	STANDING WATER LEVEL (m)	SALINITY (µS/cm)
On-site Registered Bores					
GW112290	"Riverstone Landfill"	Monitoring	10.0	No data	No data
GW112289	"Riverstone Landfill"	Monitoring	10.0	No data	No data
Off-site Registered Bores					
GW103961	"Monier PGH"	Monitoring	20.0	No data	No data
GW103960	"Monier PGH"	Monitoring	20.0	No data	No data
GW103956	"Monier PGH"	Monitoring	20.0	No data	No data
GW103959	"Monier PGH"	Monitoring	19.2	No data	No data
GW103957	"Monier PGH"	Monitoring	15.0	No data	No data
GW103958	"Monier PGH"	Monitoring	20.0	No data	No data
GW114761 **GW114762** **GW114763**	Immediately north of Garfield Road West and Riverstone Parade intersection	No data available			

Groundwater is likely to be influenced by the regional hydrology. As such, it is expected that groundwater would flow towards surface water bodies such as Eastern Creek and Bells Creek, however would be affected by the permeability of the local geology.

Groundwater beneath the Site is expected to be located at depth with the subsurface geology, however would also include localised areas of perched water associated with landfills and impervious soils / shallow bedrock. Groundwater investigation was not included in the scope of this assessment as it is thought to be at great depth and is not considered a source for future land users.

4 DATA QUALITY OBJECTIVES

The NEPM (NEPC, 2013) and Australian Standard (AS) 4482.1-2005 recommend that data quality objectives (DQOs) be implemented during the assessment of potentially contaminated sites. The DQO process described in AS 4482.1-*2005 Guide to the Investigation and Sampling of Sites with Potentially Contaminated Soil Part 1: Non-Volatile and Semi-Volatile Compounds* outlines seven distinct steps to outline the project goals, decisions, constraints and an assessment of the project uncertainties and how to address these when they arise. The DQOs have been summarised in *Table 4.1* and *Table 4.2* below:

Table 4.1: Data Quality Objectives

1	State the Problem	• Properties on the site have a history of use ranging from rural residential to commercial including light industrial, landfill operations and warehousing/storage. • Based on the nature of the historical and current land uses on the site, the DSI needs to investigate the areas of environmental concern to assess the suitability of the Site for intended future land use.
2	Identify the Decisions	The decisions to be made on the contamination and the new environmental data required includes considering relevant site contamination criteria for each medium (soils). A proposed use of the 95% Upper Confidence Limit (UCL) on the mean concentrations for all chemicals of potential concern must be less than the site criteria identified for *Residential A* (accessible soil) land use suitability. Decisions include: • Do contaminant concentrations in soil comply with the stated Assessment Criteria? • Have the previous land uses affected the environmental quality of the land? • Do residual soils pose an unacceptable risk to human health or the environment?

3	Identify Inputs to Decisions	The primary inputs in assessing the presence of contamination in soil are as follows: • Historical information obtained from previous environmental reports, including areas of potential and known contamination; • Investigation objectives; • Existing and proposed Site uses and features; • Field investigation techniques to assess contamination as per ERM's standard field procedures; • Laboratory analytical data on analysed samples including interpretation and statistical analysis of laboratory data; • Assessment of risk based on the nature and extent of contamination, current and future potential receptors and the likelihood of exposure to unacceptable levels of contamination both on and off the Site.
4	Define Study Boundaries	• Spatial Boundaries – the spatial boundary of the assessment is defined by the boundary of the subject Site. The spatial boundary for soil assessment purposes is defined by the land above the 100 year flood ARI. • Temporal Boundaries – as this document combines the PSI component of the project, the temporal boundary for this assessment is from late 2017 to the date of this report.
5	Develop Decision Rule	The Site will be considered suitable for its intended land use if concentrations of soils comply with the investigation and screening levels of the Assessment Criteria, as determined by the following decision rules being applied to the data: • The 95% Upper Confidence Limit (UCL) of the arithmetic mean for each COPC must comply with the respective screening level; • The individual contaminant concentration should not exceed the respective screening level by more than 250%, and • The standard deviation of individual contaminants should not exceed 50% of the respective screening level.

6	Specify Limits on Decision Errors	Field and laboratory quality controls are implemented to avoid error and to ensure the action levels exceed the measurement detection limits. The performance of decision making inputs will be enhanced through the application of Data Quality Indicators (DQI), defined in the following table. A Site under assessment is assumed to be contaminated until statistically proven otherwise (eg: H_o= Analyte 95% UCL exceeds the assessment Criteria), therefore two types of error are possible; Type 1 error (α or false negative), where the Site is assessed to be uncontaminated when it is actually is, and Type 2 error (β or false positive), when the Site is assessed to be contaminated though is actually not. The more severe consequence is with Type 1 errors (α) since the risk of jeopardising human or environmental health outweighs the consequences of additional remediation costs. Therefore, to achieve appropriate confidence in the data, probabilities are set at 5% for Type 1 error, whilst Type 2 errors are set at a 20% probability limit.
7	Optimise Design for Obtaining Data	Appropriate QA/QC procedures have been adopted to ensure the quality of the data obtained in the current assessment. The most resource-effective sampling and analysis plan for general data has been designed to satisfy the DQOs. Refer to the following table.

Table 4.2: Data Quality Indicators

DATA PRECISION AND ACCURACY	
Relative Percentage Difference (RPD)	>10 x laboratory Limit of Reporting (LOR): 30% inorganics; 50% organics (Field) <10 x LOR: Assessed on individual basis (Field) >5 x LOR: 50% (laboratory) <5 x LOR: No Limit (laboratory)
Laboratory Performance	Based on acceptance criteria of laboratory as specified on certificate of analysis, includes: blank samples, matrix spikes, control samples, and surrogate spike samples.
	Use of analytical laboratories with adequately trained and experienced testing staff experienced in the analyses undertaken, with appropriate NATA certification.
Fieldwork Performance	Use of trained and qualified field staff; same sampler(s) used for all recoveries.

	Appropriate sampling methods used, minimising the opportunity for cross-contamination
DATA REPRESENTATIVENESS	
Sample Coverage	Representative coverage of potential contaminants, based on site history, site activities and site features
Sample and Analysis Selection	Representativeness of all COPC
Laboratory Selection	Adequate laboratory internal quality control and quality assurance methods, complying with the NEPM (NEPC, 2013)
DOCUMENTATION COMPLETENESS	
Documentation Review	Review of acquired documented information pertaining to site history
Fieldwork Observations	Preparation of borehole logs, sample location plan
Chain of Custody Records	Laboratory sample receipt information received confirming receipt of samples intact and appropriate chain of custody
	NATA registered laboratory results certificates provided.
DATA COMPLETENESS	
	Analysis for all COPC
	Field duplicate sample numbers complying with NEPM (NEPC, 2013)
COMPARABILITY	
Fieldwork Performance	Use of consistent test methods for each sample
	Using appropriate techniques for sample recovery
	Using experienced sampler
Laboratory Performance	Use of NATA registered laboratories
	Test methods comparable between primary and secondary laboratory
	Acceptable RPDs between original samples and field duplicates and inter-laboratory triplicate samples.

5 PROPERTY INSPECTIONS

Accessible properties within the northern Precinct were inspected on 27 April, 5, 9 and 12 May 2017, comprising a site walkover and interview with personnel knowledgeable of the respective property. The overall purpose of the inspection was to identify potential areas of environmental concern and validate the findings of the desktop review through physical inspection of contaminant sources, pathways and receptors as an assessment of surface (and potential subsurface) Site conditions, and to refine the DSI scope of works. The following section details information gathered at the time of the Site inspection.

The properties inspected are presented graphically in *Figure 2*

5.1 PROPERTY DESCRIPTIONS AND OBSERVATIONS

Walkovers of accessible properties in the northern Precinct were undertaken as part of the PSI by a suitably experienced environmental consultant on 27 April, 5, 9 and 12 May 2017. The purpose of the inspections were to make observations of the northern part precinct and adjacent land uses relevant to the assessment of land contamination. Areas able to be inspected depended on site access permissions from land owners/occupiers within AECs. These AECs were initially identified using historical aerial photographs, and were sorted into groups of similar land uses, as opposed to discrete areas of potential contamination.

- The AECs and associated COPCs are listed in *Table 5.1.1*; and
- Refer to *Figure 2* for AEC locations.

Table 5.1.1: AEC and COPC

ID	AEC DESCRIPTOR	ACTIVITY OF CONCERN	COPC
N-AEC1	Riverstone Waste Management Facility	Storage of solid waste and subsequent landfill gas generation	Landfill gases
N-AEC2	Grange Avenue Reserve	Storage of solid waste and subsequent landfill gas generation	Landfill gases
N-AEC3	Organic recycling centre ("The Mulch Makers") and adjacent property	Potential uncontrolled fill due to current practices and historical reviews indicate quarry filling practices on adjacent property	Heavy metals, TRH, BTEX, PAH, SVOC, VOC, OC / OP, asbestos
N-AEC4(A-D)	Former and current residential dwellings	Weathering of hazardous building materials (such as lead paint, asbestos cement roofing and zinc from galvanised iron) from existing site structures.	Heavy metals, asbestos
N-AEC5(A-F)	Market gardens	Possible use of arsenic-based and/or organochlorine pesticides, machinery/miscellaneous storage	Arsenic, OCP, OPP, TRH, BTEX, asbestos
N-AEC6(A-F)	Scrap yards	Storage of miscellaneous materials including chemicals and fuel, building materials, old equipment, soil, general refuse	Heavy metals, TRH, BTEX, PAH, SVOC, VOC, OC / OP, asbestos

Heavy metals: arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), nickel (Ni), zinc (Zn).

TRH: Total Recoverable Hydrocarbons

BTEX: Benzene, Toluene, Ethylbenzene, Xylene

PAH: Polycyclic Aromatic Hydrocarbons

OC / OP: Organochlorine / Organophosphorous Pesticides

PCB: Polychlorinated Biphenyls

SVOC / VOC: Semi-volatile Organic Compounds / Volatile Organic Compounds

N-AEC1 – Riverstone Waste Management Facility

Lots inspected: Lots 58, 62, 66, 69 DP 1358.

This Site is owned by Veolia, and is a former non-putrescible landfill that was closed in the late 1990s. The landfill has been capped and is covered by grasses and some remnant vegetation on the periphery. It is located on Burfitt Road, Riverstone, NSW and is bordered by:

- Neville Road and rural residential properties to the east and north;
- Burfitt Road, organic recycling centre and horse trotting complex to the south; and
- Vacant land, market gardens and rural residential properties to the west.

During inspection of the Site it was identified that the weighbridge and associated Site structures remain in place. There are two sedimentation ponds for surface run-off collection, located at the south-west and north-west ends of the Site. Site infrastructure includes an operational leachate collection system and landfill gas collection system. A flare is located in the middle of the Site which is used periodically for combustion of methane gas generated from within the landfill. Wells have been installed for landfill gas, leachate and groundwater monitoring events.

The northern section of the Site is currently being used for storage of shipping containers and empty waste bins.

N-AEC2 – Grange Avenue Reserve

Lots Inspected: Lots 7-12 DP 1204436, Lots 204-211 DP 1204436.

Blacktown City Council owns Reserve 478 (a former landfill site) located on Grange Avenue, Schofields, NSW. The Site has a total area of approximately 15.3 ha and is currently bordered by:

- Grange Avenue to the north with rural and residential properties beyond;
- South Street to the south with rural and residential properties beyond; and
- Rural and residential properties to the east and west.

At the time of inspection, the Site capping appeared to be in good condition, however due to the high standing grass on the Site, it could not be confirmed in all areas. Four leachate dams were inspected and were situated at each corner of the landfill which were fenced off. No sheens or odours were detected. An inspection of groundwater and landfill gas (LFG) monitoring locations was also

undertaken. Groundwater monitoring wells installed on the landfill cap were fenced off and LFG monitoring locations around the perimeter of the landfill were enclosed and protected by steel monuments. No surface or subsurface landfill gas monitoring or leachate monitoring was undertaken during the inspection.

N-AEC3- Organic Recycling Centre and adjacent property

Lot 262 DP 752061, property to the west - Lots 1-101 DP 1784

This commercial enterprise is "The Mulch Makers", a materials handling and recycling facility approximately 2 ha in size. The property is located on Burfitt Rd, Schofields, NSW and is currently bordered by:

- Vacant land to the west with a few old sheds and debris scattered across the Site;
- Undeveloped bushland and Eastern Creek to the south;
- Equestrian complex to the east; and
- Burfitt Road to the north, opposite Riverstone Landfill.

This property was not inspected due to access restrictions, however aerial photographs indicate multiple stockpiles of green waste, soils and organic matter. Surface staining from storage of equipment/machinery can also be identified.

The property to the west was classified as part of this AEC due to potential excavation and uncontrolled filling practices identified from historical aerial photograph reviews. Storage of trucks and other miscellaneous machinery was also identified. Access was restricted to this property during the Site inspection period.

N-AEC4 – Former and Current Residential Dwellings

Inspected Lots: Lot 1 DP 345287, Lots 17 & 18 DP 1485, Lots 159 & 160 DP 1485, Lots 24-31 Sec 13 DP 1485, Lots 29-32 Sec 14 DP 1485, Lots 145-148 Sec 14 DP 1485, Lots 153-155 Sec 14 DP 1485, Lots 11-15 Sec 14 DP 1485, Lots 19-21 Sec 14 DP 1485, Lots 156-158 Sec 14 DP 1485, Lots 7-12 DP 1438.

Former and current residential properties were inspected to identify any visual indicators of contamination associated with demolition of site structures and storage of vehicles or materials. All lots were located on flat ground, with few indicators of uncontrolled fill.

Lot 11 DP 1438 had a small onsite dam, with the potential for fill materials to be present in the dam wall construction materials. Miscellaneous debris appeared to be stored onsite (N-AEC4-D)

Signs of earthworks and storage of fill material was identified on the property located on Lots 29-32 Sec 14 DP 1485, Lots 145-148 Sec 14 DP 1485 (N-AEC4-C).

Uncontrolled fill material was potentially present in the driveways of Lots 153-155 Sec 14 DP 1485 and Lots 24-31 Sec 13 DP 1485 (N-AEC4-C).

Lots 11-15 Sec 14 DP 1485, Lots 19-21 Sec 14 DP 1485, Lots 156-158 Sec 14 DP 1485 (N-AEC4-C), Lots 7-12 DP 1438 (N-AEC4-D) were vacant, indicating previous demolition of site structures and potential presence of associated building waste, however this was not visually identified during the inspections.

N-AEC5 - Market Gardens

Inspected Lots: Lot 5 DP 523809, Lot C DP 331511, Lot 481 DP 775476, Lot 47 DP 1358, Lot 3 DP 164060, Lot 4 DP 164060, Lot 5 DP 27259, Lot 6 DP 27259, Lot 70 DP 1206174, Lot 20 DP 193074, Lot 21 DP 193074.

Market gardens are located within the northern portion of the West Schofields Precinct. The areas were inspected to identify any visual indicators of contamination from chemicals/materials used in agricultural practices and associated Site infrastructure. No odours or containers of chemicals/waste were identified during Site inspections. Lots ranged in size from approximately 1 ha to 5 ha, and comprised residential dwellings, sheds and machinery with the majority of the properties being utilised for small-scale cropping/agriculture. Residential dwellings ranged from old to relatively new, with the potential of asbestos building materials and lead paint being present in the older premises.

An onsite dam was located in Lot 481 DP 775476 (N-AEC5-B), with the potential for fill materials to be present in the dam wall construction materials. Potential fill was also identified in Lot 5 DP 27259 (N-AEC5-A), due to mounds located in an otherwise flat paddock. Stockpiled soil and organic material was located on Lot 4 Sec D DP 193074 (N-AEC5-A).

Sheds located in Lot 47 DP 1358 and Lot 3 DP 164060 (N-AEC5-B) did not have hardstand floors, and oil stains were observed, potentially from machinery or equipment utilised in farming practices.

Asbestos fragments were identified in the garden bed at the front of the residential dwelling located on Lot C DP 331511 (N-AEC5-C). An asbestos fragment was identified in the paddock of Lot 5 DP 27259 (N-AEC5-A).

N-AEC6 – Scrap Yards

Lots Inspected: Lots 1-11 DP 1652, Lot 1 SEC C DP 1652, Lot 1-18 Sec E DP 1652.

Several lots have been included in this AEC as having current or former scrap yards identified from historical aerial photographs. Both industrial scrap yards and private properties where major areas of miscellaneous debris have accumulated, have been included in this AEC. Access restrictions only allowed inspections of the above lots to be conducted.

Lot 1 SEC C DP 1652 (N-AEC6-D) is currently vacant and undeveloped, with thick vegetation covering the entirety of the Site. Few old car parts were identified in the undergrowth, as well as asbestos sheeting (pile of old Super Six roofing) and potential fill (mound of soil with thick vegetation).

Lot 1-18 Sec E DP 1652 (N-AEC6-D) is a current residential property and home business in the large shed on Site. Old cars and miscellaneous debris (treated timber, electrical equipment, various metal and plastic) were stored along the north-west boundary of the Site.

Lots 1-11 DP 1652 (N-AEC6-D) appears to be a functioning scrap yard with the majority of the Site covered by miscellaneous debris and stockpiled items. These included fridges, car parts, trucks, bicycles and various household items. Extensive oil leaks and hydrocarbon impacts were identified around the Site, as well as potential fill areas. Hydrocarbon odours were detected near the old car parts and stained areas.

6 DSI METHODOLOGY

The fieldwork program was undertaken on 11 December 2017 – 9 March 2018, and included underground services locating, advancement of 26 soil bores, and subsequent sampling. The scope of work and methodology is consistent with that proposed in the ERM proposal (dated September 2017, DLA/ERM Reference: PS1342a), ERM Standard Operating Procedures (SOPs) and is in general accordance with the ASC NEPM.

6.1 RATIONALE FOR SAMPLING DESIGN

In order to meet the objectives and further understand the nature and extent of potential Site contamination, soil sampling locations were selected to target specific areas of concern based on observations made during the desktop review and site inspections, coupled with systematic sampling to provide additional spatial coverage across the Site. The overall sample design was undertaken in consideration of the overall site, not just accessible areas at the time of field work.

The areas sampled depended on permission to access the properties from the land owners. Permission was granted from 15 land owners across the Site area.

The sampling method was designed with consideration of the Sampling Design Guidelines (NSW EPA, 1995) to provide an assessment of potential soil contamination issues to the extent practicable and is considered appropriate for the purposes of this report. *Table 6.1.1* presents the investigation locations, type and rationale for sampling at each location. Each investigation location is presented in *Figure 3*.

Table 6.1.1 Rationale for Sampling Design

Location ID	AEC	Rationale
14_BH1_0.2	Non-AEC	General Site coverage
30_BH1_0.1	Non-AEC	General Site coverage
51_BH1_0.4	Non-AEC	General Site coverage
57_BH1_0.1	Non-AEC	General Site coverage
57-BH2_0.1	Non-AEC	General Site coverage
13_BH1_0.2	Non-AEC	General Site coverage
17_BH1_0.1	Non-AEC	General Site coverage
19_BH1_0.3	Non-AEC	General Site coverage
32_BH1_0.1	Non-AEC	General Site coverage
39_BH1_0.1	Non-AEC	General Site coverage
54_BH1_0.2	Non-AEC	General Site coverage
9-BH1_0.1	N-AEC5-B	Assessment of potential soil impacts associated with market garden operations
9-BH2_0.9	N-AEC5-B	Assessment of potential soil impacts associated with market garden operations
9-BH3_0.1	N-AEC5-B	Assessment of potential soil impacts associated with market garden operations

Location ID	AEC	Rationale
9-BH4_0.3	N-AEC5-B	Assessment of potential soil impacts associated with market garden operations
9-BH5_1.0	N-AEC5-B	Assessment of potential soil impacts associated with market garden operations
9-BH6_0.1	N-AEC5-B	Assessment of potential soil impacts associated with market garden operations
9-BH7_1.0	N-AEC5-B	Assessment of potential soil impacts associated with market garden operations
29-BH1_0.1	N-AEC5-B	Assessment of potential soil impacts associated with market garden operations
55-BH1_0.1	N-AEC5-B	Assessment of potential soil impacts associated with market garden operations
55-BH2_1.0	N-AEC5-B	Assessment of potential soil impacts associated with market garden operations
27-BH1_0.1	N-AEC5-A	Assessment of potential soil impacts associated with market garden operations
22-BH1_0.1	N-AEC6-D	Assess of potential soil impacts associated with scrapyard operations

6.2 SOIL INVESTIGATION

The following steps were conducted as part of the intrusive soil investigation:

- Non-AEC Areas (General Site Coverage):
    - Investigation locations were advanced into surface soils using a hand trowel, and a sample taken from between 0.1 and 0.4 m bgl.
- AEC Areas:
    - Investigation locations were advanced and sampled using a hand auger to 1.0 m bgl or into natural soils, whichever was shallower.
- Soil from each location was screened using visual and olfactory observations;
- Soils / fill were logged in general accordance with ERM SOPs, noting soil type, colouration, moisture, texture, comments regarding evidence of potential contamination (e.g. fill/staining/odour);
- For contamination assessment generally one soil sample was submitted for laboratory analysis from each location, with half the locations tested for asbestos, plus quality assurance and quality control (QAQC) samples;
- Soil samples were collected from each location into pre-treated laboratory supplied sample containers which were filled, to minimise headspace, before being sealed, appropriately labelled and submitted for laboratory analysis.
- Upon filling sample jars were sealed and immediately placed in an insulated cooler, and stored to minimise potential loss or degradation of volatile compounds; and

- Samples were delivered to the primary laboratory and shipped on to the analysis facility under chain of custody documentation.

6.2.1 *Soil Bore Reinstatement*

Upon completion, soil bores were backfilled taking care to replace material to the same depth from which it was sourced (to the extent possible) to prevent excessive vertical mixing of potentially contaminated subsurface material.

6.3 *LABORATORY ANALYSIS*

Based on the current and historical use of the site for a range of activities with the potential for other currently unknown potentially contaminating Site activities, soil samples were submitted for analysis of a range of COPCs with the rationale for each provided in *Section 8*. *Table 6.3.1* outlines the analysis suites and sampling frequency for the soil investigation.

Table 6.3.1 Sampling and Analysis Plan

Media	Suite	Frequency
Soil	TRH, BTEXN, PAHs, Heavy Metals (arsenic, cadmium, chromium, copper, lead, nickel, mercury, zinc)	100%
	OCs/OPs and PCBs	50%
	Asbestos	50%
• Note: - sampling frequency is approximate, generally +/- 5%		

6.4 *WASTE*

Soil cuttings generated as part of the intrusive investigation were backfilled into open boreholes to the extent possible.

General waste associated with disposable sampling equipment (e.g. gloves and zip lock bags) were removed from the Site and disposed of into an appropriate general waste bin.

6.5 *CONTAMINATION ASSESSMENT CRITERIA*

6.5.1 *Health Investigation Levels*

The Health Investigation Levels (HILs) are scientifically based, generic assessment criteria designed to be used in the first stage (Tier 1) of an assessment of potential risks to human health from chronic exposure to contaminants. They are intentionally conservative and are based on a reasonable worst case scenario for four generic land use scenarios. Considering the proposed land use, the following HIL has been adopted:

- HIL A – Residential with garden/accessible soil

The adopted HILs, from Table 1A(1) and Table 7, Schedule B1 of NEPM (NEPC, 2013) are shown in the following table:

Table 6.5.1: Health Investigation Levels for Soils

ANALYTES	HIL-A
Arsenic	100
Cadmium	20
Chromium	100
Copper	6,000
Lead	300
Mercury	40
Nickel	400
Zinc	7,400
BaP TEQ	3
Total PAHs	300
PCB	1
DDT+DDE+DDD	240
Aldrin and Dieldrin	6
Chlordane	50
Endosulfan	270
Endrin	10
Heptachlor	6
HCB	10
Methoxychlor	300
Mirex	10
Toxaphene	20
Bonded ACM	0.01% w/w

Friable Asbestos/Asbestos Fines	0.001% w/w
Surface Asbestos (0.1m)	No Visible

Health Investigation Levels soured from NEPM (NEPC, 2013) Table 1A(1)

Asbestos Health Screening Levels sourced from NEPM (NEPC, 2013) Table 7.

BaP (TEQ): Benzo(a)pyrene Toxic Equivalence Quotient. Toxic Equivalence Quotient (TEQ) expresses an aggregate measure of toxicity based on a number of contributing PAH compounds.

6.5.2 Health Screening Levels

Health Screening Levels (HSLs) are used to assess selected petroleum compounds and fractions to assess the risk to human health via inhalation and direct contact with affected soils. The HSLs were developed by the Co-operative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) and were derived through the consideration of health effects only, with particular emphasis on the vapour exposure pathway. Other considerations such as ecological risk, aesthetics, the presence of free phase product and explosive / fire risk are not addressed by the HSLs.

In order to determine whether the HSLs tabulated in Schedule B1 of NEPC (2013) are applicable or whether a site specific determination is required, CRC CARE provide an application checklist which should be completed prior to using the HSLs. The following parameters were considered in completing the checklist:

- **Potential Contaminants –** Petroleum Hydrocarbons;
- **Land use –** HSL A;
- **Potential Pathways –** soil vapour intrusion, direct contact;
- **Media –** soil;
- **Soil Types –** clay is the dominant sub-surface profile, the majority of fill soils comprised silty mixtures; and,
- **Depth to Contamination –** various, all data will initially be compared with the HSLs for the shallowest depth range, with any failures then further considered with respect to expected depth below ground level.

On the basis of these considerations, the following HSL has been adopted:

– **HIL A – Residential with garden/accessible soil for 'Clay' (or 'Fine').**

The adopted soil HSLs for vapour intrusion, from Table 1A(3), Schedule B1 of NEPM (NEPC, 2013) are outlined below.

Table 6.5.1: Health Screening Levels for Soils (Clay)

ANALYTE	HSL-A (Clay) 0 to 1.0m	HSL-A (Clay) 1.0 to <2.0m	HSL-A (Clay) 2.0 to <4.0m	Direct Contact HSL-A
Benzene	0.7	1	2	100
Toluene	480	NL	NL	14,000
Ethylbenzene	NL	NL	NL	4,500
Xylenes	110	310	NL	12,000
Naphthalene	5	NL	NL	1,400
F1: C_6-C_{10}	50	90	150	4,400
F2: C_{10}-C_{16}	280	NL	NL	3,300
F3: C_{16}-C_{34}	NA	NA	NA	4,500
F4: C_{34}-C_{40}	NA	NA	NA	6,300

NL = Not Limiting (i.e. the soil vapour concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk for the given scenario).

NA = Not Applicable (i.e. NEPM (NEPC, 2013) does not provide HSLs for the F3 and F4 hydrocarbon fractions)..

Vapour Intrusion Criteria sourced from NEPM (NEPC, 2013) *Table 1A(3) – Soil HSLs for vapour intrusion.*

Direct Contact Criteria sourced from Friebel and Nadebaum 2011, Health Screening Levels for petroleum Hydrocarbons in Soil and Groundwater, Part 1: Technical Development Document, *Table A4 – Soil Health Screening Levels for Direct Contact.*

6.5.3 Management Limits

In addition to appropriate consideration and application of the HSLs, there are additional considerations which reflect the nature and properties of petroleum hydrocarbons, including:

- Formation of observable light non-aqueous phase liquids (LNAPL);
- Fire and explosion hazards; and,
- Effects on buried infrastructure e.g. penetration of, or damage to, in-ground services.

Management limits to avoid or minimise these potential effects have been adopted in NEPM (NEPC, 2013) as interim Tier 1 guidance. The adopted management limits, from Table 1B(7), Schedule B1 of NEPM (NEPC, 2013) are outlined below:

Table 6.5.3: Management Limits for Soils (Fine)

ANALYTES	ML (Fine) Urban Residential and Public Open Space
Benzene	--
Toluene	--
Ethylbenzene	--
Xylenes	--
Benzo(a)Pyrene	--
F1: C_6-C_{10}	800
F2: C_{10}-C_{16}	1,000
F3: C_{16}-C_{34}	3,500
F4: C_{34}-C_{40}	10,000

6.6 ECOLOGICAL CRITERIA

6.6.1 Ecological Investigation Levels

According to NEPM (NEPC, 2013), Schedule B (5a) – *Guideline on Ecological Risk Assessment*, factors that may influence a Risk Management Decision (and therefore determine Ecological Risk Assessment outcomes) are generally based on economic, ecological or societal considerations.

Examples include:

- The size of the site, land value, cost of remediation (economic);
- The type of contaminants present, current and potential site land use, surrounding land use (societal); and
- The ecological significance (e.g. a rare and endangered species or a species that supports a valued ecological process or a sensitive introduced species of low ecological significance) of the values

identified in the Receptor Identification component of Ecological Risk Assessment (ERA) to be protected.

EILs have been implemented to environmentally manage the effect of contaminants on terrestrial ecosystems and species sensitivity. The EILs referenced in this report have been developed for the generic land use setting of urban residential areas and public open space. It is important to note that the contamination is assumed to be aged (>2 years), as fresh contamination associated with current industrial / agricultural activity and chemical spills are not likely present on-site. EILs have been derived for: Arsenic (As), Copper (Cu), Chromium (CrIII), DDT, naphthalene, Nickel (Ni), Lead (Pb) and Zinc (Zn).

Ambient Background Concentration (ABC)

Ecological receptors and ecological constraints may be present on the Site due to presence of potential habitat, and as such generic ecological investigation limits will be implemented. If exceedances are detected, a site specific ecological study should be undertaken to assess the suitability of the property for intended land use.

For Ni, CrIII, Zn and Pb (aged contamination), the EILs are the sum of Added Contaminant Limits (ACLs) and Ambient Background Concentrations (ABCs). To establish the ABC of a contaminant, the recommended method is to measure the ABC at an appropriate non-impacted reference Site. Sample 55_1.0 was determined to be the most appropriate unpolluted reference location for the purposes of ABCs. The sample was collected from moist clay at a depth of 1.0 m and the soils at this location are therefore considered characteristic of natural clays in the region.

Added Contaminant Limit (ACL)

The Added Contaminant Limit (ACL) is the added contamination (in excess of the ABC). ACLs are applicable to Cr III, Cu, Ni and Zn and are based on soils properties of pH, Cation Exchange Capacity (CEC) and the clay content. For this investigation, the most conservative ACLs were applied. Properties should be assessed on an individual basis if exceedances occur, to assess suitability for the intended land use.

The respective soil EILs are provided in the following table:

Table 6.6.1: Ecological Investigation Levels

ANALYTES	ABC	ACL	EIL
Arsenic	--	--	100 [1]
Chromium (III)	16	190 [2]	206

ANALYTES	ABC	ACL	EIL
Copper	8	60 [3]	68
Lead	13	1,100 [4]	1,113
Nickel	4	30 [5]	34
Zinc	40	70 [6]	110
DDT	--	--	180 [7]
Naphthalene	--	--	170 [8]

1 NEPM (NEPC, 2013) Schedule B1 Table 1B(5).

2 NEPM (NEPC, 2013) Schedule B1 Table 1B(3).

3 NEPM (NEPC, 2013) Schedule B1 Table 1B(2). CEC has been used for this calculation.

4 NEPM (NEPC, 2013) Schedule B1 Table 1B(4).

5 NEPM (NEPC, 2013) Schedule B1 Table 1B(3).

6 NEPM (NEPC, 2013) Schedule B1 Table 1B(1).

7 NEPM (NEPC, 2013) Schedule B1 Table 1B(5).

8 NEPM (NEPC, 2013) Schedule B1 Table 1B(5).

6.6.2 Ecological Screening Levels

Ecological screening levels (ESLs) have been developed for selected petroleum hydrocarbon compounds and are applicable for assessing risk to terrestrial ecosystems. ESLs broadly apply to coarse and fine-grained soils and various land uses. They are generally applicable to the top 2 m of soil. The adopted ESLs, from Table 1B(6), Schedule B1 of NEPM (NEPC, 2013) are outlined below:

Table 6.6.2: Ecological Screening Levels (Fine)

ANALYTES	ESL (Fine) Urban Residential and Public Open Space
Benzene	65
Toluene	105
Ethylbenzene	125
Xylenes	45
Benzo(a)Pyrene	0.7

F1: C_6-C_{10}	180
F2: C_{10}-C_{16}	120
F3: C_{16}-C_{34}	1,300
F4: C_{34}-C_{40}	5,600

7 QUALITY ASSURANCE AND QUALITY CONTROLS

7.1 FIELD QA/QC

7.1.1 Field Procedures

The following field procedures were implemented as part of field QA/QC:

- **Sample Containers:** soil samples collected during the investigation were placed immediately into laboratory prepared glass jars with Teflon lid inserts. Standard identification labels were adhered to each individual container and labelled according to depth, date, sampling team and media collected;
- **Decontamination:** all equipment used in the sampling program which includes a hand auger, spades and mixing bowl was decontaminated prior to use and between samples to prevent cross contamination. Decontamination of equipment involved:
    - Cleaning equipment in potable water to remove gross contamination;
    - Cleaning in a solution of Decon 90; and,
    - Rinsing in clean demineralised water then wiping with clean lint free cloths.
- **Chain of Custody**: samples were recorded on a chain of custody form. The chain of custody form accompanied samples upon dispatch to the NATA registered laboratories for analysis. Copies of the chain of custody forms, signed by laboratory, that acknowledged sample receipt date and time, samples received in good condition and properly chilled and documentation received in proper order, are provided in *Annex F*.

7.1.2 Field QA/QC Procedures

Field duplicate samples for soil were prepared in the field through the following process:

- A larger than normal quantity of soil is recovered from the sample location selected for duplication;
- The sample is placed in a decontaminated stainless steel bowl and mixed as thoroughly as practicable before being divided into equal parts;
- Two portions of the sub-sample are immediately transferred, one for an intra-laboratory duplicate and another as a sample; and

- Samples are placed into a labelled, laboratory supplied 250ml glass jar and sealed with an airtight, Teflon screw top lid. The fully filled jars are labelled as the sample and duplicate and immediately placed in a chilled esky.

Duplicate samples were prepared on the basis of sample numbers recovered during the field work. The duplicate sample frequency was computed using the total number of samples analysed as part of this assessment. The duplicate sample frequencies are shown below:

SOIL SAMPLES	**26 Samples**	4 intra-laboratory duplicates	15%
		2 inter-laboratory duplicates	8%

An intra-laboratory duplicate rate of 15% was achieved, greater than the 10% required by the Field Quality Plan. An inter-laboratory duplicate rate of 9% was achieved, greater than the 5% required by the Field Quality Plan. The QC sampling frequencies were therefore above the nominated rate.

Comparisons were made of the laboratory test results for the duplicate samples with the original samples and the Relative Percentage Difference (RPD) calculated as difference/average in order to assess the accuracy of the sampling and laboratory test procedures. The comparisons between the duplicates and original samples indicate acceptable RPDs when they comply with criteria which are commonly set at:

- Less than 30% for inorganics and 50% for organics;
- Less than five times the Laboratory LOR; and
- The difference between concentrations is less than 5% of the relevant HIL concentration.

Field duplicates provide an indication of the whole validation process, including the sampling process, sample preparation and analysis. One intra laboratory duplicate exceeded the DQO of 30% for one heavy metal concentration. The differences in concentrations of the following intra-laboratory duplicate pairs were for reported concentrations of less than 5% of the relevant HIL concentration:

- 54_1_0.2 and 54_1_0.2A (for Zn).

It is to be noted that for samples with concentrations of less than the laboratory LOR, the concentration has been modified to half the LOR value to assist in statistical RPD calculations and data quality assessment.

Inter laboratory duplicate pairs: 54_1_0.2 and 54_1_0.2B (for As, Cr, Ni and Zn), 29_1_0.1 and 29_1_0.1B (for Cu and Zn) exceeded the acceptable RPDs. Considering that the majority of duplicate pairs were within the adopted limits and the effects of confidence intervals with low concentrations, the heterogeneity observed in the duplicate samples is not significant enough to diminish the confidence in sampling technique or laboratory results.

7.2 LABORATORY QA/QC

7.2.1 Selected Laboratory

The primary laboratory for soil and duplicates was Envirolab Services located at Chatswood in Sydney. The secondary laboratory used for field triplicate sample analysis was SGS Australia located at Alexandria in Sydney. The analytical methods and procedures used by both laboratories are NATA certified and meet requirements of NEPM (NEPC, 2013).

7.2.2 Laboratory Control Measures

Envirolab's quality program comprises of reagent/method blanks, matrix spikes, surrogate spikes, laboratory duplicates and laboratory control samples at or in excess of current NEPM.

The QC testing conducted internally by Envirolab comprised the following:

- Method blank – 1 per 20 samples or part thereof per analytical batch;
- Matrix spike – 1 per 20 samples or part thereof per analytical batch;
- Matrix spike duplicate – 1 per analytical batches between 6 – 20 samples;
- Surrogate spike – run on all samples where the analyte is appropriate;
- Laboratory duplicate – 1 per 10 samples or part thereof per analytical batch; and
- Laboratory control sample – 1 per 20 samples or part thereof per analytical batch.

7.2.3 Laboratory QA/QC Results

All samples were received at the laboratory in good order, with the correct documentation and were properly chilled. All samples were analysed within the recommended holding times. The signed sample receipt advice for all

samples is included on the chain of custody forms. Summary of the laboratory quality control results for soil is included in *Annex F.*

A laboratory quality control summary and full laboratory QA/QC checklist is included on the laboratory reports presented in *Annex F*. Laboratory QA/QC procedures to determine the accuracy and precision of the analyses comprised the following:

- No target analytes were detected in any of the method blanks, indicating that the analytical method was satisfactory and no contamination occurred;
- Matrix spike samples were within the accepted range indicating low matrix interference;
- Surrogate spikes were within the accepted range indicating no gross errors have occurred in the analysis procedure leading to significant analyte loss;
- Laboratory control samples were within the accepted range confirming primary calibration; and
- RPDs for the duplicate control samples were found to be within the acceptable limit.

7.3 QA/QC ASSESSMENT

Based on the QA/QC results, ERM considers the field measurement data and laboratory analytical results obtained are valid and meet the DQOs set for this DSI:

- Documentation, including signed Chain of Custody (COCs) confirming the samples were received in good condition, and field drilling logs, are complete and copies provided in this report;
- All samples collected and analysed in accordance with the sampling strategy, field and laboratory QA/QC procedures, and laboratory results confirm satisfactory field sampling and laboratory procedures employed; and
- All samples were collected by an experienced environmental consultant, with an established sampling protocol, and the samples were analysed by NATA certified laboratories, using standard analytical methods. These indicate satisfactory data comparability.

Therefore, ERM concludes that the data detailed in the following **Section 8.0** is representative of the overall Site condition for the properties investigated and any Site impacts at the time of the DSI.

8 OBSERVATIONS AND RESULTS

The following subsections present a summary of field observations and analytical results. Each investigation location is presented on *Figure 3*.

8.1 FIELD OBSERVATIONS

8.1.1 Intrusive investigation

The following key field observations were made during the intrusive investigation:

- The encountered geology generally comprised of fill (in market garden beds) or topsoil, overlying orange silty clay to approximately 0.3 m bgl, and red/grey mottled clays to 1.1 m bgl, the maximum depth of investigation. It is noted that the depths of generalised soil profile varied slightly between each location;
- No hydrocarbon odours or staining were observed within the soil profile at any of the investigation locations; and
- The borelogs (*Annex D)* present descriptions of the soil profile across the properties investigated.

8.2 SOIL ANALYTICAL RESULTS

Laboratory results of soil analyses are compared with the Assessment Criteria in *Annex E* – Data Summary Tables. The laboratory analytical reports of soil samples are provided in *Annex F* – Nata Certified Analytical Results.

8.2.1 Monocyclic Aromatic Hydrocarbons, Volatile Total Recoverable Hydrocarbons and Semi Volatile Total Recoverable Hydrocarbons

All samples collected were analysed for vTRH and BTEXN. There were no detected concentrations of vTRH, BTEXN or Naphthalene recorded above the laboratory LOR.

All samples were also analysed for semi-volatile TRH compounds, with no concentrations recorded above the laboratory LOR.

8.2.2 Polycyclic Aromatic Hydrocarbons

All samples were analysed for PAH compounds. There were no concentrations of PAHS above the laboratory LOR.

8.2.3 Pesticides and Polychlorinated Biphenyls

Half the samples were analysed for OC and OP pesticides and PCBs. Concentrations were detected above the laboratory LOR in two samples,

29_3_0.1 (0.1 mg/kg) and 55_2_0.1 (0.2 mg/kg). These detections are below the *Residential A* criteria of 240 mg/kg.

8.2.4 Heavy Metals

All samples were analysed for eight heavy metals as recommended by the NSW EPA. Detections were observed for all heavy metals with the exceptions of mercury and cadmium. All samples were compliant with the HILs and EILs for each respective analyte.

9 INITIAL CONCEPTUAL SITE MODEL

An understanding of potential exposure scenarios is necessary to evaluate the suitability of a site for a particular land use. Potential exposure pathways are evaluated for completeness based on the existence of:

- Source of impact;
- Mechanism for release of contaminants from identified sources;
- Contaminant retention or transport medium (e.g., soil, air, groundwater, etc.);
- Potential receptors of contamination;
- Mechanism for chemical intake by the receptors at the point of exposure (ingestion, dermal contact or inhalation or a combination of); and
- For exposure to be considered possible, a mechanism ('pathway') must exist by which contamination from a given source can reach a given receptor. Such complete 'source-pathway-receptor' (SPR) exposure mechanisms are commonly termed 'SPR linkages'. Pollutant sources, exposure mechanisms and receptors at the Site are discussed in the following sections, with a thorough understanding of the relationships between each considered fundamental in assessing potential risk.

9.1 SOURCES OF CONTAMINATION

The known sources of potential on and off-site contamination identified through information gathered as part of this investigation and works conducted for the site previously, include:

- **Current and historical commercial operations:** desktop search reviews identified that parts of the northern part precinct have been under commercial occupation since 1955 (including market gardens, quarry, landfills, recycling centre, scrap yards). Specific potential sources of Site contamination are detailed further in the following section;

- **Historic filling of the Site:** Based on observations made during the Site inspection it is likely that fill is present on the Site, particularly beneath present/former market gardens, filled in dams and built up areas. Use of uncontrolled and potentially contaminated fill represents a potential contamination source at the Site;
- **Degradation of building construction materials**: Isolated fragments of suspected ACM were identified on the ground surface at a few properties in the northern part precinct during the Site inspection, and ACMs may be present in the buildings still present. The potential for asbestos contamination to exist as a result of the degradation and deterioration of building materials was considered to represent a potential contamination source;
- **Landfill gas**: This potential contamination source, specifically in relation to Grange Reserve, is addressed in a separate landfill gas risk assessment; and
- **Scrap yards / storage**: Storage of machinery and equipment, and associated degradation and weathering, can be a potential contamination source of hydrocarbons such as oils, and heavy metals from fuels and rust.

9.2 CONTAMINANTS OF POTENTIAL CONCERN

Based on the understanding of historical site practices and identified sources of contamination a broad suite of COPC related to commercial and industrial operations have been adopted. The COPC identified for the Site, and their potential sources, are detailed in *Table 9.2.1*.

Table 9.2.1: Contaminants of Potential Concern

Contaminants	Potential Sources
TRH, BTEXN, VOCs, SVOCs, Heavy Metals, PAHs, OCs, OPs, PCBs	Contamination associated with the current and historical commercial activities and potential use of contaminated fill materials.
Asbestos	Contamination associated with the historical use of asbestos in building construction materials, and subsequent degradation and/or poor demolition practices. Potential use of contaminated fill materials.
Landfill Gas	This potential contaminant is assessed in a separate landfill gas risk assessment.

9.3 *EXPOSURE AND MIGRATION PATHWAYS*

The pathways for potential contaminant migration and potential exposure for receptors are controlled by the hydrogeological environment, the built environment overlying the site and in adjacent areas, as well as physical separation distances between sources and potential receptors. The exposure pathways for soil impact at this Site include the following:

- Exposure via direct contact, ingestion and/or inhalation of contaminated soils; and
- Migration and exposure of hydrocarbon vapours from contaminated soils.

9.4 *RECEPTORS*

The following potential receptors have been identified relevant to the site:

Human Receptors:

- Present and future workers and users of the Site who may potentially be exposed to COPC through direct contact with impacted soils and/or inhalation of dusts/vapours associated with impacted soils;
- People who will inhabit or use the Site facilities or come into close proximity to the Site;
- Maintenance workers conducting activities at the site, who may potentially be exposed to COPC through direct contact with impacted soils present in excavations/boreholes and/or inhalation of dusts associated with impacted soils.

Ecological Receptors:

- Receiving off-site freshwater environments; and
- Flora and fauna species established within the site boundaries.

9.5 *NATURE AND EXTENT OF SITE CONTAMINATION*

While isolated detections of analytes have been reported, based on the review of available information, site observations, identified potential contamination sources, and current and historical investigations completed on-site, areas of significant or widespread contamination as a result of Site activity have not been identified and are not considered likely in the properties investigated. It is acknowledged that the investigation design is limited to the properties where access was granted by the respective land owners. Descriptions of the reported soil contamination at the Site is provided in the following subsections.

9.5.1 Soil

- Evidence of potential contamination within the soil profile was not identified through field observations relating to odour or staining. Visual evidence of fill materials were identified, however no associated staining, odours or foreign materials were present.

- COPC in soil were reported below the adopted assessment criteria for all analytes tested. Two minor detections of pesticides were reported in surface soils at Property 29 and Property 55. These properties are currently operating market gardens, and as such the detections are not unexpected or unwarranted.

- Heavy metal detections were reported for arsenic, chromium, copper, lead, nickel and zinc, however these were below the *Residential A* land suitability criteria.

9.6 CONCEPTUAL SITE MODEL

A SPR linkage is considered to be present when a pathway links a source with a receptor. These linkages explain when there may be risks to the receptor, either now or in future. While complete SPR linkages have not been positively identified within this DSI it is noted that large portions of the Site could not be investigated and the potential exists for soil impacts to have not been identified.

Contaminants generally migrate from a site via a combination of windblown dusts, infiltration, and surface water runoff. The potential for contaminants to migrate is a combination of:

- The nature of the contaminants (solid/liquid and mobility characteristics);
- The extent of the contaminants (isolated or widespread);
- The location of the contaminants (surface soils or at depth); and
- The site topography, geology, hydrology and hydrogeology.

The potential contaminants identified as part of the site history review and previous investigations are generally in either a solid form (e.g. heavy metals, asbestos, etc.) or liquid form (e.g. fuel, lubricants, pesticides, etc.). However, dependent upon concentrations, there is the potential for TRH/VOC impacts to also occur in a vapour form in soils underlying the Site.

The relevant transport mechanisms and exposure pathways are summarised in the table below:

Table 9.6.1: Transport Mechanisms and Exposure Pathways

TRANSPORT MECHANISMS	DESCRIPTION	EXPOSURE PATHWAYS					
		A	B	C	D	E	F
Windblown Dust Migration	As the Site is predominately unsealed and, while grassed, had numerous bare patches of soil, the potential for windblown dust migration of contamination from the Site is considered to be moderate. Once bonded asbestos is exposed and asbestos fibres are released, they may be transported by wind as part of the dust load. The risk of exposing asbestos is considered to be low based on the observation that the main source of asbestos is currently bonded within house construction. Excavation and disturbance of the buried asbestos-impacted material would inevitably increase this risk.	Y	N	N	N	N	N
Surface Water Migration	The surface drainage lines that flow through the site are generally grassed and intermittent and do not have a specific base flow but rather convey surface runoff during rain events. The migration of COPC is likely to be very low considering the absence of mobile or high concentrations of widespread contamination within the Site that could impact groundwater. Asbestos is an inert, non-leachable mineral and is unable to be transported by groundwater but may possibly be transported by surface water or exposed by erosion.	N	N	Y	Y	Y	N
Soil Migration	The potential for migration of contamination via surface water movement and infiltration of water and subsequent migration through the soil profile was considered generally to be low given the reported low permeability of the expected soils in the Blacktown landscape group and of the underlying Wiannamatta Shales. With regard to the relatively impermeable nature of the underlying soils, migration of contamination via groundwater movement was considered to be low.	Y	Y	Y	Y	Y	Y

	Any leached heavy metals from the anthropogenic impacted filling, for which the concentrations are low, would be absorbed in the underlying natural clay soils. The clay content of the soils is likely to hinder vertical migration of any leached heavy contaminants through to the vadose zone. Groundwater levels are likely to be at depth within the weathered bedrock.						
Groundwater Migration	Groundwater seepage from any affected filling on Site is more likely to occur as lateral transport mechanism at the base of filling or at the underlying silty and sandy slope wash and clayey soils interface. Alternatively lateral migration of seepage water along stormwater and sewer pipe line backfilling is also possible. Migration of seepage water through the filling on Site is dependent on infiltration of intermittent surface water runoff that flows on to the Site mainly during rainfall events.	Y	N	Y	Y	Y	N
Vapour Generation	The vapour generation potential associated with volatile and semi-volatile COPC was identified as a potential migration pathway, particularly in areas where subsurface infrastructure, such as stormwater lines, underlie the Site. However, vapour generation would be dependent on the presence of a source of vapour generation on or in the vicinity of the Site, such as the Grange Reserve Landfill.	Y	N	N	N	N	N

A: Inhalation of COPC vapours migrating upwards from fill material of unknown origins or impacted surface soils resulting from potential historical activities.
B: Potential dermal and oral contact with impacted soils.
C: Potential dermal and oral contact with shallow groundwater.
D: Potential contaminant uptake by vegetation established in the landscaped areas of the site.
E: Potential contaminant uptake by site occupants as a result of ingestion via consuming vegetation grown in areas of the site.
F: Direct ingestion of soil, particularly by young children playing on the ground surface in unsealed areas of the Site

10 CONCLUSIONS

Based on the findings of this DSI, the overall objectives are considered to have been met. In the context of the CSM, the following conclusions have been drawn:

- The Site is currently zoned Primary Production Small Lots (RU4) and Public Recreation (Grange Reserve), and exists as rural residential properties as well as various commercial enterprises. The Site is currently subject to plans for rezoning as part of the West Schofields Precinct to include a retail centre, schools, roads/services and a range of housing types;

- Historical sources of information indicate that parts of the northern part precinct have been under commercial occupation since at least 1955 (agricultural, market gardens, quarry), with later uses reported to include rural residential properties, landfills, recycling yards, warehousing/storage, and scrap yards;

- Aerial photographs confirm that parts of the Site and surrounding area appear to have been developed prior to 1955 and have since undergone significant changes with the growing population density of the greater Sydney region;

- Potential sources of Site contamination have been identified as current and historical commercial operations including; market gardens, landfills, scrapyards, historic filling activities and degradation of building construction materials;

- Property inspections did not identify additional potential sources of contamination with Site operations, activities and condition observed to be consistent with those anticipated for the properties inspected;

- All soil analysis reported concentrations of COPC below the adopted Tier 1 human health screening criteria;

- The findings of this investigation have not positively identified complete SPR linkages under the current land use or proposed future use of the Site;

- Based on the information collected as part of this investigation, the properties able to be accessed within the Site, contamination was not identified to be present that would preclude the Site being considered suitable for both the current and proposed future use, with Site conditions requiring remediation not identified;

- Hazardous building materials, such as asbestos, may be present in residential dwellings within the area, and did not form part of the scope of this assessment. These should be addressed on a site specific basis if demolition is to occur, with the completion of a Hazardous Materials Survey prior to commencing works; and

- It must be noted that large data gaps remain for the properties where access was restricted, and therefore were not investigated. The potential exists for contamination to be present within these areas.

11 STATEMENT OF LIMITATIONS

This report was prepared in accordance with the scope of work outlined within this report and subject to the applicable cost, time and other constraints. ERM performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental profession. ERM makes no warranty concerning the suitability of the site for any purpose or the permissibility of any use, development or re-development of the site. Except as otherwise stated, ERM's assessment is limited strictly to identifying specified environmental conditions associated with the subject site and does not evaluate structural conditions of any buildings on the subject site. Lack of identification in the report of any hazardous or toxic materials on the subject site should not be interpreted as a guarantee that such materials do not exist on the site.

This assessment is based on site inspection conducted by ERM personnel, sampling and analyses described in the report, and information provided by the Department of Planning and Environment (The Client) or other people with knowledge of the site conditions. All conclusions and recommendations made in the report are the professional opinions of the ERM personnel involved with the project and, while normal checking of the accuracy of data has been conducted, ERM assumes no responsibility or liability for errors in data obtained from such sources, regulatory agencies or any other external sources, nor from occurrences outside the scope of this project.

ERM is not engaged in environmental consulting and reporting for the purpose of advertising, sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity or investment purposes.

ERM prepared this report for the sole and exclusive benefit and use of the Department of Planning and Environment, notwithstanding delivery of this report by ERM or the Department of Planning and Environment to any third party, unless otherwise expressly agreed, any copy of this report provided to a third party is provided for informational purposes only, without the right to rely and ERM disclaims all liability to such third party to the extent permitted by law. Any use of this report by a third party is deemed to constitute acceptance of this limitation.

- Acid Sulfate Soil Management Advisory Committee (ASSMAC) (1998), *Acid Sulfate Soil Manual*

- Australian Government Department of the Environment and Energy (2017a), *Australia's Commonwealth Heritage List* (webpage), available http://www.environment.gov.au/heritage/places/commonwealth-heritage-list, accessed 25/7/2017
- Australian Government Department of the Environment and Energy (2017b), *Australia's National Heritage List* (webpage), available http://www.environment.gov.au/heritage/places/national-heritage-list, accessed 25/7/2017

- National Environment Protection Council (NEPC) (1999), *National Environment Protection (Assessment of Site Contamination) Measure 1999* (the ASC NEPM) (as amended 2013)

- NSW Department of Finance, Services and Innovation – Spatial Services (2017), *Spatial Information Exchange (SIX) Viewer* (webpage), available https://maps.six.nsw.gov.au/, accessed 25/7/2017

- NSW EPA (2017), *List of NSW contaminated sites notified to EPA* (webpage), available http://www.epa.nsw.gov.au/clm/publiclist.htm, accessed 25/7/2017

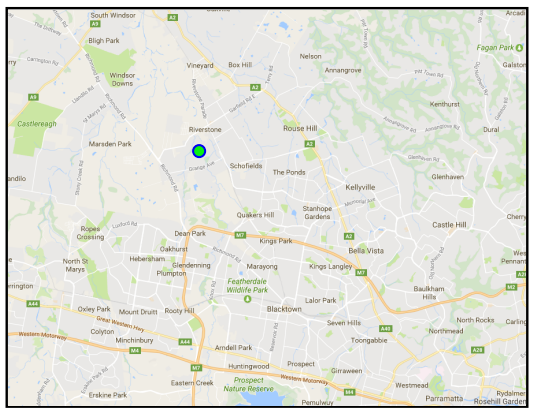
- NSW EPA (2017), *NSW contaminated land record* (webpage), available *http://www.epa.nsw.gov.au/prclmapp/searchregister.aspx*, accessed 25/7/2017

- NSW EPA (1995*), Sampling Design Guidelines*

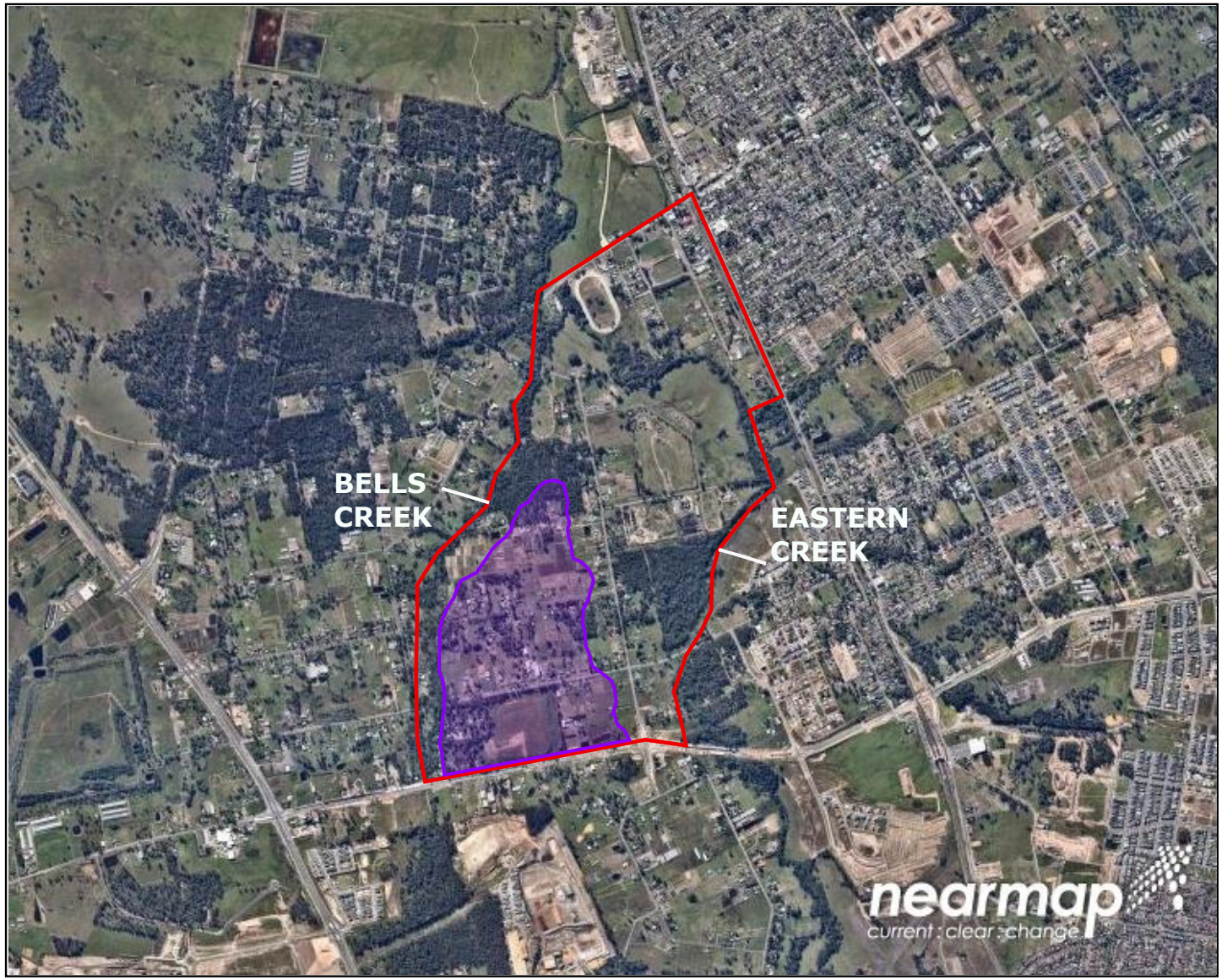
- NSW EPA (2017), *Search for Environment Protection licences* (webpage), available http://www.epa.nsw.gov.au/prpoeoapp/, accessed 25/7/2017
- NSW Office of Environment and Heritage (NSW OEH) (2017b), *Aboriginal Heritage Information System* (AHIMS) (webpage), available http://www.environment.nsw.gov.au/awssapp/SimpleSearch.aspx#, accessed 25/7/2017

- NSW OEH (2011*), Guidelines for Consultants Reporting on Contaminated Sites*

Figure 1 – Site Location



Locality Map



Legend

Northern Part Precinct Boundary

Site Location

Approximate Site Boundary

N
W E
S

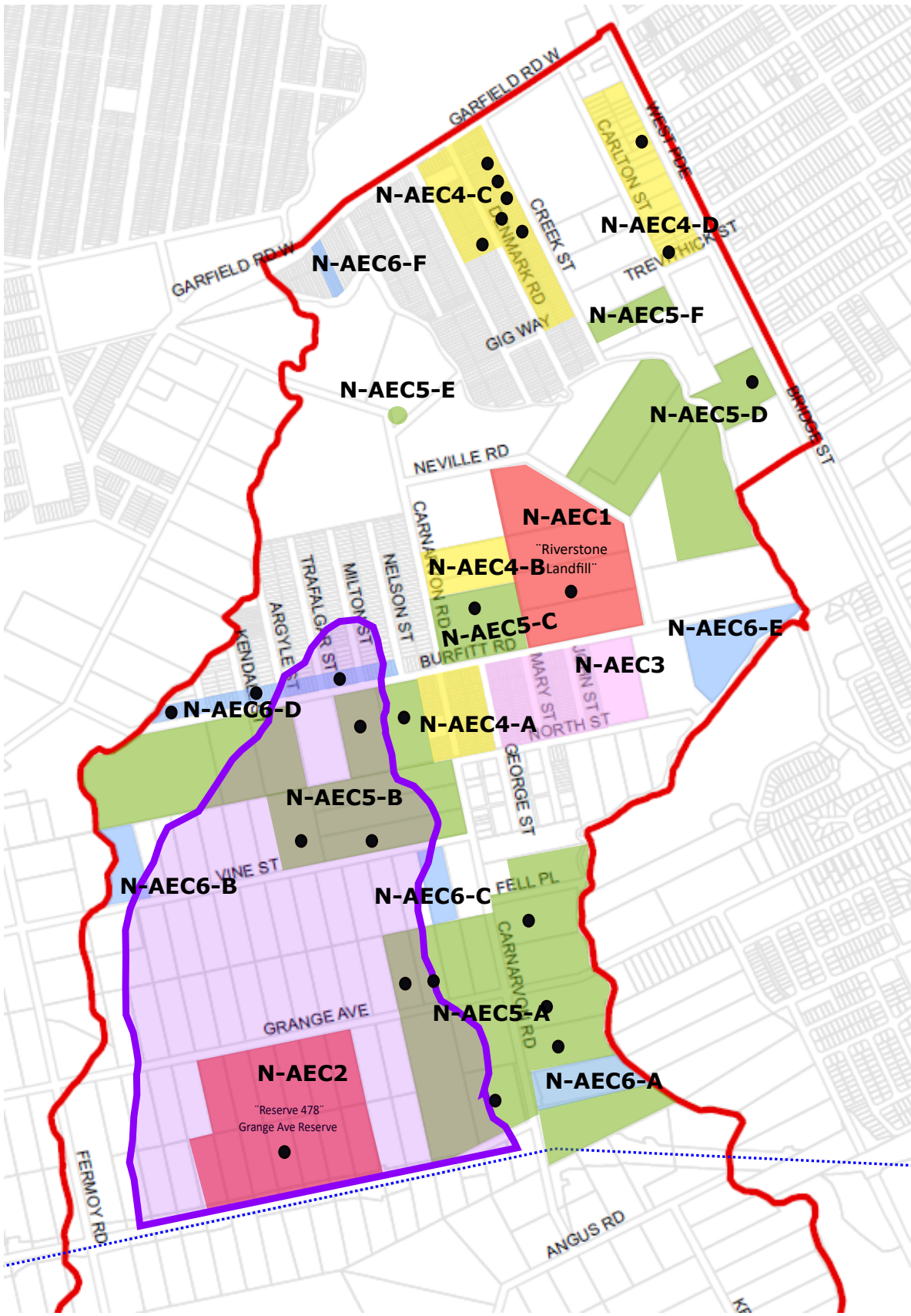
ERM
Macquarie Park Office
Phone (02) 8586 8750

Title: Site Location - West Schofields			
Site Address: Schofields/Riverstone	Project No.: DL4101	Figure No: 1	Date: 26/03/2018
Client: Department of Planning	Scale: Not to Scale	Compiled: AD	Revision: Version 1.0

Figure 2 – Site Layout

ERM

Compiled
SK/AD



Legend

- Precinct Boundary
- AEC5 Market Gardens
- AEC1&2 Landfills
- AEC4 Old Houses & Miscellaneous Storage
- AEC6 Scrap Yards
- AEC3 Miscellaneous Land Use/Recycling Centre
- Major Road Works
- Property Inspections
- DSI area

N

Approximate Scale

0m 180m 360m

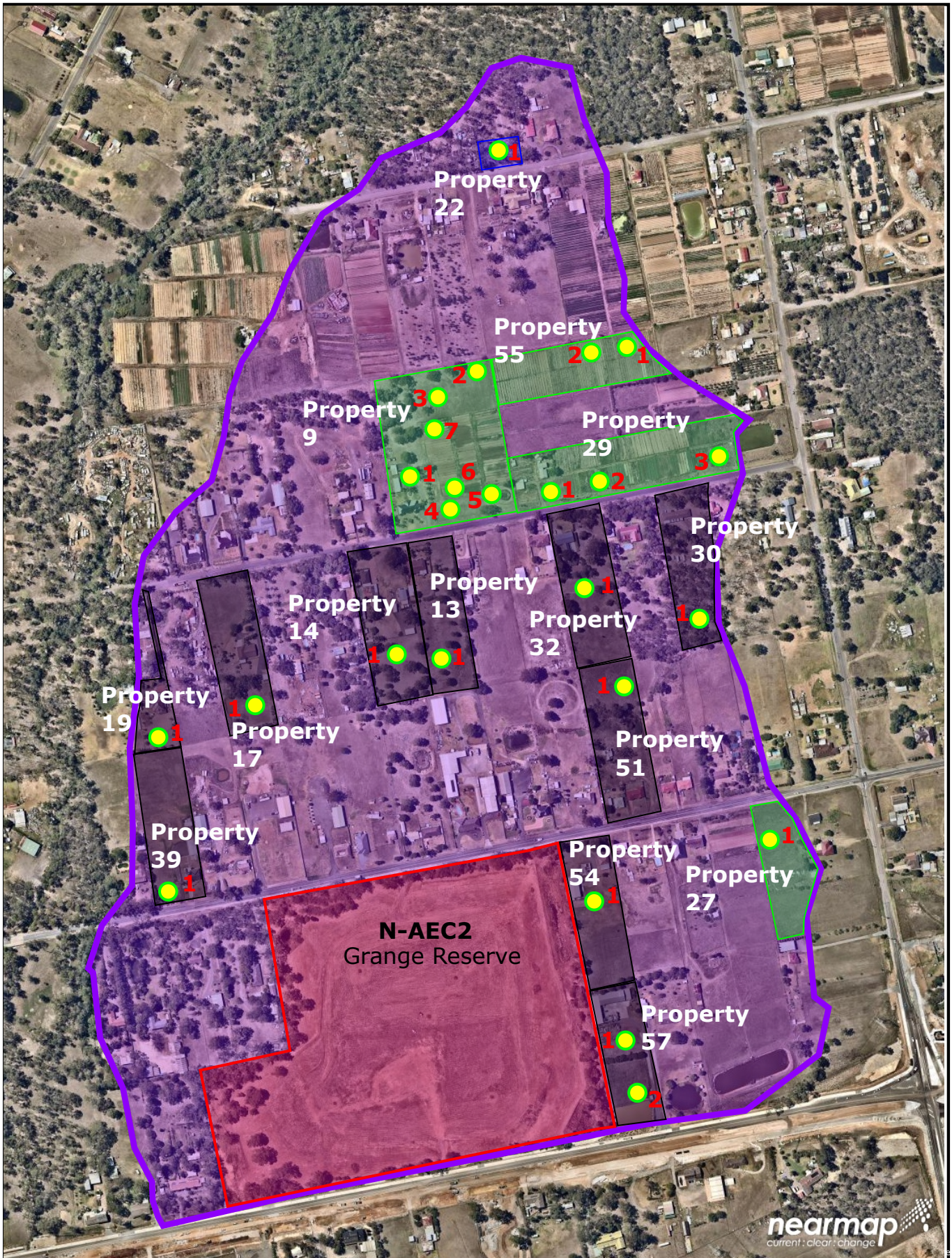
Figure Title: Areas of Environmental Concern and Property Inspections

Project Title: Northern Portion West Schofields Precinct

Client: Department of Planning and Environment

Project No.	Date	Scale	Figure No.	Revision
0448937	10/5/2018	As Shown	2	Version 1.0

Figure 3 – Sample Locations



Legend

- Site boundary
- Indicative landfill boundary
- Accessible Properties - Market Gardens
- Sample Locations
- Accessible Properties - General Coverage
- Borehole number
- Accessible Properties - Scrapyards

N North

Approximate Scale

0m 100m 200m

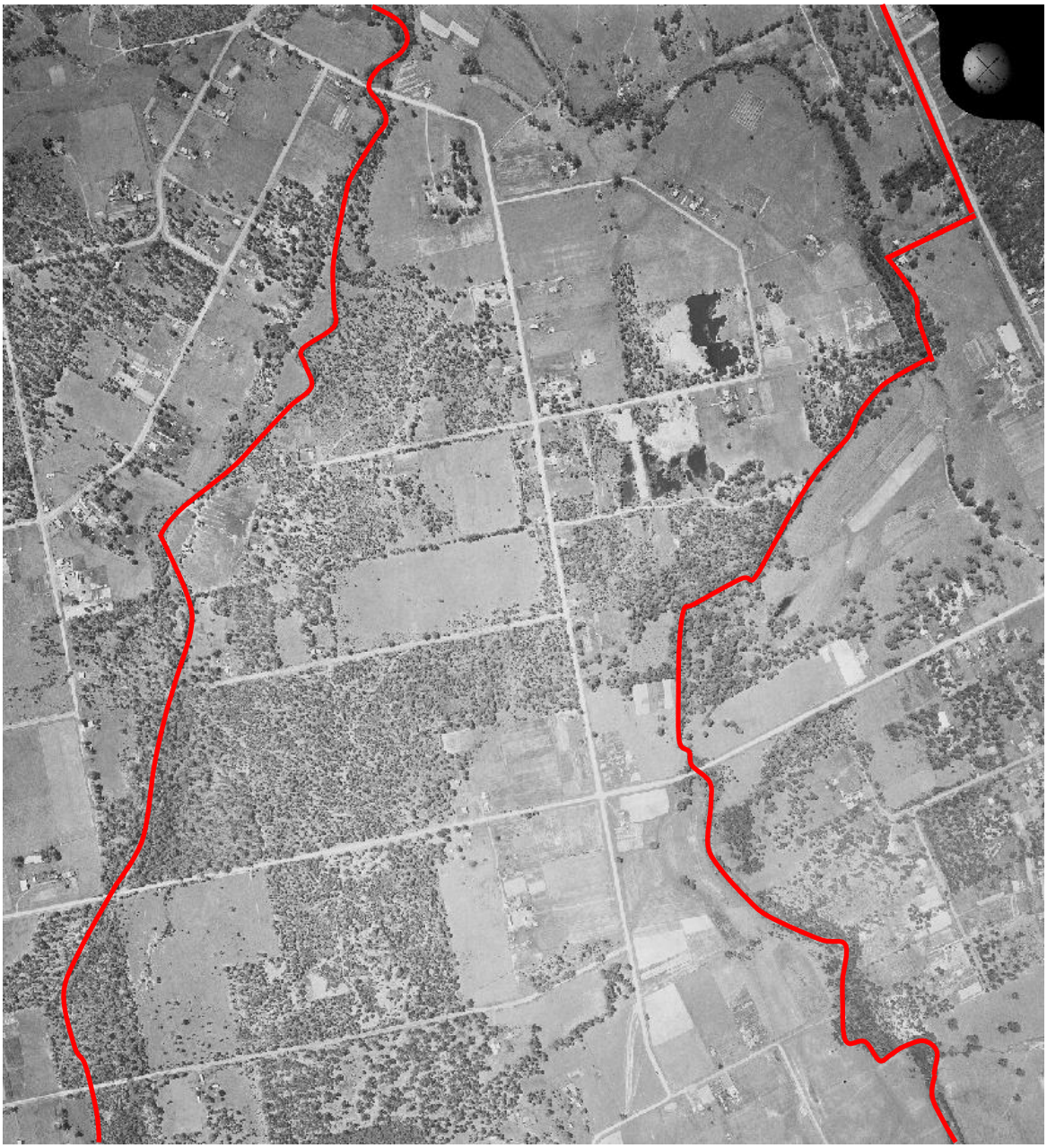
ERM

Macquarie Park Office
Phone (02) 8586 8750

Title: Site Layout			
Client: Department of Planning	Figure No: Figure 3		Date: 3/04/2018
Project No.: DL4101	Scale: As Shown	Compiled: AD	Revision: R00

Annex A

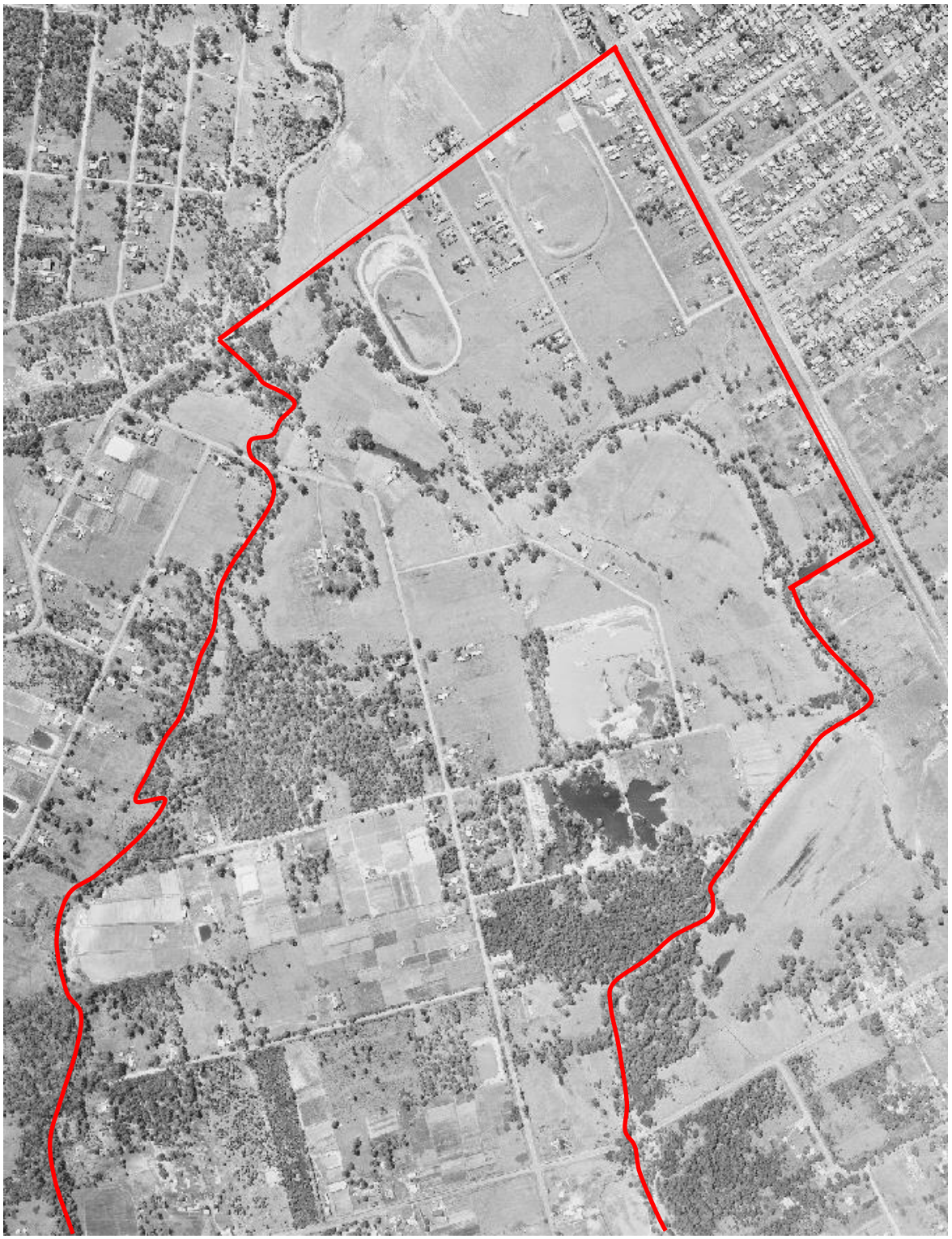
Aerial Photographs



1954	Between Trevithick Street (north) and Grange Avenue (south)

1965	Between Garfield Road West (north) and Grange Avenue (south)

1970	Between Garfield Road West (north) and Grange Avenue (south)

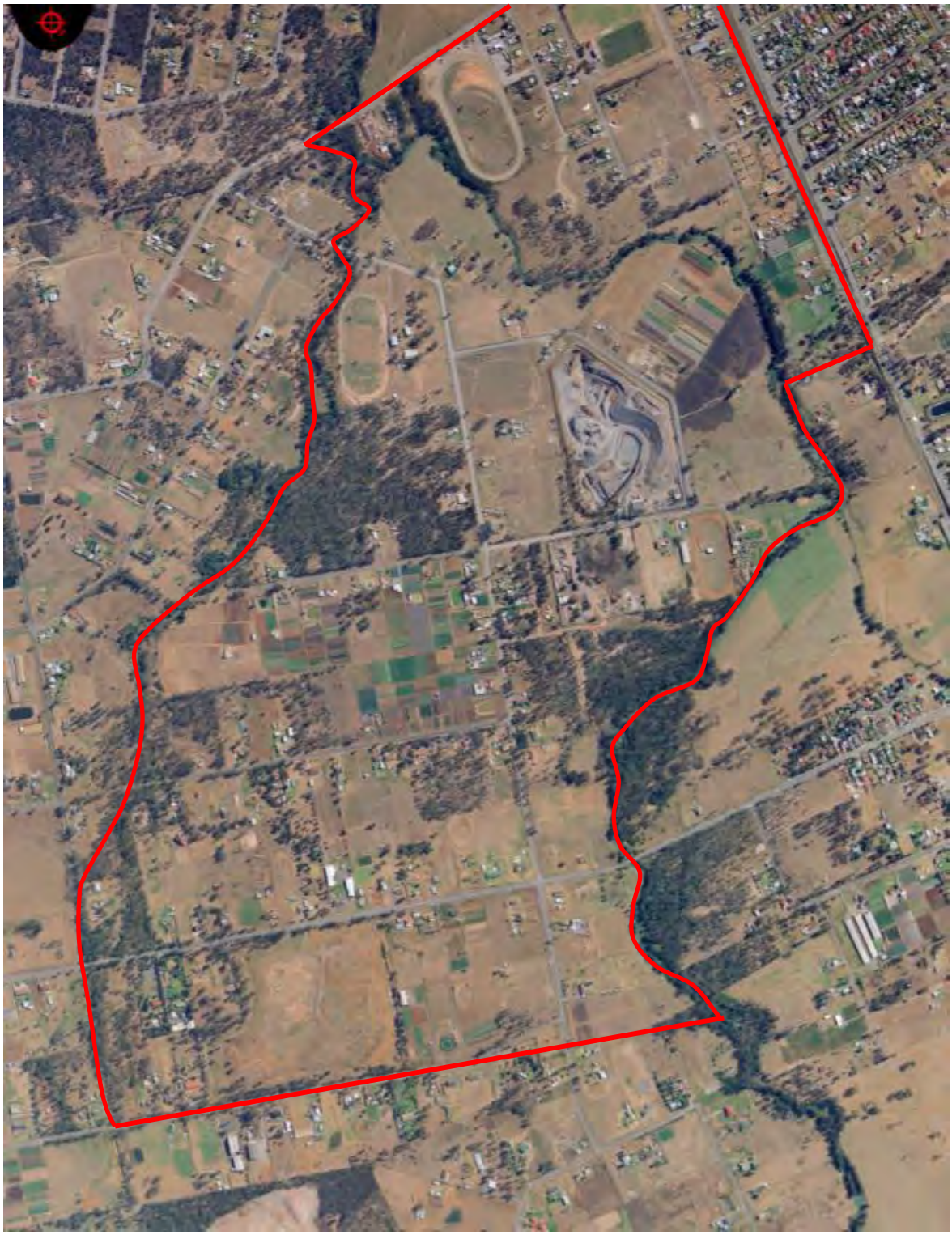


1978	Between Garfield Road West (north) and Grange Avenue (south)

1982	Between Garfield Road West (north) and South Street (south)

1986	Between Garfield Road West (north) and Grange Avenue (south)

1991	Between Garfield Road West (north) and South Street (south)



1994	Between Garfield Road West (north) and South Street (south)

1998	Between Garfield Road West (north) and South Street (south)

2005	Between Garfield Road West (north) and South Street (south)

Annex B

Hazardous Chemicals Search

NSW GOVERNMENT | SafeWork NSW

Locked Bag 2906, Lisarow NSW 2252
Customer Experience 13 10 50
ABN 81 913 830 179 | www.safework.nsw.gov.au

Our Ref: D17/165577
Your Ref: Amy Dorrington

23 June 2017

Attention: Amy Dorrington
DLA Environmental
Unit 3
38 Leighton Pl
Hornsby NSW 2077

Dear Ms Dorrington

RE SITE: Lot 303 DP 600432 Garfield Rd West, Riverstone NSW

I refer to your site search request received by SafeWork NSW on 15 June 2017 requesting information on Storage of Hazardous Chemicals for the above site.

A search of the records held by SafeWork NSW has not located any records pertaining to the above mentioned premises.

For further information or if you have any questions, please call us on 13 10 50 or email licensing@safework.nsw.gov.au

Yours sincerely

Customer Service Officer
Customer Experience - Operations
SafeWork NSW

NSW GOVERNMENT | SafeWork NSW

Locked Bag 2906, Lisarow NSW 2252
Customer Experience 13 10 50
ABN 81 913 830 179 | www.safework.nsw.gov.au

Our Ref: D17/165520
Your Ref: Amy Dorrington

23 June 2017

Attention: Amy Dorrington
DLA Environmental
Unit 3
38 Leighton Pl
Hornsby NSW 2077

Dear Ms Dorrington

RE SITE: Lot 1-11 DP 1652 Burfitt Rd Riverstone NSW

I refer to your site search request received by SafeWork NSW on 19 June 2017 requesting information on Storage of Hazardous Chemicals for the above site.

A search of the records held by SafeWork NSW has not located any records pertaining to the above mentioned premises.

For further information or if you have any questions, please call us on 13 10 50 or email licensing@safework.nsw.gov.au

Yours sincerely

Customer Service Officer
Customer Experience - Operations
SafeWork NSW

NSW GOVERNMENT | SafeWork NSW

Locked Bag 2906, Lisarow NSW 2252
Customer Experience 13 10 50
ABN 81 913 830 179 | www.safework.nsw.gov.au

Our Ref: D17/165498
Your Ref: Amy Dorrington

23 June 2017

Attention: Amy Dorrington
DLA Environmental
Unit 3
38 Leighton Pl
Hornsby NSW 2077

Dear Ms Dorrington

RE SITE: Lot 63 DP 1358 Neville Rd Riverstone NSW

I refer to your site search request received by SafeWork NSW on 19 June 2017 requesting information on Storage of Hazardous Chemicals for the above site.

A search of the records held by SafeWork NSW has not located any records pertaining to the above mentioned premises.

For further information or if you have any questions, please call us on 13 10 50 or email licensing@safework.nsw.gov.au

Yours sincerely

Customer Service Officer
Customer Experience - Operations
SafeWork NSW

Annex C

Land Title Records

scottASHWOOD PTY.LTD
An InfoTrack Company

ABN: 42 166 543 255
Ph: 02 9099 7400
Fax: 02 9232 7141
(Ph: 0412 199 304)

Level 14, 135 King Street, Sydney
Sydney 2000
GPO Box 4103 Sydney NSW 2001
DX 967 Sydney

Summary of Owners Report

LPI **Sydney**

Address: - 91 Carnarvon Road, Schofields

Description: - Lot A D.P. 331511

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
26.11.1930 (1930 to 1935)	John Stephen Archer (Farmer)	Vol 3123 Fol 175
19.08.1935 (1935 to 1950)	Huon Lane (Farmer)	Vol 3123 Fol 175 Now Vol 4711 Fol 232
23.01.1950 (1950 to 1951)	Jeffery Bennett Morcom (Labourer)	Vol 4711 Fol 232
10.01.1951 (1951 to 1951)	Claude Mason (Labourer) Oliven Josephine Ivy Mason (Married Woman)	Vol 4711 Fol 232
06.09.1951 (1951 to 1963)	Walter Karl (Technician)	Vol 4711 Fol 232
18.04.1963 (1963 to 1973)	Helmut Karl (Motor Mechanic)	Vol 4711 Fol 232
17.04.1973 (1973 to 1976)	Helmut Karl (Motor Mechanic) Eva Karl (Married Woman)	Vol 4711 Fol 232
26.11.1976 (1976 to 1986)	Roland Klaus Herrlich (Plumber) Adi Herrlich (Married Woman)	Vol 4711 Fol 232
29.12.1986 (1986 to 2012)	Dennis Raymond King Barry Edward King	Vol 4711 Fol 232 Now A/331511
23.03.2012 (2012 to date)	# Dennis Raymond King	A/331511

# Denotes Current Registered Proprietor

Leases: - NIL

Easements: -

- 19.06.1980 (R 712683) Pipeline Easement
- 18.05.1931 (S 351159) Pipeline Easement

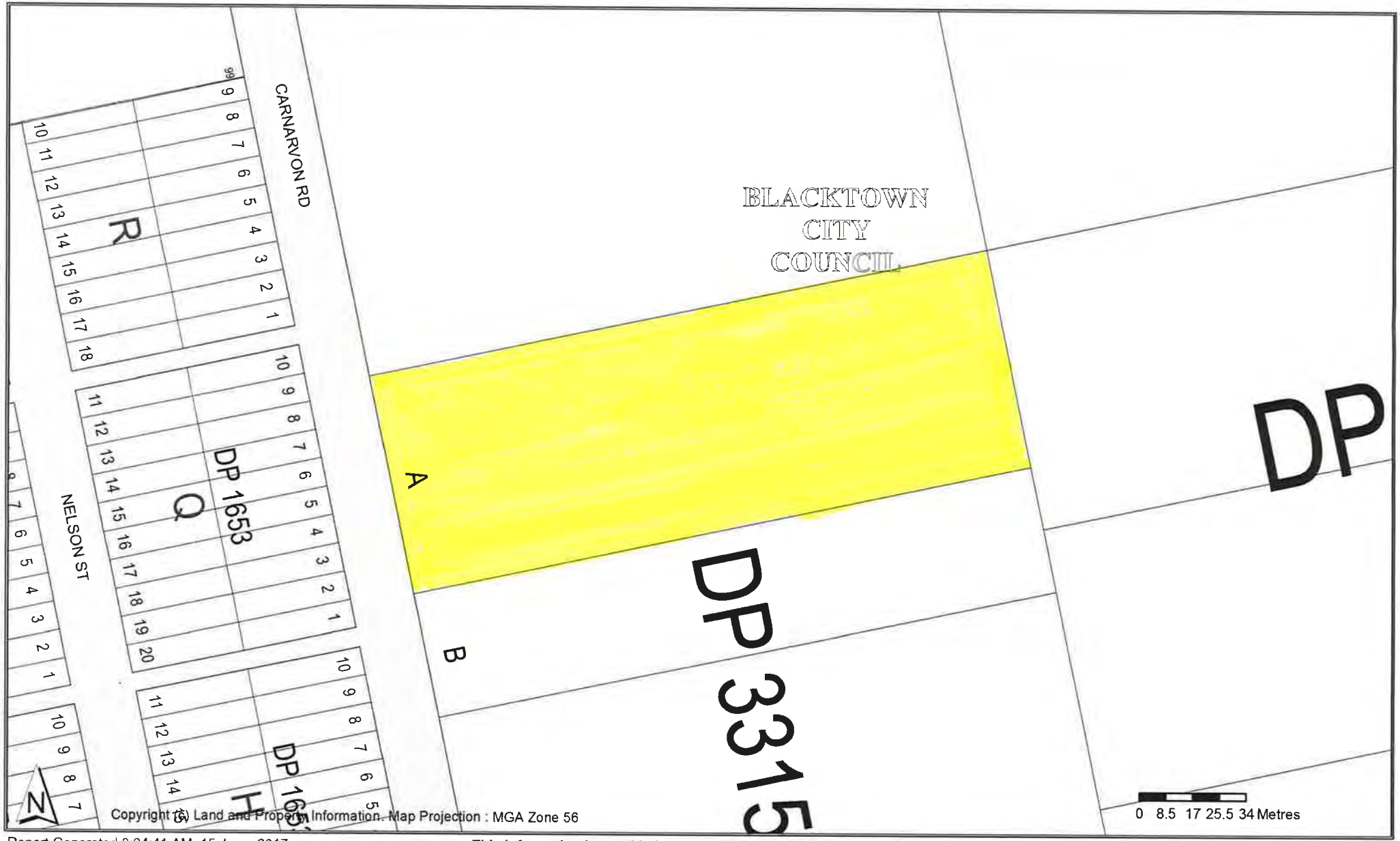
Yours Sincerely
Mark Groll
15 June 2017

NSW Land & Property Information

Cadastral Records Enquiry Report

Requested Parcel : Lot A DP 331511 **Identified Parcel** : Lot A DP 331511

Locality : RIVERSTONE **LGA** : BLACKTOWN **Parish** : ST MATTHEW **County** : CUMBERLAND



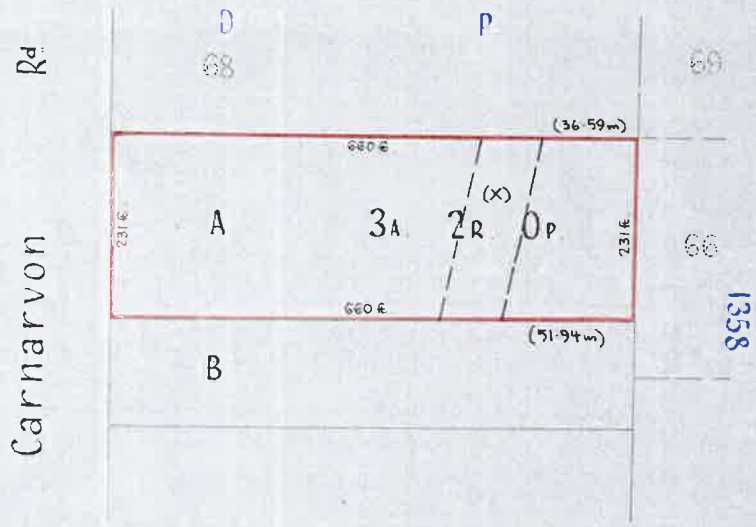
Report Generated 8:34:41 AM, 15 June, 2017

This information is provided as a searching aid only. While every endeavour is made to ensure the current cadastral pattern is accurately reflected, the Registrar General cannot guarantee the information provided. For all ACTIVITY PRIOR to SEPT 2002 you must refer to the RGs Charting and Reference Maps.

In Witness Whereof I have hereunto signed my name and affixed my Seal, this [illegible] day of September 1935.

Signed in the presence of Witness

Registrar General.



(X) PIPELINE EASEMENT 24·385 METRES WIDE R712683 S351159

Scale 200 ft to one inch

C363103

Application referred to.

No. C369800 MORTGAGE dated 12th September 1935.
from the said Huon Lane to Telford McKenzie Griffin of Riverstone

No. D367450 DISCHARGE of within mortgage
No. C369800 dated 12th November 1935.
Produced and entered 16th April 1936.
at 12 minutes past 12 o'clock in the after noon.

REGISTRAR GENERAL.

No. F152277 TRANSFER dated 23rd January 1957
from the said Huon Lane to Jeffery Bennett Morcom of Seven Hills, Labourer
of the land within described
Produced and entered 25th January 1957
at 7 minutes past 12 o'clock in the after noon.

REGISTRAR GENERAL.

No. F376632 TRANSFER dated 10th January 1957
from the said Jeffery Bennett Morcom to Edward Mason of Parramatta Labourer and Eileen Josephine Lucy Mason his wife as joint tenants of the land within described
Produced and entered 11th January 1957
at 55 minutes past 11 o'clock in the fore noon.

REGISTRAR GENERAL.

Historical Title

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
8/6/2017 2:59PM

FOLIO: A/331511

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 4711 FOL 232

Recorded	Number	Type of Instrument	C.T. Issue
2/9/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
12/3/1990		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
23/3/2012	AG886211	DISCHARGE OF MORTGAGE	
23/3/2012	AG886212	NOTICE OF DEATH	EDITION 1

*** END OF SEARCH ***

Title Search

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: A/331511

SEARCH DATE	TIME	EDITION NO	DATE
8/6/2017	2:58 PM	1	23/3/2012

LAND

LOT A IN DEPOSITED PLAN 331511
AT RIVERSTONE
LOCAL GOVERNMENT AREA BLACKTOWN
PARISH OF ST MATTHEW COUNTY OF CUMBERLAND
TITLE DIAGRAM DP331511

FIRST SCHEDULE

DENNIS RAYMOND KING (ND AG886212)

SECOND SCHEDULE (3 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 R712683 PIPELINE EASEMENT AFFECTING THE PART OF THE LAND ABOVE DESCRIBED SHOWN SO BURDENED IN VOL 4711 FOL 232
3 S351159 PIPELINE EASEMENT AFFECTING THE LAND SHOWN SO BURDENED IN VOL 4711 FOL 232

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

scottASHWOOD PTY.LTD
An InfoTrack Company

ABN: 42 166 543 255
Ph: 02 9099 7400
Fax: 02 9232 7141
(Ph: 0412 199 304)

Level 14, 135 King Street, Sydney
Sydney 2000
GPO Box 4103 Sydney NSW 2001
DX 967 Sydney

Summary of Owners Report

LPI **Sydney**

Address: - 98 Vine Street, Schofields

Description: - Lot 3 D.P. 857963

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
14.12.1931 (1931 to 1989)	William Arthur Bradbury (Carrier now Retired Labourer)	Book 1635 No 152
17.04.1989 (1989 to 1996)	Ada Emma Kinneally Bradbury (For her life)	Book 3771 No. 411
17.04.1989? (1989 to 1996)	Winifred Bodenham Wilma Roberts (After the death of Ada Emma Kinneally Bradbury – Recitals in Book 4127 No. 560)	Book 3771 No. 411?
03.01.1996 (1996 to 1996)	Henry William Cattell Catherine Anne Cattell	Book 4127 No. 560 Now 3/857963
04.06.1996 (1996 to date)	# David Paul Naylor	1/75062

# Denotes Current Registered Proprietor

Leases and Easements: - NIL

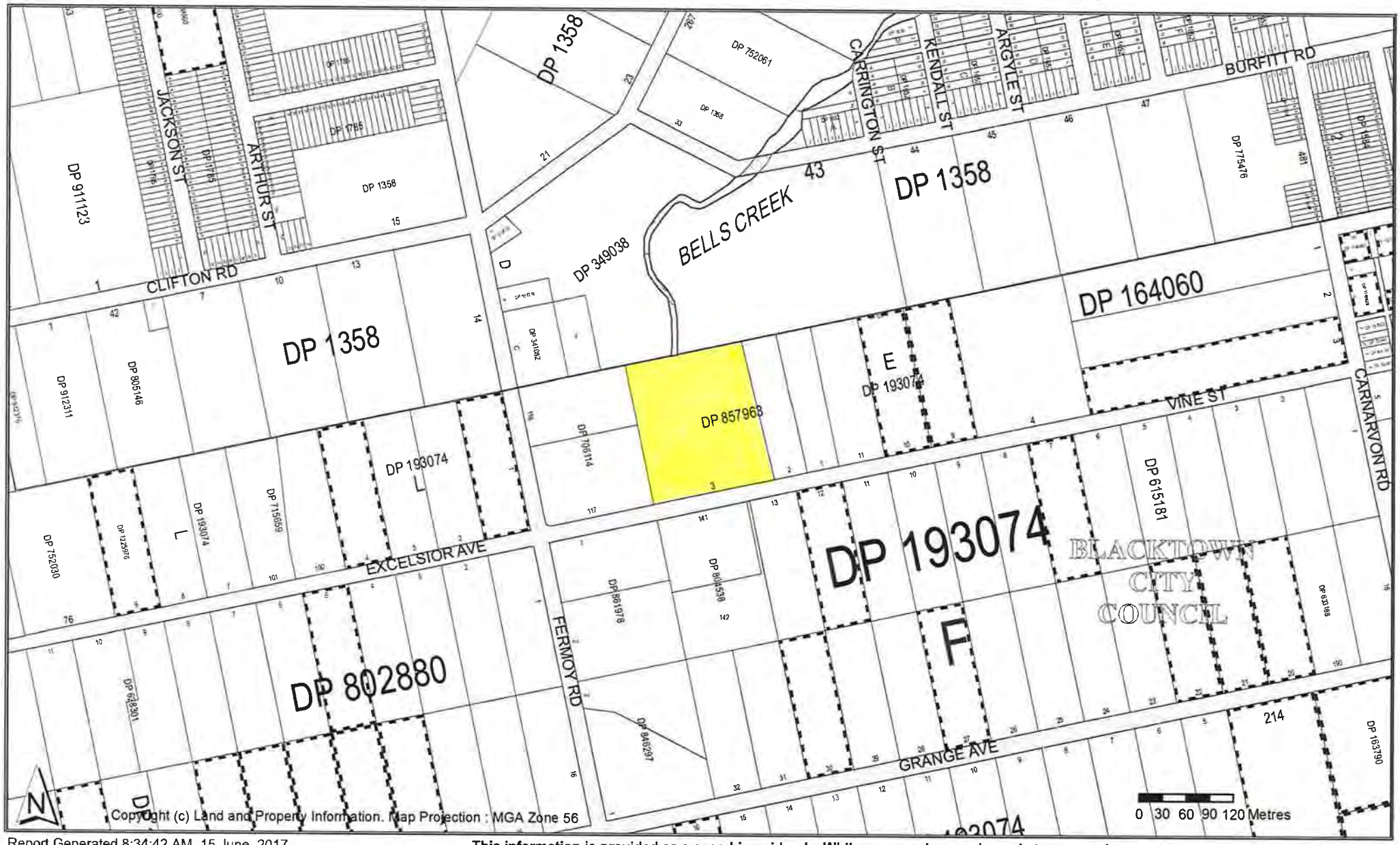
Yours Sincerely
Mark Groll
15 June 2017

NSW Land & Property Information

Cadastral Records Enquiry Report

Requested Parcel : Lot 3 DP 857963 **Identified Parcel** : Lot 3 DP 857963

Locality : SCHOFIELDS **LGA** : BLACKTOWN **Parish** : GIDLEY **County** : CUMBERLAND



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This information is provided as a searching aid only. While every endeavour is made to ensure the current cadastral pattern is accurately reflected, the Registrar General cannot guarantee the information provided. For all ACTIVITY PRIOR to SEPT 2002 you must refer to the RGs Charting and Reference Maps.

20-0620

PRIMARY APPLICATION

Section 14 Real Property Act 1900

$87 —

PA 064710 E

Office of S...

CAUTION Severe penalties are provided for procuring a certificate of title through fraud.	$10.00 190396 3024 04 20108716/01 N-S-W- STAMP DUTY B

(A) **LODGED BY**

L.T.O. Box	Name, Address or DX and Telephone	Lodging Party's Reference (15 characters maximum)
912C		

(B) **APPLICANT** HENRY WILLIAM CATTELL AND CATHERINE ANNE CATTELL

applies to have the land described below brought under the provisions of the Real Property Act 1900:

(C) All that piece of land situated at SCHOFIELDS County: CUMBERLAND Parish: GIDLEY being the land in Conveyance No 152 Book 1635 known as 72 Vine Street East, Schofields

(D) and requests that the folio of the Register issue in the name of :

HENRY WILLIAM CATTELL and CATHERINE ANNE CATTELL

(E) **TENANCY:** JOINT TENANTS

(F) **STATUTORY DECLARATION**

In support of this Application ~~I~~ We, HENRY WILLIAM CATTELL and CATHERINE ANNE CATTELL solemnly and sincerely declare that:

1. The Applicant is seised of (a) an estate in fee simple in the above described land.
   (b) ~~possession of the above described land.~~
   (c) ~~a life estate in the above described land.~~
2. There is no person in possession or occupation of the said land or any part thereof adversely to the estate or interest therein of the Applicant.
3. The said land is now ~~unoccupied~~ / occupied by the persons specified in Schedule One.
4. There does not exist any lease or agreement for lease of the said land for any term exceeding a tenancy for one year, or from year to year, except as set out in Schedule One.
5. There does not exist any right of way, right of drainage or other easement or any restrictive covenant affecting the said land, except as disclosed in Schedule One.
6. There does not exist any mortgage, lien, writ of execution, order, charge, encumbrance, will, settlement, deed, writing, contract, or dealing giving any right, claim or interest in the said land, or any part thereof, to any person other than the Applicant except as set out in Schedule One; nor, to the best of my knowledge and belief is there any action, proceeding or suit pending which affects or could affect the said land, or any person other than the Applicant who has or claims any estate, right, title or interest therein, except as disclosed in Schedule One.
7. There is no resumption or instrument whereby minerals or substrata have been excepted or reserved to any person, except as disclosed in Schedule One.
8. Schedule Two contains a full and correct list of all settlements, deeds, documents, instruments, maps, plans and papers relating to the said land so far as I have any means of ascertaining them. All such documents as are in my possession or under my control are lodged herewith; the whereabouts of all other documents listed, so far as is known to me, is stated in such list.
9. The Applicant has not become bankrupt nor assigned his/her estate for the benefit of creditors. If the Applicant is a corporation, the corporation has not appointed a liquidator.

Continued overleaf

10. The information shown in the schedules hereto is to be taken as part of this declaration.

~~11. Searches and inquiries for those documents shown as whereabouts unknown, and referred to in Schedule Two as Numbers ....., have been made at the premises of the applicant, previous and present lending institutions, solicitors and agents and have not been lodged with any person as security for a loan or for any purpose whatsoever.~~

I, We, HENRY WILLIAM CATTELL and CATHERINE ANNE CATTELL

make this solemn declaration conscientiously believing the same to be true and by virtue of the Oaths Act 1900 and certify this Application to be correct for the purposes of the Real Property Act 1900, and I hereby undertake to notify the Registrar General promptly of any further interest in the said land created after the making of this my declaration and before issue of the Certificate of Title.

Made and subscribed at CASTLE HILL on 18th MARCH 19 96 in the presence of

Signature of Witness

JOHN K BOXSELL
193-9 TERMINUS STREET
CASTLE HILL 2154
Solicitor

Address and Qualification of Witness

Signature of Applicant/Authorised Agent of Applicant

(G) **CONSENT OF MORTGAGEE**

WESTPAC BANKING CORPORATION ABN 007 457 141, being the mortgagee under mortgage Registered Book 561 Number 4127 hereby joins in and consents to this Application subject to :

(i) entry on the folio of the register to be created and on the Certificate of Title to issue of a notification relating to such mortgage, AND

(ii) delivery to me of the Certificate of Title.

BY ITS ATTORNEY UNDER POWER OF ATTORNEY NO. 831 BOOK 4059

PETER JENNINGS Witness
BANK OFFICER
WESTPAC BANKING CORPORATION

DAVID ALLAN JACK Mortgagee
SUPERVISOR NSW LOANS CENTRE
19/3/96

(H) **SCHEDULE ONE**

Particulars of Subsisting Interests

Full name and address (of Occupier, Lessee, Mortgagee, etc.)	Nature of entitlement ("Occupier, "Lessee","Mortgagee", etc.)	Particulars of Instrument (if any) by which entitlement created
HENRY WILLIAM CATTELL and CATHERINE ANNE CATTELL	OWNER/OCCUPIER	
WESTPAC BANKING CORPORATION	MORTGAGEE	

(I)

SCHEDULE TWO

PA 064710

Location of Documents referred to below

[To be completed by the declarant]

Document numbers ..... LODGED HEREWITH

Document numbers ..... WHEREABOUTS UNKNOWN See clause 11 of declaration

Document numbers ..... PERMANENTLY LODGED - Receipt Numbers:

.....

Document numbers .....1 - 7..... TO BE LODGED BY: ...WESTPAC BANKING CORPORATION

.....

(J)

Schedule of Documents

[List each chain of title separately. The Schedule should commence from a good root of title]

No.	Date	Nature of Document	Parties	Book	Number
1	2/4/1886	CONVEYANCE	EXCELSIOR LAND INVESTMENT AND BUILDING COMPANY AND BANK LIMITED TO THOMAS SALMON	954	335
2	14/12/1931	CONVEYANCE	THOMAS SALMON TO WILLIAM ARTHUR BRADBURY	152	1635
3	17/4/1989	ACKNOWLEDGEMENT	ADA EMMA KINNEALLY BRADBURY	411	3771
4	3/1/1996	CONVEYANCE	WINFRED BODENHAM AND WILMA ROBERTS TO HENRY WILLIAM CATTELL AND CATHERINE ANNE CATTELL	560	4127
5	3/1/1996	MORTGAGE	HENRY WILLIAM CATTELL AND CATHERINE ANNE CATTELL TO WESTPAC BANKING CORPORATION	561	4127
6	29/11/1995	OFFICIAL SEARCH	N/A		N/A
7	16/11/1995	ABSTRACT OF TITLE	N/A		N/A

Continued overleaf

Historical Title

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
8/6/2017 2:59PM

FOLIO: 3/857963

First Title(s): OLD SYSTEM
Prior Title(s): PA64710

Recorded	Number	Type of Instrument	C.T. Issue
10/5/1996	PA64710	PRIMARY APPLICATION	FOLIO CREATED EDITION 1
4/6/1996	2207067	DISCHARGE OF MORTGAGE	
4/6/1996	2207068	TRANSFER	
4/6/1996	2207069	MORTGAGE	EDITION 2
22/12/2007	AD636084	CAVEAT	
22/9/2008	AE226494	WITHDRAWAL OF CAVEAT	

*** END OF SEARCH ***

Title Search

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 3/857963

SEARCH DATE	TIME	EDITION NO	DATE
8/6/2017	2:58 PM	2	4/6/1996

LAND

LOT 3 IN DEPOSITED PLAN 857963
AT SCHOFIELDS
LOCAL GOVERNMENT AREA BLACKTOWN
PARISH OF GIDLEY COUNTY OF CUMBERLAND
TITLE DIAGRAM DP857963

FIRST SCHEDULE

DAVID PAUL NAYLOR (T 2207068)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 2207069 MORTGAGE TO NEWCASTLE PERMANENT BUILDING SOCIETY LIMITED

NOTATIONS

NOTE: THE CERTIFICATE OF TITLE FOR THIS FOLIO OF THE REGISTER DOES NOT INCLUDE SECURITY FEATURES INCLUDED ON COMPUTERISED CERTIFICATES OF TITLE ISSUED FROM 4TH JANUARY, 2004. IT IS RECOMMENDED THAT STRINGENT PROCESSES ARE ADOPTED IN VERIFYING THE IDENTITY OF THE PERSON(S) CLAIMING A RIGHT TO DEAL WITH THE LAND COMPRISED IN THIS FOLIO.

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

scottASHWOOD PTY.LTD
An InfoTrack Company

ABN: 42 166 543 255
Ph: 02 9099 7400
Fax: 02 9232 7141
(Ph: 0412 199 304)

Level 14, 135 King Street, Sydney
Sydney 2000
GPO Box 4103 Sydney NSW 2001
DX 967 Sydney

Summary of Owners Report

LPI **Sydney**

Address: - 175 Grange Avenue, Schofields

Description: - Lot 214 D.P. 1204436

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
31.12.1921 (1921 to 1945)	Annie Emma Palmer (Married Woman)	Book 1248 No. 459
10.03.1945 (1945 to 1950)	Charles Alfred Andrew Olson (Poultry Farmer)	Book 1960 No. 293
29.11.1950 (1950 to 1951)	Bernard Sidney Crawley (Electrician) Alfred Edward Crawley (Refrigeration Engineer)	Book 2155 No. 459
07.08.1951 (1951 to 1960)	George Bailey (Farmer) Elizabeth Ann Bailey (Married Woman)	Book 2191 No. 477
01.06.1960 (1960 to 1970)	Hubertus Jacobus Van Der Burg (Cotton Farmer) Anna Clementia Van Der Burg (Married Woman)	Bok 2533 No. 991
10.11.1970 (1970 to date)	# Domenic (or Dominic) Schembri (Market Gardener) # Angela Schembri (Married Woman)	Book 2991 No. 54 Now 214/1204436

# Denotes Current Registered Proprietors

Leases and Easements: - NIL

Yours Sincerely
Mark Groll
15 June 2017

NSW Land & Property Information

Cadastral Records Enquiry Report

Requested Parcel : Lot 214 DP 1204436

Identified Parcel : Lot 214 DP 1204436

Locality : SCHOFIELDS

LGA : BLACKTOWN

Parish : GIDLEY

County : CUMBERLAND

Report Generated 8:34:20 AM, 15 June, 2017

This information is provided as a searching aid only. While every endeavour is made to ensure the current cadastral pattern is accurately reflected, the Registrar General cannot guarantee the information provided. For all ACTIVITY PRIOR to SEPT 2002 you must refer to the RGs Charting and Reference Maps.

PRIMARY APPLICATION

Section 14 Real Property Act 1900

PA 065830 N

CAUTION Severe penalties are provided for procuring a certificate of title through fraud.	Office of

(A) **LODGED BY**

L.T.O. Box	Name, Address or DX and Telephone	Lodging Party's Reference (15 characters maximum)
3518	GRECH PARTNERS Suite 1, First floor 77 Main Street, BLACKTOWN NSW 2148 DX 8110 BLACKTOWN	CC:MM: 31090

(B) **APPLICANT** DOMINIC SCHEMBRI and ANGELA SCHEMBRI

applies to have the land described below brought under the provisions of the Real Property Act 1900:

(C) All that piece of land situated at Grange Avenue County: Cumberland Parish: Gidley being Lot C in DP163790 Deed of Conveyance No54 Book2991

(D) and requests that the folio of the Register issue in the name of:

DOMINIC SCHEMBRI and ANGELA SCHEMBRI

(E) **TENANCY:** Joint Tenants

(F) **STATUTORY DECLARATION**

In support of this Application I/We DOMINIC SCHEMBRI and ANGELA SCHEMBRI solemnly and sincerely declare that:

1. The Applicant is seised of (a) an estate in fee simple in the above described land.
   (b) possession of the above described land.
   (c) a life estate in the above described land.
2. There is no person in possession or occupation of the said land or any part thereof adversely to the estate or interest therein of the Applicant.
3. The said land is now unoccupied / occupied by the persons specified in Schedule One.
4. There does not exist any lease or agreement for lease of the said land for any term exceeding a tenancy for one year, or from year to year, except as set out in Schedule One.
5. There does not exist any right of way, right of drainage or other easement or any restrictive covenant affecting the said land, except as disclosed in Schedule One.
6. There does not exist any mortgage, lien, writ of execution, order, charge, encumbrance, will, settlement, deed, writing, contract, or dealing giving any right, claim or interest in the said land, or any part thereof, to any person other than the Applicant except as set out in Schedule One; nor, to the best of my knowledge and belief is there any action, proceeding or suit pending which affects or could affect the said land, or any person other than the Applicant who has or claims any estate, right, title or interest therein, except as disclosed in Schedule One.
7. There is no resumption or instrument whereby minerals or substrata have been excepted or reserved to any person, except as disclosed in Schedule One.
8. Schedule Two contains a full and correct list of all settlements, deeds, documents, instruments, maps, plans and papers relating to the said land so far as I have any means of ascertaining them. All such documents as are in my possession or under my control are lodged herewith; the whereabouts of all other documents listed, so far as is known to me, is stated in such list.
9. The Applicant has not become bankrupt nor assigned his/her estate for the benefit of creditors. If the Applicant is a corporation, the corporation has not appointed a liquidator.

Continued overleaf

10. The information shown in the schedules hereto is to be taken as part of this declaration.
11. Searches and inquiries for those documents shown as whereabouts unknown, and referred to in Schedule Two as Numbers ....., have been made at the premises of the applicant, previous and present lending institutions, solicitors and agents and have not been lodged with any person as security for a loan or for any purpose whatsoever.

I, DOMINIC SCHEMBRI and ANGELA SCHEMBRI
make this solemn declaration conscientiously believing the same to be true and by virtue of the Oaths Act 1900 and certify this Application to be correct for the purposes of the Real Property Act 1900, and I hereby undertake to notify the Registrar General promptly of any further interest in the said land created after the making of this my declaration and before issue of the Certificate of Title.

Made and subscribed at Blacktown on 14th March 19 99. in the presence of

Signature of Witness

N. V. Grech
Name of Witness (BLOCK LETTERS)

Solicitor
Address and Qualification of Witness

A Schembri
D. Schembri
Signature of Applicant/Authorised Agent of Applicant

(G) **CONSENT OF MORTGAGEE**

....., being the mortgagee under mortgage Registered Book ..... Number ..... hereby joins in and consents to this Application subject to :

(i) entry on the folio of the register to be created and on the Certificate of Title to issue of a notification relating to such mortgage, AND

(ii) delivery to me of the Certificate of Title.

PA 65830

Witness

Mortgagee

(H) **SCHEDULE ONE**

Particulars of Subsisting Interests

Full name and address (of Occupier, Lessee, Mortgagee, etc.)	Nature of entitlement ("Occupier, "Lessee","Mortgagee", etc.)	Particulars of Instrument (if any) by which entitlement created
DOMINIC SCHEMBRI and ANGELA SCHEMBRI	Occupier	Deed of Conveyance Number 54 Book 2991

SCHEDULE TWO

PA 65830

Location of Documents referred to below

[To be completed by the declarant]

Document numbers ..... 5 - 7 ..... LODGED HEREWITH

Document numbers ..... WHEREABOUTS UNKNOWN See clause 11 of declaration

Document numbers ..... 1 - 4 ..... PERMANENTLY LODGED - Receipt Numbers:

Document numbers ..... TO BE LODGED BY: .....

(J) **Schedule of Documents**

[List each chain of title separately. The Schedule should commence from a good root of title]

	No.	Date	Nature of Document	Parties	Book	Number
*	1.	31.12.21	Conveyance	James John Pye (Vendor) to Annie Emma Palmer (purchaser)	1248	459
*	2.	10.03.45	Conveyance	Annie Emma Palmer(Vendor)to Charles Alfred Andrew Olson(purchaser)	1960	293
*	3.	29.11.50	Conveyance	Charles Alfred Andrew Olson(vendor) to Bernard Sidney Crawley and Alfred Edward Crawley (purchaser)	2155	459
*	4.	07.08.51	Conyeyance	Bernard Sidney Crawley and Alfred Edward Crawley (vendor) to George Bailey and Elizabeth Ann Bailey (purchaser)	2191	477
	5.	01.06.60	Conveyance	George Bailey and Elizabeth Ann Bailey (vendor) to Hubertus Jacobus Van Der Burg and Anna Clementia Van Der Burg (purchaser)	2533	991
	6.	01.06.60	Mortgage	Hubertus Jacobus Van Der Burg and Anna Clementia Van Der Burg (mortgagors) and George Bailey and Elizabeth Ann Bailey (mortgagees)	2533	992
	6A	31.5.1963	Discharge		2811	607
	7.	10.11.70	Conveyance	Hubertus Jacobus Van Der Burg and Anna Clementia Van Der Burg(vendor) to Dominic Schembri and Angela Schembri (purchaser)	2991	54
	*	THESE DOCUMENTS ARE		PERMANENTLY LODGED AT LTO PACKET NO. 20572		
	9		MTGE		2675	967
					2811	606
	10		DIS		2605	985
	11		MTGE		2820	100
	12		DIS		2820	101
	13		MTGE		2991	53
	14		DIS			

Continued over leaf

Historical Title

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
8/6/2017 2:59PM

FOLIO: 3/884478

First Title(s): OLD SYSTEM
Prior Title(s): PA65830

Recorded	Number	Type of Instrument	C.T. Issue
13/4/1999	PA65830	PRIMARY APPLICATION	FOLIO CREATED EDITION 1
15/1/2015	DP1204436	DEPOSITED PLAN	
~~25/3/2015~~	~~AJ343777~~	~~REQUEST~~	
~~25/7/2015~~	~~AJ574842~~	~~TRANSFER~~	FOLIO CANCELLED

*** END OF SEARCH ***

Schofields

PRINTED ON 8/6/2017

Form: 11R
Licence: 98M111
Edition: 1003

REQUEST

New South Wales
Real Property Act 1900

AJ343777Q

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the l by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

CONNECT OP1206174

4107 - do Exhn Plan (Additional Refs) N

(A) STAMP DUTY

If applicable. Office of State Revenue use only

(B) TORRENS TITLE

SEE ANNEXURES "A" and "B"

(C) REGISTERED DEALING

Number	Torrens Title

(D) LODGED BY

Document Collection Box	Name, Address or DX, Telephone, and Customer Account Number if any	CODE
556X	*LLPN:123406 G* Roads and Maritime Services DX 10516 NORTH SYDNEY T. (02) 8588 5245 (Ms Ngo) Reference (optional): SF2015/3616 tn	R

(E) APPLICANT

ROADS AND MARITIME SERVICES

(F) NATURE OF REQUEST

Application to Record
GIVING OF A PROPOSED ACQUISITION NOTICE
Land Acquisition (Just Terms Compensation) Act, 1991

(G) TEXT OF REQUEST

THE APPLICANT, requests the Registrar General to note on the Register for the land listed in Annexures "A" and "B" pursuant to Section 11 of the Land Acquisition (Just Terms Compensation) Act 1991, that a proposed acquisition notice has been given affecting the land.

DATE 13 / 3 / 2015
dd mm yyyy

(H) I certify that the applicant, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this application in my presence.

Signature of witness:
Name of witness: Thanh Ngo
Address of witness: Roads and Maritime Services
101 Miller Street, North Sydney

Certified correct for the purposes of the Real Property Act 1900 by the applicant.

Signature of applicant:
Karen DURIE
MANAGER COMPULSORY ACQUISITION & ROAD DEDICATION
EXECUTED PURSUANT TO DELEGATION
BOOK 4623 NO 148

(I) *This section is to be completed where a notice of sale is required and the relevant data has been forwarded to LPMA through eNOS.*
The applicant / applicant's solicitor / applicant's agent certifies that the eNOS data relevant to this dealing has been submitted and stored under eNOS ID No. [ ] Full name:..... Signature:.....

ANNEXURE "A"

THIS IS THE ANNEXURE "A" TO THE REQUEST MADE UNDER
THE REAL PROPERTY ACT 1900
BY ROADS AND MARITIME SERVICES

Lot 9 Deposited Plan 1205982, being part of the land in Certificate of Title 2/213579

Lots 2 and 10 Deposited Plan 1205982, being the whole of the land in Certificate of Title 21/72341

Lot 11 Deposited Plan 1205982, being part of the land in Certificate of Title 22/72341

Lots 4 and 12 Deposited Plan 1205982, being the whole of the land in Certificate of Title 23/72341

Lot 13 Deposited Plan 1205982, being part of the land in Certificate of Title 24/72341

Lots 6 and 14 Deposited Plan 1205982, being the whole of the land in Certificate of Title 25/J/193074

Lots 7 and 15 Deposited Plan 1205982, being the whole of the land in Certificate of Title 26/J/193074

Lots 8 and 16 Deposited Plan 1205982, being the whole of the land in Certificate of Title 27/J/193074

Lot 215 Deposited Plan 1204436, being part of the land in Certificate of Title 1/788366

Lot 216 Deposited Plan 1204436, being part of the land in Certificate of Title 19/G/193074

Lot 226 Deposited Plan 1204436, being part of the land in Certificate of Title 29/G/193074

Lot 227 Deposited Plan 1204436, being part of the land in Certificate of Title 30/G/193074

Lot 228 Deposited Plan 1204436, being part of the land in Certificate of Title 3/884478

Lot 74 Deposited Plan 1206174, being part of the land in Certificate of Title B/163790 CONNECT DP 1206174

Lot 7 Deposited Plan 1205591, being part of the land in Certificate of Title 7/27259

Lot 12 Deposited Plan 1205591, being part of the land in Certificate of Title 2/520132

Lot 11 Deposited Plan 1205591, being part of the land in Certificate of Title 1/520132

Lot 10 Deposited Plan 1205591, being part of the land in Certificate of Title 3/12076

Lots 2 and 8 Deposited Plan 1205591, being the whole of the land in Certificate of Title 1/12076

Lot 9 Deposited Plan 1205591, being part of the land in Certificate of Title 2/12076

ANNEXURE "B"

THIS IS THE ANNEXURE "A" TO THE REQUEST MADE UNDER
THE REAL PROPERTY ACT 1900
BY ROADS AND MARITIME SERVICES

CONNECT DP 1206174

Lots 72 and 76 Deposited Plan 1206174, being the whole of the land in Certificate of Title 39/12076

Lot 1, Section H, Deposited Plan 193074, being the whole of the land in Certificate of Title 1/H/193074

Lot 75 Deposited Plan 1206174, being part of the land in Certificate of Title 3/H/193074 CONNECT DP 1206174

Form: 01T
Release: 6·0

TRANSFER

New South Wales
Real Property Act 1900

AJ574842R

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the Registrar General to collect the information required by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

STAMP DUTY Office of State Revenue use only

Office of State Revenue
NSW Treasury
Client No: 96853733 1944
Duty: EXEMPT Trans No: 8117152
Asst details: S.308

(A) **TORRENS TITLE** Part FI 3/884478 and known as Lot 228 in DP 1204436

(B) **LODGED BY**

Document Collection Box	Name, Address or DX, Telephone, and Customer Account Number if any	CODES
421X	LLPN: 123292U Hunt & Hunt DX 214 Sydney Reference: MPBB:9592200 RMS	T TW

(C) **TRANSFEROR** DOMINIC SCHEMBRI and ANGELA SCHEMBRI

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of $ 76,600.00 and as regards

(E) **ESTATE** the abovementioned land transfers to the transferee an estate in fee simple

(F) **SHARE TRANSFERRED**

(G) Encumbrances (if applicable):

(H) **TRANSFEREE** ROADS AND MARITIME SERVICES ABN 76 236 371 088

(I) **TENANCY:**

DATE 11.6.15

(J) I certify I am an eligible witness and that the transferor signed this dealing in my presence. [See note* below]

Signature of witness:

Name of witness: Jorgia Roe
Address of witness: 15 Flushcombe Road
Blacktown 2148

Certified correct for the purposes of the Real Property Act 1900 by the transferor.

Signature of transferor: D. Schembri & Schembri

Certified correct for the purposes of the Real Property Act 1900 on behalf of the transferee by the person whose signature appears below.

Signature:

Signatory's name: MARK PAUL BYERS
Signatory's capacity: solicitor

(K) The transferee certifies that the eNOS data relevant to this dealing has been submitted and stored under eNOS ID No. [ ] Full name: _____ Signature: _____

* *s117 RP Act requires that you must have known the signatory for more than 12 months or have sighted identifying documentation.*

ALL HANDWRITING MUST BE IN BLOCK CAPITALS

CT PROD IN ON 19/6/15 FOR THIS T

Film with

hunt&hunt lawyers

Level 2, 1 Innovation Road, North Ryde NSW 2113
PO Box 4126 Macquarie Shopping Centre, North Ryde NSW 2113 | DX 23503 Eastwood
T +61 2 9804 5700 | F +61 2 9804 5799

12 June 2015

The Registrar General
Land & Property Information
1 Prince Albert Road
SYDNEY NSW 2000

Our ref: MPBA/JGS
Matter no: 9592200

Dear Sir

Roads and Maritime Services (RMS) purchase from Schembri
Part 175 Grange Avenue, Schofields
Part Fl 3/884478

We act on behalf of the Roads and Maritime Services in respect of the above matter.

We advise that the land acquired is for roads purposes.

The RMS does not require a certificate of title to issue in respect of the land acquired, namely 228/1204436.

Yours faithfully
Hunt & Hunt

Mark Byers
Partner

Contact: Jennifer Seckold
D +61 2 9804 5736
E jseckold@hunthunt.com.au

Historical Title

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
8/6/2017 2:59PM

FOLIO: 214/1204436

First Title(s): OLD SYSTEM
Prior Title(s): 3/884478

Recorded	Number	Type of Instrument	C.T. Issue
15/1/2015	DP1204436	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
~~25/7/2015~~	~~AJ574842~~	~~TRANSFER~~	FOLIO CREATED EDITION 1

*** END OF SEARCH ***

Schofields PRINTED ON 8/6/2017

Title Search

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 214/1204436

SEARCH DATE	TIME	EDITION NO	DATE
8/6/2017	2:58 PM	1	25/7/2015

LAND

LOT 214 IN DEPOSITED PLAN 1204436
AT SCHOFIELDS
LOCAL GOVERNMENT AREA BLACKTOWN
PARISH OF GIDLEY COUNTY OF CUMBERLAND
TITLE DIAGRAM DP1204436

FIRST SCHEDULE

DOMINIC SCHEMBRI
ANGELA SCHEMBRI
AS JOINT TENANTS

SECOND SCHEDULE (1 NOTIFICATION)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Annex D

Borelogs

DLA Environmental Services
an ERM Group company

Borelog

Location 14_BH1

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 14
Date:	11/12/2017	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Dark brown to light brown silty topsoil				
	0.2			NATURAL: Orange clay			14_0.2	
	0.3			Borehole terminated at 0.2m and backfilled with arisings.				
	0.4							
	0.5							
	0.6							
	0.7							
	0.8							
	0.9							
	1							
	1.1							
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

DLA Environmental Services
an ERM Group company

Borelog

Location 30_BH1

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 30
Date:	11/12/2017	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Dark brown topsoil			30_0.1	
	0.2			NATURAL: Brown/orange clay				
	0.3			Borehole terminated at 0.2m and backfilled with arisings.				
	0.4							
	0.5							
	0.6							
	0.7							
	0.8							
	0.9							
	1							
	1.1							
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
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Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

DLA Environmental Services
an ERM Group company

Borelog

Location 51_BH1

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 51
Date:	11/12/2017	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Brown/light brown silt				
	0.2							
	0.3			NATURAL: Orange/light brown silty clay				
	0.4						51_0.4	
	0.5			Borehole terminated at 0.4m and backfilled with arisings.				
	0.6							
	0.7							
	0.8							
	0.9							
	1							
	1.1							
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

DLA Environmental Services
an ERM Group company

Borelog

Location 57_BH1

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 57
Date:	11/12/2017	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Brown/orange silty clay with abundant gravels/rock fragments			57_0.1	
	0.2			Borehole terminated at 0.2m and backfilled with arisings.				
	0.3							
	0.4							
	0.5							
	0.6							
	0.7							
	0.8							
	0.9							
	1							
	1.1							
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

DLA Environmental Services
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Borelog

Location 57_BH2

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 57
Date:	11/12/2017	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Brown/orange silty clay with abundant gravels/rock fragments			57_2_0.1	
	0.2			Borehole terminated at 0.2m and backfilled with arisings.				
	0.3							
	0.4							
	0.5							
	0.6							
	0.7							
	0.8							
	0.9							
	1							
	1.1							
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

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Borelog

Location 13_BH1

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 13
Date:	12/12/2017	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Brown/orange clay			13_0.2	Very hard/dry
	0.2			Borehole terminated at 0.2m and backfilled with arisings.				
	0.3							
	0.4							
	0.5							
	0.6							
	0.7							
	0.8							
	0.9							
	1							
	1.1							
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

DLA Environmental Services
an ERM Group company

Borelog

Location 17_BH1

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 17
Date:	12/12/2017	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Brown/orange clay			17_0.1	Very hard
	0.2			Borehole terminated at 0.2m and backfilled with arisings.				
	0.3							
	0.4							
	0.5							
	0.6							
	0.7							
	0.8							
	0.9							
	1							
	1.1							
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

DLA Environmental Services
an ERM Group company

Borelog

Location 19_BH1

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 19
Date:	12/12/2017	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Brown silty clay				
	0.2			NATURAL: Brown clay				
	0.3						19_0.3	
	0.4			Borehole terminated at 0.3m and backfilled with arisings.				
	0.5							
	0.6							
	0.7							
	0.8							
	0.9							
	1							
	1.1							
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

DLA Environmental Services
an ERM Group company

Borelog

Location 32_BH1

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 32
Date:	12/12/2017	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Brown/orange clay and abundant gravels			32_0.1	Very hard
	0.2			Borehole terminated at 0.2m and backfilled with arisings.				
	0.3							
	0.4							
	0.5							
	0.6							
	0.7							
	0.8							
	0.9							
	1							
	1.1							
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Borelog

Location 54_BH1

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 54
Date:	1/03/2018	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Dark brown topsoil under grass				No signs of contamination
	0.2			NATURAL: Dark brown silty clay			54_0.2/A/B	
	0.3							
	0.4							
	0.5			NATURAL: Orange clay				
	0.6			Borehole terminated at 0.6m and backfilled with arisings.				

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Borelog

Location 39_BH1

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 39
Date:	1/03/2018	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Dark brown topsoil under grass			39_0.1	No signs of contamination
	0.2						39_0.2	
	0.3			NATURAL: Orange clay				
	0.4							
	0.5			NATURAL: Orange gravelly clay				
				Borehole terminated at 0.5m and backfilled with arisings.				

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Borelog

Location 9_BH1

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 9
Date:	9/03/2018	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Orange / brown topsoil			9_1_0.1	
	0.2							
	0.3			NATURAL: Orange / brown mottled silty clay				
	0.4							
	0.5							
	0.6			NATURAL: Red / grey mottled clay				
	0.7							
	0.8							
	0.9							
	1						9_1_1.0	
	1.1			Borehole terminated at 1.1m and backfilled with arisings.				
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Borelog

Location 9_BH2

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 9
Date:	9/03/2018	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Orange / brown silty clay			9_2_0.1	
	0.2							
	0.3			NATURAL: Red / orange clay and abundant gravels				
	0.4							
	0.5							
	0.6							
	0.7							
	0.8			NATURAL: Orange gravelley clay			9_2_0.9/A	
	0.9							
	1			Borehole terminated at 1.0m and backfilled with arisings.				
	1.1							
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Borelog

Location 9_BH3

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 9
Date:	9/03/2018	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Dark brown topsoil			9_3_0.1	
	0.2							
	0.3							
	0.4			NATURAL: Grey / red / orange mottled clay				
	0.5							
	0.6							
	0.7							
	0.8							
	0.9							
	1							
	1.1			Borehole terminated at 1.1m and backfilled with arisings.			9_3_1.1	
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Borelog

Location 9_BH4

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 9
Date:	9/03/2018	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Brown gravelly clay and silty clay			9_4_0.1	
	0.2							
	0.3			NATURAL: Light brown silty clay			9_4_0.3	
	0.4							
	0.5			NATURAL: Orange / grey mottled clay				
	0.6							
	0.7							
	0.8						9_4_0.8	
	0.9							
	1			Borehole terminated at 1.0m and backfilled with arisings.				
	1.1							
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Borelog

Location 9_BH5

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 9
Date:	9/03/2018	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			REWORKED NATURAL: Orange / brown silty clay with gravels			9_S_0.1	
	0.2							
	0.3							
	0.4							
	0.5							
	0.6							
	0.7			NATURAL: Light brown silty sand and gravels				
	0.8							
	0.9			NATURAL: Red / grey clay (mottled)				
	1							
	1.1			Borehole terminated at 1.1m and backfilled with arisings.			9_S_1.0	
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Borelog

Location 9_BH6

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 9
Date:	9/03/2018	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			FILL: Orange / brown topsoil			9_6_0.1	
	0.2							
	0.3			REWORKED NATURAL: Orange / Brown clay				
	0.4							
	0.5			NATURAL: Red / grey clay mottled				
	0.6							
	0.7							
	0.8							
	0.9			NATURAL: Orange / grey mottled clayey sand				
	1							
	1.1			Borehole terminated at 1.1m and backfilled with arisings.			9_6_1.0	
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Borelog

Location 9_BH7

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 9
Date:	9/03/2018	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			FILL: Dark brown topsoil			9_7_0.1	
	0.2							
	0.3			NATURAL: Light brown to orange gravelley clay				
	0.4							
	0.5							
	0.6							
	0.7							
	0.8							
	0.9							
	1						9_7_1.0	
	1.1			Borehole terminated at 1.0m and backfilled with arisings.				
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Borelog

Location 29_BH1

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 29
Date:	9/03/2018	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			FILL: Dark brown topsoil			29_1_0.1/A/B	
	0.2							
	0.3			NATURAL: Light brown/yellow sandy clay with gravels				
	0.4							
	0.5			NATURAL: Orange / brown silty sandy clay with gravels				
	0.6							
	0.7							
	0.8							
	0.9							
	1						29_1_1.0	
	1.1			Borehole terminated at 1.1m and backfilled with arisings.				
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Borelog

Location 29_BH2

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 29
Date:	9/03/2018	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			FILL: Dark brown topsoil			29_2_0.1	
	0.2							
	0.3							
	0.4							
	0.5							
	0.6			NATURAL: Orange / brown silty sandy clay				
	0.7							
	0.8							
	0.9							
	1						29_2_1.0	
	1.1			Borehole terminated at 1.0m and backfilled with arisings.				
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Borelog

Location 29_BH3

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 29
Date:	9/03/2018	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			FILL: Brown topsoil			29_3_0.1	
	0.2							
	0.3							
	0.4			NATURAL: Mottled orange / red / yellow clay				
	0.5							
	0.6							
	0.7							
	0.8							
	0.9							
	1						29_3_1.0	
	1.1			Borehole terminated at 1.0m and backfilled with arisings.				
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Borelog

Location 22_BH1

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 22
Date:	12/03/2018	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Brown silty topsoil			22_1_0.1	
	0.2							
	0.3			NATURAL: Red / grey mottled silty clay				
	0.4							
	0.5							
	0.6							
	0.7							
	0.8						22_1_0.85	
	0.9			Borehole terminated at 0.85m and backfilled with arisings.				
	1							
	1.1							
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Borelog

Location 55_BH1

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 55
Date:	12/03/2018	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			FILL: Brown gravelley topsoil			55_1_0.1	
	0.2			REWORKED NATURAL: Orange clay				
	0.3							
	0.4							
	0.5							
	0.6							
	0.7			NATURAL: Red / grey mottled clay				
	0.8							
	0.9							
	1						55_1_1.0	
	1.1			Borehole terminated at 1.0m and backfilled with arisings.				
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Borelog

Location 55_BH1

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 55
Date:	12/03/2018	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			FILL: Brown gravelley topsoil			55_2_0.1/A	
	0.2							
	0.3			REWORKED NATURAL: Orange clay				
	0.4							
	0.5							
	0.6			NATURAL: Orange / grey mottled clay				
	0.7							
	0.8							
	0.9							
	1			NATURAL: Grey clay with black inclusions (old organics?.)			55_2_1.0	
	1.1			Borehole terminated at 1.0m and backfilled with arisings.				
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Borelog

Location 27_BH1

Client:	Department of Planning	Job Type:	Site Investigation
Project No:	0448937_DL4101	Address:	Property 27
Date:	12/03/2018	Logged By:	Amy Dorrington
Contractor:	NA	Method:	Hand Auger
Hole Size	8mm	Co-ordinates:	NA

Method	Depth (m)	Graphic Log	USCS Classification	Material Description	Moisture	Density / Stiffness	Sampling	Comments
	0.1			NATURAL: Brown silty topsoil with small gravels			27_1_0.1	
	0.2							
	0.3			NATURAL: Orange / Brown gravelley clay				
	0.4							
	0.5			Borehole terminated at 0.5m and backfilled with arisings.			27_1_1.0	
	0.6							
	0.7							
	0.8							
	0.9							
	1							
	1.1							
	1.2							

Notes:

Method:
SS - Solid Flight Auger
HS - Hollow Flight Auger
CC - Concrete Core
PT - Push Tube
RC - Rock Coring
HA - Hand Auger

Consistency
VS - Very Soft
S - Soft
F - Firm
VS - Very Stiff
H - Hard
Friable - Fb

Plasticity
HP - HighlyPlastic
MP - Medium Plasticity
LP - Low Plasticity

Moisture
D - Dry
M - Moist
W - Wet

Density
VL - Very Loose
L - Loose
MD - Medium Density
D - Dense
VD - Very Dense

Annex E

Data Summary Table

Sample ID	Depth (m)	Date	Chemical Report	Soil Desciption	Comment		NEPM (NEPC, 2013) Residential A Land Use Criteria (mg/kg)								
						Asbestos	HSL: 0.5, ESL: 50	HSL: 160, ESL: 85	HSL: 55, ESL: 70	HSL: 10, ESL: 105	3	C6-C10 HSL: 45, ESL: 180, ML: 700	>C10-C16 HSL: 110, ESL: 120, ML: 1,000	>C16-C34 HSL: NL, ESL: 300, ML: 2,500	>C34-C40 HSL: NL, ESL: 2,800, ML: 10,000
							BTEX - Sandy soils					TRH - Sandy soils			
							Benz	Toluene	EthylBe	Xylene	Naph	F1	F2	F3	F4
14_BH1	0.2	11/12/2017	181759/ASET61380	Dark brown to light brown loamy clay		nd	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
30_BH1	0.1	11/12/2017	181759	Brown/orange clay		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
51_BH1	0.4	11/12/2017	181759/ASET61380	Orange/light brown/black silty clay		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
57_BH1	0.1	11/12/2017	181759/ASET61380	Brown/orange silty clay with abundant gravels		nd	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
57_BH2	0.1	11/12/2017	181759	Brown/orange silty clay with abundant gravels		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
13_BH1	0.2	12/12/2017	181867	Light brown silty clay and gravels		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
17_BH1	0.1	12/12/2017	181867	Brown/orange clay.		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
19_BH1	0.3	12/12/2017	181867	Brown clay.		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
32_BH1	0.1	12/12/2017	181867	Brown/orange clay and abundant gravels.		nd	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
39_BH1	0.1	1/3/2018	186261	Orange clay		nd	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
54_BH1	0.2	1/3/2018	186261/ASET62871	Dark brown silty clay		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
9_BH1	0.1	9/3/2018	187007/ASET63077	Orange/brown topsoil		nd	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
9_BH2	0.9	9/3/2018	187007	Orange gravelly clay		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
9_BH3	0.1	9/3/2018	187007	Dark brown topsoil		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
9_BH4	0.3	9/3/2018	187007	Light brown silty sand		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
9_BH5	1.0	9/3/2018	187007	Red/grey mottled clay		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
9_BH6	0.1	9/3/2018	187007/ASET63077	Orange/brown topsoil		nd	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
9_BH7	1.0	9/3/2018	187007	Light brown to orange gravelly clay		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
29_BH1	0.1	9/3/2018	187007/ASET63077	Dark brown topsoil		nd	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
29_BH2	0.9	9/3/2018	187007/ASET63077	Orange/brown silty clay		nd	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
29_BH3	0.1	9/3/2018	187007/ASET63077	Brown topsoil		nd	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
55_BH1	0.1	9/3/2018	ASET63077	Brown gravelly topsoil and orange clay		nd	--	--	--	--	--	--	--	--	--
55_BH1	1.0	9/3/2018	187007	Red/grey mottled clay		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
55_BH2	0.1	9/3/2018	187007	Brown gravelly topsoil		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
27_BH1	0.1	9/3/2018	187007/ASET63077	Brown silty topsoil with small gravels		nd	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
22_BH1	0.1	9/3/2018	187007/ASET63077	Brown silty topsoil		nd	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
INTRA-LABORATORY DUPLICATES															
54_BH1A	0.2	1/3/2018	186261	Dark brown silty clay		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
9_BH2A	0.9	9/3/2018	187007	Orange gravelly clay		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
29_BH1A	0.1	9/3/2018	187007	Dark brown topsoil		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
55_BH2A	0.1	9/3/2018	187007	Brown gravelly topsoil		--	<0.2	<0.5	<1	<2	<1	<25	<50	<100	<100
INTER-LABORATORY DUPLICATES															
54_BH1B	0.2	1/3/2018	SE176150	Dark brown silty clay		--	<0.1	**1.0**	<0.1	<0.3	<0.1	<25	<25	<90	<120
29_BH1B	0.1	9/3/2018	SE176608	Dark brown topsoil		--	<0.1	<0.1	<0.1	<0.3	<0.1	<25	<25	<90	<120
STATISTICAL ANALYSIS															
Min						-	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max						-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Avg						-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Stdev						-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Procedure B Calculation													--	--	--
95% UCL						-							--	--	--

* Depth relates to Depth Below Surface Level | -- Not Tested | nd = Not Detected Above Laboratory LOR | NL = Not Limiting | **Bold** = Detected Above Laboratory LOR | RED = Exceeds HIL Criteria

				HIL: 3, ESL: 0.7	300	DDT+DDD+DDE 240	Aldrin+Dieldrin 6	Chlordane 50	Endosulfan 270	Endrin 10	Heptachlor 6	HCB 10	Methoxychlor 300		1	100	20	100	6,000	300	40	400	7,400
				PAH	PAH	Pesticides										Heavy Metals							
Sample ID	Depth (m)	Date	Chemical Report	BaP TEQ	Total	OC								OP	PCB	As	Cd	Cr VI	Cu	Pb	Hg	Ni	Zn
14_BH1	0.2	11/12/2017	181759/ASET61380	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	9	<0.4	26	3	19	<0.1	3	6
30_BH1	0.1	11/12/2017	181759	<0.5	<0.05	--	--	--	--	--	--	--	--	--	--	11	<0.4	41	4	19	<0.1	3	10
51_BH1	0.4	11/12/2017	181759/ASET61380	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	10	<0.4	29	3	14	<0.1	3	6
57_BH1	0.1	11/12/2017	181759/ASET61380	<0.5	<0.05	--	--	--	--	--	--	--	--	--	--	10	<0.4	36	7	24	<0.1	4	21
57_BH2	0.1	11/12/2017	181759	<0.5	**0.52**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	12	<0.4	32	12	23	<0.1	6	36
13_BH1	0.2	12/12/2017	181867	<0.5	<0.05	--	--	--	--	--	--	--	--	--	--	14	<0.4	28	6	20	<0.1	3	12
17_BH1	0.1	12/12/2017	181867	<0.5	<0.05	--	--	--	--	--	--	--	--	--	--	12	<0.4	21	21	26	<0.1	11	52
19_BH1	0.3	12/12/2017	181867	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	10	<0.4	24	25	31	<0.1	19	46
32_BH1	0.1	12/12/2017	181867	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	13	<0.4	30	12	19	<0.1	5	21
39_BH1	0.1	1/3/2018	186261	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	13	<0.4	24	11	21	<0.1	8	21
54_BH1	0.2	1/3/2018	186261/ASET62871	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	10	<0.4	19	30	31	<0.1	7	68
9_BH1	0.1	9/3/2018	187007/ASET63077	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	9	<0.4	29	3	16	<0.1	3	5
9_BH2	0.9	9/3/2018	187007	<0.5	<0.05	--	--	--	--	--	--	--	--	--	--	11	<0.4	10	20	14	<0.1	2	10
9_BH3	0.1	9/3/2018	187007	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	9	<0.4	26	4	17	<0.1	3	9
9_BH4	0.3	9/3/2018	187007	<0.5	<0.05	--	--	--	--	--	--	--	--	--	--	7	<0.4	21	3	15	<0.1	2	2
9_BH5	1.0	9/3/2018	187007	<0.5	<0.05	--	--	--	--	--	--	--	--	--	--	11	<0.4	34	4	18	<0.1	4	10
9_BH6	0.1	9/3/2018	187007/ASET63077	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	13	<0.4	30	17	22	<0.1	4	63
9_BH7	1.0	9/3/2018	187007	<0.5	<0.05	--	--	--	--	--	--	--	--	--	--	12	<0.4	34	3	19	<0.1	3	6
29_BH1	0.1	9/3/2018	187007/ASET63077	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	15	<0.4	37	17	27	<0.1	3	48
29_BH2	0.9	9/3/2018	187007/ASET63077	<0.5	<0.05	--	--	--	--	--	--	--	--	--	--	10	<0.4	41	10	15	<0.1	4	7
29_BH3	0.1	9/3/2018	187007/ASET63077	<0.5	<0.05	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	10	<0.4	23	22	21	<0.1	5	45
55_BH1	0.1	9/3/2018	ASET63077	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
55_BH1	1.0	9/3/2018	187007	<0.5	<0.05	--	--	--	--	--	--	--	--	--	--	5	<0.4	16	8	13	<0.1	**0.5**	2
55_BH2	0.1	9/3/2018	187007	<0.5	<0.05	**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	15	<0.4	55	25	20	<0.1	4	40
27_BH1	0.1	9/3/2018	187007/ASET63077	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	14	<0.4	26	9	22	<0.1	4	23
22_BH1	0.1	9/3/2018	187007/ASET63077	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	8	<0.4	20	16	16	<0.1	7	22
INTRA-LABORATORY DUPLICATES																							
54_BH1A	0.2	1/3/2018	186261	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	10	<0.4	20	39	27	<0.1	9	110
9_BH2A	0.9	9/3/2018	187007	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	11	<0.4	10	16	13	<0.1	1	8
29_BH1A	0.1	9/3/2018	187007	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	16	<0.4	45	20	24	<0.1	3	54
55_BH2A	0.1	9/3/2018	187007	<0.5	<0.05	**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	14	<0.4	46	25	16	<0.1	4	36
INTER-LABORATORY DUPLICATES																							
54_BH1B	0.2	1/3/2018	SE176150	<0.3	<0.8	<0.2	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<1.7	<0.2	4	<0.3	12	28	24	<0.05	3	99
29_BH1B	0.1	9/3/2018	SE176608	<0.3	<0.8	<0.2	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<1.7	<0.2	14	<0.3	33	25	27	<0.05	3	71
STATISTICAL ANALYSIS																							
Min				0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	10.0	3.0	13.0	0.0	0.5	2.0
Max				0.0	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	0.0	55	39	31	0.0	19	110
Avg				n/a	n/a	0.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	10.9	n/a	27.5	13.0	20.1	n/a	4.8	26.3
Stdev				n/a	n/a	0.1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.4	n/a	9.7	9.6	5.1	n/a	3.7	25.7
Procedure B Calculation				--	--	--	--	--	--	--	--	--	--	--	--	0.004	--	0.11	0.00002	0.002	--	0.00055	7.56E-05
95% UCL				--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

* Depth relates to Depth Below Surface Level | -- Not Tested | * Depth relates to Depth Below Surface Level | -- Not Tested | nd = Not Detected Above Laboratory LOR | NL = Not Limiting | **Bold** = Detected Above Laboratory LOR | RED = Exceeds HIL Criteria

Annex F

Laboratory Reports

Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
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customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 187007

Client Details

Client	DLA Environmental Services Pty Ltd
Attention	Amy Dorrington, Simon Spyrdz
Address	Unit 11 Macquarie Link, 277 Lane Cove Rd, Macquarie Park, NSW, 2113

Sample Details

Your Reference	**DL4101, West Schofileds**
Number of Samples	17 Soil
Date samples received	12/03/2018
Date completed instructions received	12/03/2018

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	19/03/2018
Date of Issue	15/03/2018

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Results Approved By
Jaimie Loa-Kum-Cheung, Senior Chemist
Jeremy Faircloth, Organics Supervisor
Steven Luong, Senior Chemist

Authorised By

David Springer, General Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		187007-1	187007-2	187007-3	187007-4	187007-5
Your Reference	UNITS	9_BH1_0.1	9_BH2_0.9	9_BH3_0.1	9_BH4_0.3	9_BH5_1.0
Date Sampled		09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
Date analysed	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	94	96	86	100	103

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		187007-6	187007-7	187007-8	187007-9	187007-10
Your Reference	UNITS	9_BH6_0.1	9_BH7_1.0	9_BH2_0.9A	29_BH1_0.1	29_BH1_0.1
Date Sampled		09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
Date analysed	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	98	101	102	101	103

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		187007-11	187007-12	187007-13	187007-14	187007-15
Your Reference	UNITS	29_BH2_0.9	29_BH3_0.1	22_BH1_0.1	55_BH1_1.0	55_BH2_0.1
Date Sampled		09/03/2018	09/03/2018	12/03/2018	12/03/2018	12/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
Date analysed	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	98	99	102	100	100

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		187007-16	187007-17
Your Reference	UNITS	55_BH2_0.1A	27_BH1_0.1
Date Sampled		12/03/2018	12/03/2018
Type of sample		Soil	Soil
Date extracted	-	13/03/2018	13/03/2018
Date analysed	-	13/03/2018	13/03/2018
TRH C_6 - C_9	mg/kg	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	102	103

svTRH (C10-C40) in Soil						
Our Reference		187007-1	187007-2	187007-3	187007-4	187007-5
Your Reference	UNITS	9_BH1_0.1	9_BH2_0.9	9_BH3_0.1	9_BH4_0.3	9_BH5_1.0
Date Sampled		09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
Date analysed	-	14/03/2018	14/03/2018	14/03/2018	14/03/2018	14/03/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	82	85	81	81	83

svTRH (C10-C40) in Soil						
Our Reference		187007-6	187007-7	187007-8	187007-9	187007-10
Your Reference	UNITS	9_BH6_0.1	9_BH7_1.0	9_BH2_0.9A	29_BH1_0.1	29_BH1_0.1
Date Sampled		09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
Date analysed	-	14/03/2018	14/03/2018	14/03/2018	14/03/2018	14/03/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	83	84	87	84	85

svTRH (C10-C40) in Soil						
Our Reference		187007-11	187007-12	187007-13	187007-14	187007-15
Your Reference	UNITS	29_BH2_0.9	29_BH3_0.1	22_BH1_0.1	55_BH1_1.0	55_BH2_0.1
Date Sampled		09/03/2018	09/03/2018	12/03/2018	12/03/2018	12/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
Date analysed	-	14/03/2018	14/03/2018	14/03/2018	14/03/2018	14/03/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	85	83	86	84	85

svTRH (C10-C40) in Soil			
Our Reference		187007-16	187007-17
Your Reference	UNITS	55_BH2_0.1A	27_BH1_0.1
Date Sampled		12/03/2018	12/03/2018
Type of sample		Soil	Soil
Date extracted	-	13/03/2018	13/03/2018
Date analysed	-	14/03/2018	14/03/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	84	84

PAHs in Soil						
Our Reference		187007-1	187007-2	187007-3	187007-4	187007-5
Your Reference	UNITS	9_BH1_0.1	9_BH2_0.9	9_BH3_0.1	9_BH4_0.3	9_BH5_1.0
Date Sampled		09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
Date analysed	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	102	97	100	98	100

PAHs in Soil						
Our Reference		187007-6	187007-7	187007-8	187007-9	187007-10
Your Reference	UNITS	9_BH6_0.1	9_BH7_1.0	9_BH2_0.9A	29_BH1_0.1	29_BH1_0.1
Date Sampled		09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2018	13/03/2018	12/03/2018	12/03/2018	12/03/2018
Date analysed	-	13/03/2018	13/03/2018	14/03/2018	14/03/2018	14/03/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	100	101	105	102	102

PAHs in Soil						
Our Reference		187007-11	187007-12	187007-13	187007-14	187007-15
Your Reference	UNITS	29_BH2_0.9	29_BH3_0.1	22_BH1_0.1	55_BH1_1.0	55_BH2_0.1
Date Sampled		09/03/2018	09/03/2018	12/03/2018	12/03/2018	12/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/03/2018	12/03/2018	12/03/2018	12/03/2018	12/03/2018
Date analysed	-	14/03/2018	14/03/2018	14/03/2018	14/03/2018	14/03/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	106	100	102	103	101

PAHs in Soil			
Our Reference		187007-16	187007-17
Your Reference	UNITS	55_BH2_0.1A	27_BH1_0.1
Date Sampled		12/03/2018	12/03/2018
Type of sample		Soil	Soil
Date extracted	-	12/03/2018	12/03/2018
Date analysed	-	14/03/2018	14/03/2018
Naphthalene	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(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	101	102

Organochlorine Pesticides in soil						
Our Reference		187007-1	187007-3	187007-6	187007-9	187007-10
Your Reference	UNITS	9_BH1_0.1	9_BH3_0.1	9_BH6_0.1	29_BH1_0.1	29_BH1_0.1
Date Sampled		09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2018	13/03/2018	13/03/2018	12/03/2018	12/03/2018
Date analysed	-	13/03/2018	13/03/2018	13/03/2018	14/03/2018	14/03/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	108	103	104	103	104

Organochlorine Pesticides in soil						
Our Reference		187007-12	187007-13	187007-15	187007-16	187007-17
Your Reference	UNITS	29_BH3_0.1	22_BH1_0.1	55_BH2_0.1	55_BH2_0.1A	27_BH1_0.1
Date Sampled		09/03/2018	12/03/2018	12/03/2018	12/03/2018	12/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/03/2018	12/03/2018	12/03/2018	12/03/2018	12/03/2018
Date analysed	-	14/03/2018	14/03/2018	14/03/2018	14/03/2018	14/03/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	0.1	<0.1	0.2	0.2	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	0.1	<0.1	0.2	0.2	<0.1
Surrogate TCMX	%	103	104	102	102	103

Organophosphorus Pesticides						
Our Reference		187007-1	187007-3	187007-6	187007-9	187007-10
Your Reference	UNITS	9_BH1_0.1	9_BH3_0.1	9_BH6_0.1	29_BH1_0.1	29_BH1_0.1
Date Sampled		09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2018	13/03/2018	13/03/2018	12/03/2018	12/03/2018
Date analysed	-	13/03/2018	13/03/2018	13/03/2018	14/03/2018	14/03/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	108	103	104	103	104

Organophosphorus Pesticides						
Our Reference		187007-12	187007-13	187007-15	187007-16	187007-17
Your Reference	UNITS	29_BH3_0.1	22_BH1_0.1	55_BH2_0.1	55_BH2_0.1A	27_BH1_0.1
Date Sampled		09/03/2018	12/03/2018	12/03/2018	12/03/2018	12/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/03/2018	12/03/2018	12/03/2018	12/03/2018	12/03/2018
Date analysed	-	14/03/2018	14/03/2018	14/03/2018	14/03/2018	14/03/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	103	104	102	102	103

PCBs in Soil						
Our Reference		187007-1	187007-3	187007-6	187007-9	187007-10
Your Reference	UNITS	9_BH1_0.1	9_BH3_0.1	9_BH6_0.1	29_BH1_0.1	29_BH1_0.1
Date Sampled		09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2018	13/03/2018	13/03/2018	12/03/2018	12/03/2018
Date analysed	-	13/03/2018	13/03/2018	13/03/2018	14/03/2018	14/03/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	108	103	104	103	104

PCBs in Soil						
Our Reference		187007-12	187007-13	187007-15	187007-16	187007-17
Your Reference	UNITS	29_BH3_0.1	22_BH1_0.1	55_BH2_0.1	55_BH2_0.1A	27_BH1_0.1
Date Sampled		09/03/2018	12/03/2018	12/03/2018	12/03/2018	12/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/03/2018	12/03/2018	12/03/2018	12/03/2018	12/03/2018
Date analysed	-	14/03/2018	14/03/2018	14/03/2018	14/03/2018	14/03/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	103	104	102	102	103

Acid Extractable metals in soil						
Our Reference		187007-1	187007-2	187007-3	187007-4	187007-5
Your Reference	UNITS	9_BH1_0.1	9_BH2_0.9	9_BH3_0.1	9_BH4_0.3	9_BH5_1.0
Date Sampled		09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
Date analysed	-	14/03/2018	14/03/2018	14/03/2018	14/03/2018	14/03/2018
Arsenic	mg/kg	9	11	9	7	11
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	29	10	26	21	34
Copper	mg/kg	3	20	4	3	4
Lead	mg/kg	16	14	17	15	18
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	2	3	2	4
Zinc	mg/kg	5	10	9	2	10

Acid Extractable metals in soil						
Our Reference		187007-6	187007-7	187007-8	187007-9	187007-10
Your Reference	UNITS	9_BH6_0.1	9_BH7_1.0	9_BH2_0.9A	29_BH1_0.1	29_BH1_0.1
Date Sampled		09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
Date analysed	-	14/03/2018	14/03/2018	14/03/2018	14/03/2018	14/03/2018
Arsenic	mg/kg	13	12	11	15	16
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	30	34	10	37	45
Copper	mg/kg	17	3	16	17	20
Lead	mg/kg	22	19	13	27	24
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	3	1	3	3
Zinc	mg/kg	63	6	8	48	54

Acid Extractable metals in soil						
Our Reference		187007-11	187007-12	187007-13	187007-14	187007-15
Your Reference	UNITS	29_BH2_0.9	29_BH3_0.1	22_BH1_0.1	55_BH1_1.0	55_BH2_0.1
Date Sampled		09/03/2018	09/03/2018	12/03/2018	12/03/2018	12/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
Date analysed	-	14/03/2018	14/03/2018	14/03/2018	14/03/2018	14/03/2018
Arsenic	mg/kg	10	10	8	5	15
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	41	23	20	16	55
Copper	mg/kg	10	22	16	8	25
Lead	mg/kg	15	21	16	13	20
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	5	7	<1	4
Zinc	mg/kg	7	45	22	2	40

Acid Extractable metals in soil			
Our Reference		187007-16	187007-17
Your Reference	UNITS	55_BH2_0.1A	27_BH1_0.1
Date Sampled		12/03/2018	12/03/2018
Type of sample		Soil	Soil
Date prepared	-	13/03/2018	13/03/2018
Date analysed	-	14/03/2018	14/03/2018
Arsenic	mg/kg	14	14
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	46	26
Copper	mg/kg	25	9
Lead	mg/kg	16	22
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	4	4
Zinc	mg/kg	36	23

Moisture						
Our Reference		187007-1	187007-2	187007-3	187007-4	187007-5
Your Reference	UNITS	9_BH1_0.1	9_BH2_0.9	9_BH3_0.1	9_BH4_0.3	9_BH5_1.0
Date Sampled		09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
Date analysed	-	14/03/2018	14/03/2018	14/03/2018	14/03/2018	14/03/2018
Moisture	%	9.1	10	16	9.4	9.8

Moisture						
Our Reference		187007-6	187007-7	187007-8	187007-9	187007-10
Your Reference	UNITS	9_BH6_0.1	9_BH7_1.0	9_BH2_0.9A	29_BH1_0.1	29_BH1_0.1
Date Sampled		09/03/2018	09/03/2018	09/03/2018	09/03/2018	09/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
Date analysed	-	14/03/2018	14/03/2018	14/03/2018	14/03/2018	14/03/2018
Moisture	%	14	4.7	9.9	9.8	11

Moisture						
Our Reference		187007-11	187007-12	187007-13	187007-14	187007-15
Your Reference	UNITS	29_BH2_0.9	29_BH3_0.1	22_BH1_0.1	55_BH1_1.0	55_BH2_0.1
Date Sampled		09/03/2018	09/03/2018	12/03/2018	12/03/2018	12/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2018	13/03/2018	13/03/2018	13/03/2018	13/03/2018
Date analysed	-	14/03/2018	14/03/2018	14/03/2018	14/03/2018	14/03/2018
Moisture	%	26	16	11	16	13

Moisture			
Our Reference		187007-16	187007-17
Your Reference	UNITS	55_BH2_0.1A	27_BH1_0.1
Date Sampled		12/03/2018	12/03/2018
Type of sample		Soil	Soil
Date prepared	-	13/03/2018	13/03/2018
Date analysed	-	14/03/2018	14/03/2018
Moisture	%	12	13

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	187007-3
Date extracted	-			13/03/2018	1	13/03/2018	13/03/2018		13/03/2018	13/03/2018
Date analysed	-			13/03/2018	1	13/03/2018	13/03/2018		13/03/2018	13/03/2018
TRH C_6 - C_9	mg/kg	25	Org-016	<25	1	<25	<25	0	126	117
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	1	<25	<25	0	126	117
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	109	103
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	122	112
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	128	118
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	135	126
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	131	123
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	107	1	94	96	2	107	99

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	12	13/03/2018	13/03/2018		[NT]	[NT]
Date analysed	-			[NT]	12	13/03/2018	13/03/2018		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	12	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	12	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	12	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	12	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	12	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	12	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	12	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	12	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	12	99	99	0	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	187007-3
Date extracted	-			13/03/2018	1	13/03/2018	13/03/2018		13/03/2018	13/03/2018
Date analysed	-			14/03/2018	1	14/03/2018	14/03/2018		14/03/2018	14/03/2018
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	1	<50	<50	0	103	97
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	1	<100	<100	0	97	91
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	1	<100	<100	0	92	88
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	1	<50	<50	0	103	97
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	1	<100	<100	0	97	91
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	1	<100	<100	0	92	88
Surrogate o-Terphenyl	%		Org-003	88	1	82	83	1	92	81

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	12	13/03/2018	13/03/2018		[NT]	[NT]
Date analysed	-			[NT]	12	14/03/2018	14/03/2018		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	12	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	12	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	12	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	[NT]	12	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	[NT]	12	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	[NT]	12	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	12	83	84	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	187007-3
Date extracted	-			12/03/2018	1	13/03/2018	13/03/2018		13/03/2018	13/03/2018
Date analysed	-			14/03/2018	1	13/03/2018	13/03/2018		13/03/2018	13/03/2018
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	93	90
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	99	96
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	96	91
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	96	91
Pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	83	77
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	125	118
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	<0.05	<0.05	0	102	94
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	80	1	102	94	8	120	115

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	12	12/03/2018	12/03/2018		[NT]	[NT]
Date analysed	-			[NT]	12	14/03/2018	14/03/2018		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	12	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	12	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	12	100	101	1	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	187007-3
Date extracted	-			12/03/2018	1	13/03/2018	13/03/2018		13/03/2018	13/03/2018
Date analysed	-			14/03/2018	1	13/03/2018	13/03/2018		13/03/2018	13/03/2018
HCB	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	118	118
gamma-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	91	89
Heptachlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	72	79
delta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	102	97
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	96	92
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	109	104
Dieldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	96	93
Endrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	88	88
pp-DDD	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	74	75
Endosulfan II	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	117	122
Methoxychlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	85	1	108	98	10	89	87

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	12	12/03/2018	12/03/2018		[NT]	[NT]
Date analysed	-			[NT]	12	14/03/2018	14/03/2018		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	12	0.1	0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	12	103	103	0	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	187007-3
Date extracted	-			12/03/2018	1	13/03/2018	13/03/2018		13/03/2018	13/03/2018
Date analysed	-			14/03/2018	1	13/03/2018	13/03/2018		13/03/2018	13/03/2018
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	113	116
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	121	113
Dimethoate	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	108	116
Fenitrothion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	104	110
Malathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	118	117
Parathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	115	116
Ronnel	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	127	126
Surrogate TCMX	%		Org-008	85	1	108	98	10	89	87

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	12	12/03/2018	12/03/2018		[NT]	[NT]
Date analysed	-			[NT]	12	14/03/2018	14/03/2018		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	12	103	103	0	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	187007-3
Date extracted	-			12/03/2018	1	13/03/2018	13/03/2018		13/03/2018	13/03/2018
Date analysed	-			14/03/2018	1	13/03/2018	13/03/2018		13/03/2018	13/03/2018
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	104	93
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	85	1	108	98	10	89	87

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	12	12/03/2018	12/03/2018		[NT]	[NT]
Date analysed	-			[NT]	12	14/03/2018	14/03/2018		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	12	103	103	0	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	187007-3
Date prepared	-			13/03/2018	1	13/03/2018	13/03/2018		13/03/2018	13/03/2018
Date analysed	-			14/03/2018	1	14/03/2018	14/03/2018		14/03/2018	14/03/2018
Arsenic	mg/kg	4	Metals-020	<4	1	9	11	20	114	82
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	107	84
Chromium	mg/kg	1	Metals-020	<1	1	29	36	22	116	99
Copper	mg/kg	1	Metals-020	<1	1	3	2	40	115	102
Lead	mg/kg	1	Metals-020	<1	1	16	18	12	113	86
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	98	99
Nickel	mg/kg	1	Metals-020	<1	1	3	3	0	110	89
Zinc	mg/kg	1	Metals-020	<1	1	5	4	22	113	85

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	12	13/03/2018	13/03/2018		[NT]	[NT]
Date analysed	-			[NT]	12	14/03/2018	14/03/2018		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	12	10	9	11	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	12	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	12	23	24	4	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	12	22	22	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	12	21	19	10	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	12	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	12	5	5	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	12	45	48	6	[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

CHAIN OF CUSTODY - Client

ENVIROLAB GROUP - National phone number 1300 42 43 44

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
Ph 02 9910 6200 / sydney@envirolab.com.au

Combo1=TRH/BTEX/Pb
Combo2=TRH/BTEX/PAH/Pb
Combo3=TRH/BTEX/PAH/Met
Combo4=TRH/BTEX/PAH/Met/Phen
Combo5=TRH/BTEX/PAH/OC/PCB/Met
Combo6=TRH/BTEX/PAH/OC/OP/PCB/Met
Combo7=TRH/BTEX/PAH/OC/PCB/Met/Phen
Combo8=TRH/BTEX/PAH/OC/OP/PCB/Met/Phen
Combo9=TRH/BTEX/PAH/OC/PCB/Met/Phen/CN
Combo10=TRH/BTEX/PAH/OC/OP/PCB/Met/Phen/CN
Combo11=TRH/BTEX/PAH/OC/PCB/12met/Phen/CN
Combo12=TRH/BTEX/PAH/OC/PCB/Met/TCLP-PAH,6 Met
Combo13=TRH/BTEX/PAH/OC/OP/PCB/Met/TCLP-PAH,6Met

Client: DLA	Client Project Name / Number / Site etc (ie report title): DL 4101 - West Schofields
Contact Person: Amy	PO No.:
Project Mgr: Simon	Envirolab Quote No. :
Sampler: Amy	Date results required:
Address: Unit 11 Macquarie Link, 277 Lane Cove Road, Macquarie Park 2113	Or choose: standard / same day / 1 day / 2 day / 3 day
	Note: Inform lab in advance if urgent turnaround is required -
Phone: Mob:	Report format: esdat / equis /
Email: Sydney@dlaenvironmental.com.au	Lab Comments:

Envirolab Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	Combo 3	Combo 6	Comments
1	9[illegible]_BH1_0.1	0.1	9.3.18	Soil		X	
2	9[illegible]_BH2_0.9	0.9			X		
3	9[illegible]_BH3_0.1	0.1				X	
4	9[illegible]_BH4_0.3	0.3			X		
5	9[illegible]_BH5_1.0	1.0			X		
6	9[illegible]_BH6_0.1	0.1				X	
7	9[illegible]_BH7_1.0	1.0			X		
8	9[illegible]_BH2_0.9A	0.9			X		
9	29[illegible]_BH1_0.1	0.1				X	
10	29[illegible]_BH1_0.1A	0.1				X	
11	29[illegible]_BH2_0.9	0.9			X		
12	29[illegible]_BH3_0.1	0.1				X	
13	22_BH1_0.1	0.1	12.3.18			X	
14	55_BH1_1.0	1.0			X		
15	55_BH2_0.1	0.1				X	
16	55_BH2_0.1A	0.1				X	

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

Job No: 187007

Date Received: 12/3/18
Time Received: 14:30
Received by: JE
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Relinquished by (Company): DLA	Received by (Company): 3/18	Lab use only:
Print Name: Amy	Print Name: Kevin Wang	Samples Received: Cool or Ambient (circle one)
Date & Time: 12.3.18	Date & Time: 12/3/18	Temperature Received at: (if applicable)
Signature:	Signature: JE	Transported by: Hand delivered / courier

CHAIN OF CUSTODY - Client

ENVIROLAB GROUP - National phone number 1300 42 43 44

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
Ph 02 9910 6200 / sydney@envirolab.com.au

Combo1=TRH/BTEX/Pb
Combo2=TRH/BTEX/PAH/Pb
Combo3=TRH/BTEX/PAH/Met
Combo4=TRH/BTEX/PAH/Met/Phen
Combo5=TRH/BTEX/PAH/OC/PCB/Met
Combo6=TRH/BTEX/PAH/OC/OP/PCB/Met
Combo7=TRH/BTEX/PAH/OC/PCB/Met/Phen
Combo8=TRH/BTEX/PAH/OC/OP/PCB/Met/Phen
Combo9=TRH/BTEX/PAH/OC/PCB/Met/Phen/CN
Combo10=TRH/BTEX/PAH/OC/OP/PCB/Met/Phen/CN
Combo11=TRH/BTEX/PAH/OC/PCB/12met/Phen/CN
Combo12=TRH/BTEX/PAH/OC/PCB/Met/TCLP-PAH ,6 Met
Combo13=TRH/BTEX/PAH/OC/OP/PCB/Met/TCLP-PAH ,6Met

Client: DLA	Client Project Name / Number / Site etc (ie report title): DL4101 - West Schofields
Contact Person: Amy	PO No.:
Project Mgr: Simon	Envirolab Quote No. :
Sampler: Amy	Date results required:
Address: Unit 11 Macquarie Link, 277 Lane Cove Road, Macquarie Park 2113	Or choose: ~~standard~~ / same day / 1 day / 2 day / 3 day *Note: Inform lab in advance if urgent turnaround is required -*
Phone: Mob:	Report format: esdat / equis /
Email: Sydney@dlaenvironmental.com.au	Lab Comments:

Sample information					Tests Required														Comments
Envirolab Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	Combo 3	Combo 6													Provide as much information about the sample as you can
	187007																		
17	27-BH1-0.1	0.1	12.3.18	Soil		X													

Relinquished by (Company): DLA	Received by (Company):	*Lab use only:*
Print Name: Amy	Print Name: Kevin Ng	Samples Received: Cool or Ambient (circle one)
Date & Time: 12.3.18	Date & Time: 12/3/18	Temperature Received at: (if applicable)
Signature:	Signature:	Transported by: Hand delivered / courier

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

CERTIFICATE OF ANALYSIS 181867

Client Details

Client	DLA Environmental Services Pty Ltd
Attention	Amy Dorrington, Administration Email
Address	Unit 3, 38 Leighton Pl, Hornsby, NSW, 2077

Sample Details

Your Reference	**DL4101, West Schofields**
Number of Samples	4 Soil
Date samples received	12/12/2017
Date completed instructions received	12/12/2017

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	19/12/2017
Date of Issue	15/12/2017

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Jeremy Faircloth, Organics Supervisor
Long Pham, Team Leader, Metals
Steven Luong, Senior Chemist

Authorised By

David Springer, General Manager

vTRH(C6-C10)/BTEXN in Soil					
Our Reference		181867-1	181867-2	181867-3	181867-4
Your Reference	UNITS	13_0.2	17_0.1	19_0.3	32_0.1
Depth		0.2	0.1	0.3	0.1
Date Sampled		12/12/2017	12/12/2017	12/12/2017	12/12/2017
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	13/12/2017	13/12/2017	13/12/2017	13/12/2017
Date analysed	-	14/12/2017	14/12/2017	14/12/2017	14/12/2017
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	93	101	97	93

svTRH (C10-C40) in Soil					
Our Reference		181867-1	181867-2	181867-3	181867-4
Your Reference	UNITS	13_0.2	17_0.1	19_0.3	32_0.1
Depth		0.2	0.1	0.3	0.1
Date Sampled		12/12/2017	12/12/2017	12/12/2017	12/12/2017
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	13/12/2017	13/12/2017	13/12/2017	13/12/2017
Date analysed	-	14/12/2017	14/12/2017	14/12/2017	14/12/2017
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50
Surrogate o-Terphenyl	%	98	101	94	95

PAHs in Soil					
Our Reference		181867-1	181867-2	181867-3	181867-4
Your Reference	UNITS	13_0.2	17_0.1	19_0.3	32_0.1
Depth		0.2	0.1	0.3	0.1
Date Sampled		12/12/2017	12/12/2017	12/12/2017	12/12/2017
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	13/12/2017	13/12/2017	13/12/2017	13/12/2017
Date analysed	-	14/12/2017	14/12/2017	14/12/2017	14/12/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	100	103	102	104

Organochlorine Pesticides in soil			
Our Reference		181867-3	181867-4
Your Reference	UNITS	19_0.3	32_0.1
Depth		0.3	0.1
Date Sampled		12/12/2017	12/12/2017
Type of sample		Soil	Soil
Date extracted	-	13/12/2017	13/12/2017
Date analysed	-	13/12/2017	13/12/2017
HCB	mg/kg	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate TCMX	%	98	97

Organophosphorus Pesticides			
Our Reference		181867-3	181867-4
Your Reference	UNITS	19_0.3	32_0.1
Depth		0.3	0.1
Date Sampled		12/12/2017	12/12/2017
Type of sample		Soil	Soil
Date extracted	-	13/12/2017	13/12/2017
Date analysed	-	13/12/2017	13/12/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Surrogate TCMX	%	98	97

PCBs in Soil			
Our Reference		181867-3	181867-4
Your Reference	UNITS	19_0.3	32_0.1
Depth		0.3	0.1
Date Sampled		12/12/2017	12/12/2017
Type of sample		Soil	Soil
Date extracted	-	13/12/2017	13/12/2017
Date analysed	-	13/12/2017	13/12/2017
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1
Surrogate TCLMX	%	98	97

Acid Extractable metals in soil					
Our Reference		181867-1	181867-2	181867-3	181867-4
Your Reference	UNITS	13_0.2	17_0.1	19_0.3	32_0.1
Depth		0.2	0.1	0.3	0.1
Date Sampled		12/12/2017	12/12/2017	12/12/2017	12/12/2017
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	13/12/2017	13/12/2017	13/12/2017	13/12/2017
Date analysed	-	13/12/2017	13/12/2017	13/12/2017	13/12/2017
Arsenic	mg/kg	14	12	10	13
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	28	21	24	30
Copper	mg/kg	6	21	25	12
Lead	mg/kg	20	26	31	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	11	19	5
Zinc	mg/kg	12	52	46	21

Moisture					
Our Reference		181867-1	181867-2	181867-3	181867-4
Your Reference	UNITS	13_0.2	17_0.1	19_0.3	32_0.1
Depth		0.2	0.1	0.3	0.1
Date Sampled		12/12/2017	12/12/2017	12/12/2017	12/12/2017
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	13/12/2017	13/12/2017	13/12/2017	13/12/2017
Date analysed	-	14/12/2017	14/12/2017	14/12/2017	14/12/2017
Moisture	%	9.6	8.0	9.0	8.4

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date extracted	-			13/12/2017	4	13/12/2017	13/12/2017		13/12/2017	[NT]
Date analysed	-			14/12/2017	4	14/12/2017	14/12/2017		14/12/2017	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	<25	4	<25	<25	0	121	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	4	<25	<25	0	121	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	4	<0.2	<0.2	0	117	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	4	<0.5	<0.5	0	121	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	4	<1	<1	0	122	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	4	<2	<2	0	123	[NT]
o-Xylene	mg/kg	1	Org-016	<1	4	<1	<1	0	118	[NT]
naphthalene	mg/kg	1	Org-014	<1	4	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	98	4	93	100	7	106	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date extracted	-			13/12/2017	4	13/12/2017	13/12/2017		13/12/2017	[NT]
Date analysed	-			14/12/2017	4	14/12/2017	14/12/2017		14/12/2017	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	4	<50	<50	0	125	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	4	<100	<100	0	126	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	4	<100	<100	0	125	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	4	<50	<50	0	125	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	4	<100	<100	0	126	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	4	<100	<100	0	125	[NT]
Surrogate o-Terphenyl	%		Org-003	106	4	95	101	6	102	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date extracted	-			13/12/2017	4	13/12/2017	13/12/2017		13/12/2017	[NT]
Date analysed	-			14/12/2017	4	14/12/2017	14/12/2017		14/12/2017	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	4	<0.1	<0.1	0	107	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	4	<0.1	<0.1	0	137	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	4	<0.1	<0.1	0	116	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	4	<0.1	<0.1	0	94	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	4	<0.1	<0.1	0	99	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	4	<0.1	<0.1	0	102	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	4	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	4	<0.05	<0.05	0	96	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	97	4	104	96	8	116	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date extracted	-			13/12/2017	4	13/12/2017	13/12/2017		13/12/2017	[NT]
Date analysed	-			13/12/2017	4	13/12/2017	13/12/2017		13/12/2017	[NT]
HCB	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	87	[NT]
gamma-BHC	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	100	[NT]
Heptachlor	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	91	[NT]
delta-BHC	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	94	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	95	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	100	[NT]
Dieldrin	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	95	[NT]
Endrin	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	90	[NT]
pp-DDD	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	95	[NT]
Endosulfan II	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	94	[NT]
Methoxychlor	mg/kg	0.1	Org-005	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	99	4	97	101	4	113	[NT]

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date extracted	-			13/12/2017	4	13/12/2017	13/12/2017		13/12/2017	[NT]
Date analysed	-			13/12/2017	4	13/12/2017	13/12/2017		13/12/2017	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	4	<0.1	<0.1	0	76	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	4	<0.1	<0.1	0	85	[NT]
Dimethoate	mg/kg	0.1	Org-008	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	4	<0.1	<0.1	0	83	[NT]
Fenitrothion	mg/kg	0.1	Org-008	<0.1	4	<0.1	<0.1	0	90	[NT]
Malathion	mg/kg	0.1	Org-008	<0.1	4	<0.1	<0.1	0	74	[NT]
Parathion	mg/kg	0.1	Org-008	<0.1	4	<0.1	<0.1	0	99	[NT]
Ronnel	mg/kg	0.1	Org-008	<0.1	4	<0.1	<0.1	0	86	[NT]
Surrogate TCMX	%		Org-008	99	4	97	101	4	98	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date extracted	-			13/12/2017	4	13/12/2017	13/12/2017		13/12/2017	[NT]
Date analysed	-			13/12/2017	4	13/12/2017	13/12/2017		13/12/2017	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	4	<0.1	<0.1	0	100	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	99	4	97	101	4	98	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date prepared	-			13/12/2017	4	13/12/2017	13/12/2017		13/12/2017	[NT]
Date analysed	-			13/12/2017	4	13/12/2017	13/12/2017		13/12/2017	[NT]
Arsenic	mg/kg	4	Metals-020	<4	4	13	13	0	112	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	4	<0.4	<0.4	0	104	[NT]
Chromium	mg/kg	1	Metals-020	<1	4	30	32	6	111	[NT]
Copper	mg/kg	1	Metals-020	<1	4	12	13	8	111	[NT]
Lead	mg/kg	1	Metals-020	<1	4	19	17	11	106	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	4	<0.1	<0.1	0	105	[NT]
Nickel	mg/kg	1	Metals-020	<1	4	5	5	0	106	[NT]
Zinc	mg/kg	1	Metals-020	<1	4	21	20	5	108	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

CHAIN OF CUSTODY - Client

ENVIROLAB GROUP - National phone number 1300 42 43 44

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
Ph 02 9910 6200 / sydney@envirolab.com.au

Combo1=TRH/BTEX/Pb
Combo2=TRH/BTEX/PAH/Pb
Combo3=TRH/BTEX/PAH/Met
Combo4=TRH/BTEX/PAH/Met/Phen
Combo5=TRH/BTEX/PAH/OC/PCB/Met
Combo6=TRH/BTEX/PAH/OC/OP/PCB/Met
Combo7=TRH/BTEX/PAH/OC/PCB/Met/Phen
Combo8=TRH/BTEX/PAH/OC/OP/PCB/Met/Phen
Combo9=TRH/BTEX/PAH/OC/PCB/Met/Phen/CN
Combo10=TRH/BTEX/PAH/OC/OP/PCB/Met/Phen/CN
Combo11=TRH/BTEX/PAH/OC/PCB/12met/Phen/CN
Combo12=TRH/BTEX/PAH/OC/PCB/Met/TCLP-PAH ,6 Met
Combo13=TRH/BTEX/PAH/OC/OP/PCB/Met/TCLP-PAH ,6Met

Client: DLA
Contact Person: Amy
Project Mgr: Simon
Sampler: Amy
Address: Unit 3/38 Leighton Place, Hornsby
Phone: **Mob:**
Email: Sydney@dlaenvironmental.com.au

Client Project Name / Number / Site etc (ie report title): West Schofields DL 4101
PO No.:
Envirolab Quote No. :
Date results required:
Or choose: standard / same day / 1 day / 2 day / 3 day
Note: Inform lab in advance if urgent turnaround is required -
Report format: esdat / equis /
Lab Comments:

Sample information					Tests Required														Comments
Envirolab Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	Combo 3	Combo 6													Provide as much information about the sample as you can
1	13_0.2	0.2	12.12.17	Soil	X														
2	17_0.1	0.1	"	"	X														
3	19_0.3	0.3	"	"		X													
4	32_0.1	0.1	"	"		X													

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

Job No: 181867
Date Received: 12/12/17
Time Received: 16:25
Received by: MT
Temp: Cool/Ambient
Cooling: Ice/Icepack 16.1
Security: Intact/Broken/None

Relinquished by (Company): DLA
Print Name: Amy
Date & Time: 12.12.17
Signature:

Received by (Company): ES
Print Name: MT
Date & Time: 12/12/17 16:25
Signature:

Lab use only:
Samples Received: Cool or Ambient (circle one)
Temperature Received at: 16.1 (if applicable)
Transported by: Hand delivered / courier

White - Lab copy / Blue - Client copy / Pink - Retain in Book

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

CERTIFICATE OF ANALYSIS 181759

Client Details

Client	DLA Environmental Services Pty Ltd
Attention	Administration Email
Address	Unit 3, 38 Leighton Pl, Hornsby, NSW, 2077

Sample Details

Your Reference	**DL 4101, West Schofields**
Number of Samples	5 Soil
Date samples received	11/12/2017
Date completed instructions received	11/12/2017

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	18/12/2017
Date of Issue	14/12/2017

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Results Approved By
Jeremy Faircloth, Organics Supervisor
Long Pham, Team Leader, Metals
Steven Luong, Senior Chemist

Authorised By

David Springer, General Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		181759-1	181759-2	181759-3	181759-4	181759-5
Your Reference	UNITS	14	30	51	57	57-2
Depth		0.2	0.1	0.4	0.1	0.1
Date Sampled		11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/12/2017	12/12/2017	12/12/2017	12/12/2017	12/12/2017
Date analysed	-	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	95	88	91	88	91

svTRH (C10-C40) in Soil						
Our Reference		181759-1	181759-2	181759-3	181759-4	181759-5
Your Reference	UNITS	14	30	51	57	57-2
Depth		0.2	0.1	0.4	0.1	0.1
Date Sampled		11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/12/2017	12/12/2017	12/12/2017	12/12/2017	12/12/2017
Date analysed	-	12/12/2017	12/12/2017	12/12/2017	12/12/2017	12/12/2017
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	87	85	85	86	84

PAHs in Soil						
Our Reference		181759-1	181759-2	181759-3	181759-4	181759-5
Your Reference	UNITS	14	30	51	57	57-2
Depth		0.2	0.1	0.4	0.1	0.1
Date Sampled		11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/12/2017	12/12/2017	12/12/2017	12/12/2017	12/12/2017
Date analysed	-	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.06
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	0.52
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	90	90	92	88	89

Organochlorine Pesticides in soil				
Our Reference		181759-1	181759-3	181759-5
Your Reference	UNITS	14	51	57-2
Depth		0.2	0.4	0.1
Date Sampled		11/12/2017	11/12/2017	11/12/2017
Type of sample		Soil	Soil	Soil
Date extracted	-	12/12/2017	12/12/2017	12/12/2017
Date analysed	-	13/12/2017	13/12/2017	13/12/2017
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	75	74	76

Organophosphorus Pesticides				
Our Reference		181759-1	181759-3	181759-5
Your Reference	UNITS	14	51	57-2
Depth		0.2	0.4	0.1
Date Sampled		11/12/2017	11/12/2017	11/12/2017
Type of sample		Soil	Soil	Soil
Date extracted	-	12/12/2017	12/12/2017	12/12/2017
Date analysed	-	13/12/2017	13/12/2017	13/12/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	75	74	76

PCBs in Soil				
Our Reference		181759-1	181759-3	181759-5
Your Reference	UNITS	14	51	57-2
Depth		0.2	0.4	0.1
Date Sampled		11/12/2017	11/12/2017	11/12/2017
Type of sample		Soil	Soil	Soil
Date extracted	-	12/12/2017	12/12/2017	12/12/2017
Date analysed	-	13/12/2017	13/12/2017	13/12/2017
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCLMX	%	75	74	76

Acid Extractable metals in soil						
Our Reference		181759-1	181759-2	181759-3	181759-4	181759-5
Your Reference	UNITS	14	30	51	57	57-2
Depth		0.2	0.1	0.4	0.1	0.1
Date Sampled		11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/12/2017	12/12/2017	12/12/2017	12/12/2017	12/12/2017
Date analysed	-	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017
Arsenic	mg/kg	9	11	10	10	12
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	26	41	29	36	32
Copper	mg/kg	3	4	3	7	12
Lead	mg/kg	19	19	14	24	23
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	3	3	4	6
Zinc	mg/kg	6	10	6	21	36

Moisture						
Our Reference		181759-1	181759-2	181759-3	181759-4	181759-5
Your Reference	UNITS	14	30	51	57	57-2
Depth		0.2	0.1	0.4	0.1	0.1
Date Sampled		11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/12/2017	12/12/2017	12/12/2017	12/12/2017	12/12/2017
Date analysed	-	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017
Moisture	%	5.0	5.8	6.6	7.0	9.2

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			12/12/2017	[NT]	[NT]	[NT]	[NT]	12/12/2017	[NT]
Date analysed	-			13/12/2017	[NT]	[NT]	[NT]	[NT]	13/12/2017	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	105	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	93	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	103	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	105	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	84	[NT]
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	91	[NT]	[NT]	[NT]	[NT]	90	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			12/12/2017	[NT]	[NT]	[NT]	[NT]	12/12/2017	[NT]
Date analysed	-			12/12/2017	[NT]	[NT]	[NT]	[NT]	12/12/2017	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	111	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	106	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	111	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	109	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	106	[NT]
Surrogate o-Terphenyl	%		Org-003	93	[NT]	[NT]	[NT]	[NT]	96	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			12/12/2017	[NT]	[NT]	[NT]	[NT]	12/12/2017	[NT]
Date analysed	-			13/12/2017	[NT]	[NT]	[NT]	[NT]	13/12/2017	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	[NT]	[NT]	94	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	92	[NT]	[NT]	[NT]	[NT]	105	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			12/12/2017	[NT]	[NT]	[NT]	[NT]	12/12/2017	[NT]
Date analysed	-			13/12/2017	[NT]	[NT]	[NT]	[NT]	13/12/2017	[NT]
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	89	[NT]
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-005	77	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			12/12/2017	[NT]	[NT]	[NT]	[NT]	12/12/2017	[NT]
Date analysed	-			13/12/2017	[NT]	[NT]	[NT]	[NT]	13/12/2017	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	78	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Dimethoate	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	78	[NT]
Fenitrothion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Malathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Parathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	79	[NT]
Ronnel	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Surrogate TCMX	%		Org-008	77	[NT]	[NT]	[NT]	[NT]	75	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			12/12/2017	[NT]	[NT]	[NT]	[NT]	12/12/2017	[NT]
Date analysed	-			13/12/2017	[NT]	[NT]	[NT]	[NT]	13/12/2017	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCLMX	%		Org-006	77	[NT]	[NT]	[NT]	[NT]	75	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date prepared	-			12/12/2017	[NT]	[NT]	[NT]	[NT]	12/12/2017	[NT]
Date analysed	-			13/12/2017	[NT]	[NT]	[NT]	[NT]	13/12/2017	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	110	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	104	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	117	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	113	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

CHAIN OF CUSTODY - Client

ENVIROLAB GROUP - National phone number 1300 42 43 44

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
Ph 02 9910 6200 / sydney@envirolab.com.au

Combo1=TRH/BTEX/Pb
Combo2=TRH/BTEX/PAH/Pb
Combo3=TRH/BTEX/PAH/Met
Combo4=TRH/BTEX/PAH/Met/Phen
Combo5=TRH/BTEX/PAH/OC/PCB/Met
Combo6=TRH/BTEX/PAH/OC/OP/PCB/Met
Combo7=TRH/BTEX/PAH/OC/PCB/Met/Phen
Combo8=TRH/BTEX/PAH/OC/OP/PCB/Met/Phen
Combo9=TRH/BTEX/PAH/OC/PCB/Met/Phen/CN
Combo10=TRH/BTEX/PAH/OC/OP/PCB/Met/Phen/CN
Combo11=TRH/BTEX/PAH/OC/PCB/12met/Phen/CN
Combo12=TRH/BTEX/PAH/OC/PCB/Met/TCLP-PAH ,6 Met
Combo13=TRH/BTEX/PAH/OC/OP/PCB/Met/TCLP-PAH ,6Met

A Combo with an `A' indicates Asbestos is also needed.

Client: DLA
Contact Person: Amy
Project Mgr: Simon
Sampler: Amy
Address: Unit 3/38 Leighton Place Hornsby NSW
Phone: **Mob:**
Email: sydney@dlaenvironmental.com.au

Client Project Name / Number / Site etc (ie report title): West Schofields DL 4101
PO No.:
Envirolab Quote No. :
Date results required:
Or choose: standard / same day / 1 day / 2 day / 3 day
Note: Inform lab in advance if urgent turnaround is required - surcharges apply
Report format: esdat / equis /
Lab Comments:

Envirolab Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	Combo 3	Combo 6	Comments
1	14-0.2	0.2	11.12.17	Soil		X	Provide as much information about the sample as you can
2	30-0.1	0.1	"	"	X		
3	51-0.4	0.4	"	"		X	
4	57-0.1	0.1	"	"	X		
5	572-0.1	0.1	"	"		X	

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

Job No: 181759
Date Received: 11/12/17
Time Received:
Received by: JE 17:30
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Relinquished by (Company): DLA
Print Name: Amy
Date & Time: 11.12.17
Signature:

Received by (Company): EL S
Print Name: JE
Date & Time: 11/12/17 17:30
Signature:

Lab use only:
Samples Received: Cool or Ambient (circle one)
Temperature Received at: 9.3°C (if applicable)
Transported by: Hand delivered / courier

White - Lab copy / Blue - Client copy / Pink - Retain in Book

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

CERTIFICATE OF ANALYSIS 186261

Client Details

Client	DLA Environmental Services Pty Ltd
Attention	Amy Dorrington, Simon Spyrdz
Address	Unit 11 Macquarie Link, 277 Lane Cove Rd, Macquarie Park, NSW, 2113

Sample Details

Your Reference	**DL4101 - West Schofields**
Number of Samples	3 soil
Date samples received	01/03/2018
Date completed instructions received	01/03/2018

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	08/03/2018
Date of Issue	06/03/2018

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Results Approved By
Jeremy Faircloth, Organics Supervisor
Long Pham, Team Leader, Metals
Steven Luong, Senior Chemist

Authorised By

David Springer, General Manager

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		186261-1	186261-2	186261-3
Your Reference	UNITS	39-0.1	54-0.2	54-0.2A
Date Sampled		01/03/2018	01/03/2018	01/03/2018
Type of sample		soil	soil	soil
Date extracted	-	01/03/2018	01/03/2018	01/03/2018
Date analysed	-	02/03/2018	02/03/2018	02/03/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	89	90	86

svTRH (C10-C40) in Soil				
Our Reference		186261-1	186261-2	186261-3
Your Reference	UNITS	39-0.1	54-0.2	54-0.2A
Date Sampled		01/03/2018	01/03/2018	01/03/2018
Type of sample		soil	soil	soil
Date extracted	-	02/03/2018	02/03/2018	02/03/2018
Date analysed	-	02/03/2018	02/03/2018	03/03/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	72	73	73

PAHs in Soil				
Our Reference		186261-1	186261-2	186261-3
Your Reference	UNITS	39-0.1	54-0.2	54-0.2A
Date Sampled		01/03/2018	01/03/2018	01/03/2018
Type of sample		soil	soil	soil
Date extracted	-	02/03/2018	02/03/2018	02/03/2018
Date analysed	-	02/03/2018	02/03/2018	02/03/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	87	89	86

Organochlorine Pesticides in soil				
Our Reference		186261-1	186261-2	186261-3
Your Reference	UNITS	39-0.1	54-0.2	54-0.2A
Date Sampled		01/03/2018	01/03/2018	01/03/2018
Type of sample		soil	soil	soil
Date extracted	-	02/03/2018	02/03/2018	02/03/2018
Date analysed	-	02/03/2018	02/03/2018	02/03/2018
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	77	86	82

Organophosphorus Pesticides				
Our Reference		186261-1	186261-2	186261-3
Your Reference	UNITS	39-0.1	54-0.2	54-0.2A
Date Sampled		01/03/2018	01/03/2018	01/03/2018
Type of sample		soil	soil	soil
Date extracted	-	02/03/2018	02/03/2018	02/03/2018
Date analysed	-	02/03/2018	02/03/2018	02/03/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	77	86	82

PCBs in Soil				
Our Reference		186261-1	186261-2	186261-3
Your Reference	UNITS	39-0.1	54-0.2	54-0.2A
Date Sampled		01/03/2018	01/03/2018	01/03/2018
Type of sample		soil	soil	soil
Date extracted	-	02/03/2018	02/03/2018	02/03/2018
Date analysed	-	02/03/2018	02/03/2018	02/03/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCLMX	%	77	86	82

Acid Extractable metals in soil				
Our Reference		186261-1	186261-2	186261-3
Your Reference	UNITS	39-0.1	54-0.2	54-0.2A
Date Sampled		01/03/2018	01/03/2018	01/03/2018
Type of sample		soil	soil	soil
Date prepared	-	02/03/2018	02/03/2018	02/03/2018
Date analysed	-	02/03/2018	02/03/2018	02/03/2018
Arsenic	mg/kg	13	10	10
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	24	19	20
Copper	mg/kg	11	30	39
Lead	mg/kg	21	31	27
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	8	7	9
Zinc	mg/kg	21	68	110

Moisture				
Our Reference		186261-1	186261-2	186261-3
Your Reference	UNITS	39-0.1	54-0.2	54-0.2A
Date Sampled		01/03/2018	01/03/2018	01/03/2018
Type of sample		soil	soil	soil
Date prepared	-	02/03/2018	02/03/2018	02/03/2018
Date analysed	-	05/03/2018	05/03/2018	05/03/2018
Moisture	%	12	17	16

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			01/03/2018	[NT]	[NT]	[NT]	[NT]	01/03/2018	[NT]
Date analysed	-			02/03/2018	[NT]	[NT]	[NT]	[NT]	02/03/2018	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	84	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	84	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	83	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	86	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	83	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	83	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	84	[NT]
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	94	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			02/03/2018	[NT]	[NT]	[NT]	[NT]	02/03/2018	[NT]
Date analysed	-			02/03/2018	[NT]	[NT]	[NT]	[NT]	02/03/2018	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	102	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	87	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	102	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	87	[NT]
Surrogate o-Terphenyl	%		Org-003	93	[NT]	[NT]	[NT]	[NT]	78	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			02/03/2018	[NT]	[NT]	[NT]	[NT]	02/03/2018	[NT]
Date analysed	-			02/03/2018	[NT]	[NT]	[NT]	[NT]	02/03/2018	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	[NT]	[NT]	98	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	98	[NT]	[NT]	[NT]	[NT]	121	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			02/03/2018	[NT]	[NT]	[NT]	[NT]	02/03/2018	[NT]
Date analysed	-			02/03/2018	[NT]	[NT]	[NT]	[NT]	02/03/2018	[NT]
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	87	[NT]
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	83	[NT]
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	87	[NT]
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	87	[NT]
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	76	[NT]
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-005	91	[NT]	[NT]	[NT]	[NT]	96	[NT]

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			02/03/2018	[NT]	[NT]	[NT]	[NT]	02/03/2018	[NT]
Date analysed	-			02/03/2018	[NT]	[NT]	[NT]	[NT]	02/03/2018	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Dimethoate	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Fenitrothion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Malathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	76	[NT]
Parathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Ronnel	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Surrogate TCMX	%		Org-008	91	[NT]	[NT]	[NT]	[NT]	75	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			02/03/2018	[NT]	[NT]	[NT]	[NT]	02/03/2018	[NT]
Date analysed	-			02/03/2018	[NT]	[NT]	[NT]	[NT]	02/03/2018	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCLMX	%		Org-006	91	[NT]	[NT]	[NT]	[NT]	75	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			02/03/2018	[NT]	[NT]	[NT]	[NT]	02/03/2018	[NT]
Date analysed	-			02/03/2018	[NT]	[NT]	[NT]	[NT]	02/03/2018	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	111	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	101	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

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

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

CHAIN OF CUSTODY - Client

ENVIROLAB GROUP - National phone number 1300 42 43 44

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
Ph 02 9910 6200 / sydney@envirolab.com.au

Combo1=TRH/BTEX/Pb
Combo2=TRH/BTEX/PAH/Pb
Combo3=TRH/BTEX/PAH/Met
Combo4=TRH/BTEX/PAH/Met/Phen
Combo5=TRH/BTEX/PAH/OC/PCB/Met
Combo6=TRH/BTEX/PAH/OC/OP/PCB/Met
Combo7=TRH/BTEX/PAH/OC/PCB/Met/Phen
Combo8=TRH/BTEX/PAH/OC/OP/PCB/Met/Phen
Combo9=TRH/BTEX/PAH/OC/PCB/Met/Phen/CN
Combo10=TRH/BTEX/PAH/OC/OP/PCB/Met/Phen/CN
Combo11=TRH/BTEX/PAH/OC/PCB/12met/Phen/CN
Combo12=TRH/BTEX/PAH/OC/PCB/Met/TCLP-PAH ,6 Met
Combo13=TRH/BTEX/PAH/OC/OP/PCB/Met/TCLP-PAH ,6Met

Client: DLA	**Client Project Name / Number / Site etc (ie report title):** DL 4101 - West Ehstelds.
Contact Person: Amy	**PO No.:**
Project Mgr: Simon	**Envirolab Quote No. :**
Sampler: Amy	**Date results required:**
Address: Unit 11 Macquarie Link, 277 Lane Cove Road, Macquarie Park 2113	**Or choose:** standard / same day / 1 day / 2 day / 3 day *Note: Inform lab in advance if urgent turnaround is required -*
Phone: **Mob:**	**Report format:** esdat / equis /
Email: Sydney@dlaenvironmental.com.au	**Lab Comments:**

Sample information					Tests Required	Comments
Envirolab Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	Combo6	Provide as much information about the sample as you can
1	39_0.1 (0.2)	0.1	1.3.18	soil	X	
2	54_0.2	0.2	1	1	X	
3	54_0.2A	0.2	1	1	X	
	Blank					

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

Job No: 186261
Date Received: 1/3/2018
Time Received: 12.15
Received by: PL
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None
10.2

Relinquished by (Company):	DLA	**Received by (Company):**	EL
Print Name:	Amy	**Print Name:**	Play
Date & Time:	1.3.18	**Date & Time:**	1/3/2018 12.15
Signature:		**Signature:**	

Lab use only:
Samples Received: Cool or Ambient (circle one)
Temperature Received at: (if applicable)
Transported by: Hand delivered / courier

AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref : ASET63077/ 66257 / 1 - 8
Your ref: DL4101 – West Schofields
NATA Accreditation No: 14484

15 March 2018

DLA Environmental Services Pty Ltd
11/277 Lane Cove Road
Macquarie Park NSW 2113

Accredited for compliance with ISO/IEC 17025.

Attn: Ms Amy Dorrington

Dear Amy

Asbestos Identification
This report presents the results of eight samples, forwarded by DLA Environmental Services Pty Ltd on 14 March 2018, for analysis for asbestos.

1.Introduction: Eight samples forwarded were examined and analysed for the presence of asbestos.

2. Methods : The samples were examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method **(Australian Standard AS 4964 - 2004 and Safer Environment Method 1 as the supplementary work instruction) (Qualitative Analysis only).**

3. Results :

Sample No. 1. ASET63077 / 66257 / 1. 55_BH1_0.1.
Approx dimensions 10.0 cm x 10.0 cm x 7.0 cm
The sample consisted of a mixture of clayish soil, stones, sandstone and plant matter.
No asbestos detected.

Sample No. 2. ASET63077 / 66257 / 2. 22_BH1_0.1.
Approx dimensions 10.0 cm x 10.0 cm x 7.6 cm
The sample consisted of a mixture of clayish soil, stones, sandstone and plant matter.
No asbestos detected.

Sample No. 3. ASET63077 / 66257 / 3. 9_BH1_0.1.
Approx dimensions 10.0 cm x 10.0 cm x 8.8 cm
The sample consisted of a mixture of clayish soil, stones, sandstone and plant matter.
No asbestos detected.

Sample No. 4. ASET63077 / 66257 / 4. 9_BH6_0.1.
Approx dimensions 10.0 cm x 10.0 cm x 6.3 cm
The sample consisted of a mixture of clayish soil, stones, sandstone and plant matter.
No asbestos detected.

Sample No. 5. ASET63077 / 66257 / 5. 29_BH1_0.1.
Approx dimensions 10.0 cm x 10.0 cm x 5.7 cm
The sample consisted of a mixture of clayish soil, stones, sandstone, plant matter, fragments of cement and glass.
No asbestos detected.

Sample No. 6. ASET63077 / 66257 / 6. 29_BH2_0.1.
Approx dimensions 10.0 cm x 10.0 cm x 5.8 cm
The sample consisted of a mixture of clayish soil, stones, sandstone and plant matter.
No asbestos detected.

Sample No. 7. ASET63077 / 66257 / 7. 27_BH1_0.1.
Approx dimensions 10.0 cm x 10.0 cm x 6.5 cm
The sample consisted of a mixture of clayish soil, stones, sandstone and plant matter.
No asbestos detected.

Sample No. 8. ASET63077 / 66257 / 8. 29_BH3_0.1.
Approx dimensions 10.0 cm x 10.0 cm x 5.1 cm
The sample consisted of a mixture of clayish soil, stones, sandstone and plant matter.
No asbestos detected.

Analysed and reported by,

Chamath Annakkage. BSc
Analyst /Approved Identifier

Mahen De Silva. BSc, MSc, Grad Dip (Occ Hyg)
Occupational Hygienist / Approved Signatory

Accredited for compliance with ISO/IEC 17025.

The results contained in this report relate only to the sample/s submitted for testing. Australian Safer Environment & Technology accepts no responsibility for whether or not the submitted sample/s is/are representative. Results indicating "No asbestos detected" indicates a reporting limit specified in AS4964 -2004 which is 0.1g/ Kg (0.01%). Any amounts detected at assumed lower level than that would be reported, however those assumed lower levels may be treated as "No asbestos detected" as specified and recommended by AS4964-2004. Trace / respirable level asbestos will be reported only when detected.

ASET

AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

Suite 710/ 90 George Street Hornsby NSW 2077 PO Box 1644 Hornsby Westfield NSW 1635

Ph: 02 9987 2183 Fax: 02 9987 2151 Email: aset@bigpond.net.au

ASET JOB NO: ASET630FF/6625F/1-8

Company Name & Address:
DLA Environmental Services
Unit 11, 277 Lane Cove Road
Macquarie Park NSW 2113

Contact Ph: 9476 1765

Contact Name: Amy

Job No: DL4101-

Project Name: West Ehofields.

Email Results to: sydney@dlaenvironmental.com.au

	Sample ID	Date	Matrix	Container	Sample Location	SMF	Asbestos in Soil/ Dust	Asbestos in material	Asbestos Fibre Count	Asbestos in Water	Asbestos W/W%	
1	55_BH1_0.1	12.3.18	soil	bag			X					
2	22-BH1_0.1	12.3.18					X					
3	9-BH1-0.1	9.3.18					X					
4	9-BH6_0.1	9.3.18					X					
5	29-BH1-0.1	9.3.18					X					
6	29-BH2-0.1	9.3.18					X					
7	27_BH1_0.1	12.3.18					X					
8	29-BH3-0.1	9.3.18					X					

RECEIVED
13 MAR 2018
BY: AD

Relinquished By: AD
Date & Time: 12.3.18
Signature:

Received By: Amanda
Date & Time: 8.30
Signature:

Turn around time: 24 Hrs | 3 Days | 48 Hrs | STD

Method of Shipment: Hand del.

AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD
ABN 36 088 095 112

Our ref: ASET62871 / 66051 / 1 - 1
Your ref: DL4101 - West Schofields
NATA Accreditation No: 14484

2 March 2018

DLA Environmental Services Pty Ltd
11/277 Lane Cove Road
Macquarie Park NSW 2113

Attn: Ms Amy Dorrington

Dear Amy

Asbestos Identification
This report presents the results of one sample, forwarded by DLA Environmental Services Pty Ltd on 2 March 2018, for analysis for asbestos.

1.Introduction: One sample forwarded was examined and analysed for the presence of asbestos.

2. Methods: The sample was examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method **(Australian Standard AS4964 - 2004 and Safer Environment Method 1 as the supplementary work instruction) (Qualitative Analysis only).**

3. Results: **Sample No. 1. ASET62871 / 66051 / 1. 39 - 0.1.**
Approx dimensions 10.0 cm x 10.0 cm x 5.0 cm
The sample consisted of a mixture of clayish soil, stones and plant matter.
No asbestos detected.

Analysed and reported by,

Nisansala Maddage. BSc(Hons), Grad Dip (Occ Hyg)
Occupational Hygienist/Approved Identifier
Approved Signatory

WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025.

The results contained in this report relate only to the sample/s submitted for testing. Australian Safer Environment & Technology accepts no responsibility for whether or not the submitted sample/s is/are representative. Results indicating "No asbestos detected" indicates a reporting limit specified in AS4964 -2004 which is 0.1g/ Kg (0.01%). Any amounts detected at assumed lower level than that would be reported, however those assumed lower levels may be treated as "No asbestos detected" as specified and recommended by AS4964-2004. Trace / respirable level asbestos will be reported only when detected.

ASET

AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

Suite 710/ 90 George Street Hornsby NSW 2077 PO Box 1644 Hornsby Westfield NSW 1635
Ph: 02 9987 2183 Fax: 02 9987 2151 Email: aset@bigpond.net.au

ASET JOB NO: AS[illegible]62871/6605T/1-1

Company Name & Address:
DLA Environmental Services
Unit 11, 277 Lane Cove Road
Macquarie Park NSW 2113

Contact Ph: 9476 1765

Contact Name: Amy
Job No: DL4101
Project Name: West Schofields.
Email Results to: sydney@dlaenvironmental.com.au

	Sample ID	Date	Matrix	Container	Sample Location	SMF	Asbestos in Soil/ Dust	Asbestos in material	Asbestos Fibre Count	Asbestos in Water	Asbestos W/W%	
1	39_0.1	1/3/18	Soil	bag			X					

RECEIVED
0 2 MAR 2018
BY: SW

Relinquished By: Amy
Date & Time: 1.3.18
Signature:

Received By: Josh
Date & Time: 2/3 9Am
Signature: SW

Turn around time: 24 Hrs | 3 Days (STD) | 48 Hrs

Method of Shipment: Hand

AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD
ABN 36 088 095 112

Our ref: ASET61380 / 64560 / 1 - 3
Your ref: DL4101 - West Schofields
NATA Accreditation No: 14484

13 December 2017

DLA Environmental Services Pty Ltd
3/38 Leighton Place
Hornsby NSW 2077

Attn: Mr Amy Dorrington

Dear Amy

Asbestos Identification
This report presents the results of three samples, forwarded by DLA Environmental Services Pty Ltd on 12 December 2017, for analysis for asbestos.

1. Introduction: Three samples forwarded were examined and analysed for the presence of asbestos.

2. Methods: The samples were examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method **(Australian Standard AS 4964 - 2004 and Safer Environment Method 1 as the supplementary work instruction) (Qualitative Analysis only).**

3. Results:

Sample No. 1. ASET61380 / 64560 / 1. 14 - 0.2.
Approx dimensions 10.0 cm x 10.0 cm x 6.5 cm
The sample consisted of a mixture of sandy soil, stones sandstone and plant matter.
No asbestos detected.

Sample No. 2. ASET61380 / 64560 / 2. 51 - 0.4.
Approx dimensions 10.0 cm x 10.0 cm x 6.3 cm
The sample consisted of a mixture of clayish sandy soil, stones, plant matter and fragments of cement and clay.
No asbestos detected.

Sample No. 3. ASET61380 / 64560 / 3. 57 - 0.1.
Approx dimensions 10.0 cm x 10.0 cm x 6.4 cm
The sample consisted of a mixture of clayish soil, stones and plant matter and fragments of clay.
No asbestos detected.

Analysed and reported by,

Mahen De Silva. BSc, MSc, Grad Dip (Occ Hyg)
Occupational Hygienist / Approved Identifier.
Approved Signator

NATA
WORLD RECOGNISED
ACCREDITATION

Accredited for compliance with ISO/IEC 17025.

The results contained in this report relate only to the sample/s submitted for testing. Australian Safer Environment & Technology accepts no responsibility for whether or not the submitted sample/s is/are representative. Results indicating "No asbestos detected" indicates a reporting limit specified in AS4964 -2004 which is 0.1g/ Kg (0.01%). Any amounts detected at assumed lower level than that would be reported, however those assumed lower levels may be treated as "No asbestos detected" as specified and recommended by AS4964-2004. Trace / respirable level asbestos will be reported only when detected.

ASET

AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

Suite 710/ 90 George Street Hornsby NSW 2077 PO Box 1644 Hornsby Westfield NSW 1635

Ph: 02 9987 2183 Fax: 02 9987 2151 Email: aset@bigpond.net.au

ASET JOB NO: ASET61380/64560/1-3.

Company Name & Address:

DLA Environmental Services
3/38 Leighton Place
Hornsby NSW 2077

Contact Ph: 9476 1765

Contact Name: Amy

Job No: DL4101

Project Name: west Schofields

Email Results to:

sydney@dlaenvironmental.com.au

	Sample ID	Date	Matrix	Container	Sample Location	SMF	Asbestos in Soil/ Dust	Asbestos in material	Asbestos Fibre Count	Asbestos in Water	Asbestos W/W%
1	14-0.2	11.12.17	Soil	bag			X				
4	~~30-0.1~~						~~X~~				
2	51-0.4						X				
3	57_0.1						X				
	~~57-2-0.1~~						~~X~~				

RECEIVED
12 DEC 2017

Relinquished By: AD
Date & Time: 11.12.17
Signature:

Received By: BY: P.S
Date & Time: 12.12.17 11.24 AM
Signature:

Turn around time				Method of Shipment
24 Hrs		3 Days		
48 Hrs		STD		

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Amy Dorrington
Client	DLA ENVIRONMENTAL SERVICES PTY LTD
Address	Unit 11 Macquarie Link 277 Lane Cove Road Macquarie Park NSW 2113
Telephone	61 2 9476 1765
Facsimile	61 2 98700999
Email	sydney@dlaenvironmental.com.au
Project	**DL4101 - West Schofields**
Order Number	(Not specified)
Samples	1

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	**SE176608 R0**
Date Received	12/3/2018
Date Reported	19/3/2018

COMMENTS

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

SIGNATORIES

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Production Manager

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VOC's in Soil [AN433] Tested: 13/3/2018

PARAMETER	UOM	LOR	29-BH1-0.1B SOIL - 9/3/2018 SE176608.001
Benzene	mg/kg	0.1	<0.1
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
Total Xylenes	mg/kg	0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 13/3/2018

PARAMETER	UOM	LOR	29-BH1-0.1B SOIL - 9/3/2018 SE176608.001
TRH C6-C9	mg/kg	20	<20
Benzene (F0)	mg/kg	0.1	<0.1
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 14/3/2018

PARAMETER	UOM	LOR	29-BH1-0.1B SOIL - 9/3/2018 SE176608.001
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-C16	mg/kg	25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120
TRH C10-C36 Total	mg/kg	110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 14/3/2018

PARAMETER	UOM	LOR	29-BH1-0.1B SOIL - 9/3/2018 SE176608.001
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(b&j)fluoranthene	mg/kg	0.1	<0.1
Benzo(k)fluoranthene	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
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 14/3/2018

PARAMETER	UOM	LOR	29-BH1-0.1B SOIL - 9/3/2018 SE176608.001
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
o,p'-DDE	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
trans-Nonachlor	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
o,p'-DDD	mg/kg	0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1
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
Total CLP OC Pesticides	mg/kg	1	<1

OP Pesticides in Soil [AN420] Tested: 14/3/2018

PARAMETER	UOM	LOR	29-BH1-0.1B SOIL - 9/3/2018 SE176608.001
Dichlorvos	mg/kg	0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2
Malathion	mg/kg	0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2
Methidathion	mg/kg	0.5	<0.5
Ethion	mg/kg	0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7

PCBs in Soil [AN420] Tested: 14/3/2018

PARAMETER	UOM	LOR	29-BH1-0.1B SOIL - 9/3/2018 SE176608.001
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
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

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 16/3/2018

PARAMETER	UOM	LOR	29-BH1-0.1B SOIL - 9/3/2018 SE176608.001
Arsenic, As	mg/kg	3	**14**
Cadmium, Cd	mg/kg	0.3	<0.3
Chromium, Cr	mg/kg	0.3	**33**
Copper, Cu	mg/kg	0.5	**25**
Lead, Pb	mg/kg	1	**27**
Nickel, Ni	mg/kg	0.5	**2.8**
Zinc, Zn	mg/kg	0.5	**71**

Mercury in Soil [AN312] Tested: 16/3/2018

PARAMETER	UOM	LOR	29-BH1-0.1B SOIL - 9/3/2018 SE176608.001
Mercury	mg/kg	0.05	<0.05

Moisture Content [AN002] Tested: 15/3/2018

PARAMETER	UOM	LOR	29-BH1-0.1B SOIL - 9/3/2018 SE176608.001
% Moisture	%w/w	0.5	**7.7**

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.

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

SE176608 R0

CLIENT DETAILS

Contact	Amy Dorrington
Client	DLA ENVIRONMENTAL SERVICES PTY LTD
Address	Unit 11 Macquarie Link 277 Lane Cove Road Macquarie Park NSW 2113
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Email	sydney@dlaenvironmental.com.au
Project	**DL4101 - West Schofields**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

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Email	au.environmental.sydney@sgs.com
SGS Reference	**SE176608 R0**
Date Received	12 Mar 2018
Date Reported	19 Mar 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 (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

HOLDING TIME SUMMARY

SE176608 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.

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
29-BH1-0.1B	SE176608.001	LB143706	09 Mar 2018	12 Mar 2018	06 Apr 2018	16 Mar 2018	06 Apr 2018	19 Mar 2018

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
29-BH1-0.1B	SE176608.001	LB143567	09 Mar 2018	12 Mar 2018	23 Mar 2018	15 Mar 2018	20 Mar 2018	19 Mar 2018

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
29-BH1-0.1B	SE176608.001	LB143497	09 Mar 2018	12 Mar 2018	23 Mar 2018	14 Mar 2018	23 Apr 2018	15 Mar 2018

OP Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
29-BH1-0.1B	SE176608.001	LB143497	09 Mar 2018	12 Mar 2018	23 Mar 2018	14 Mar 2018	23 Apr 2018	16 Mar 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
29-BH1-0.1B	SE176608.001	LB143497	09 Mar 2018	12 Mar 2018	23 Mar 2018	14 Mar 2018	23 Apr 2018	16 Mar 2018

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
29-BH1-0.1B	SE176608.001	LB143497	09 Mar 2018	12 Mar 2018	23 Mar 2018	14 Mar 2018	23 Apr 2018	15 Mar 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
29-BH1-0.1B	SE176608.001	LB143695	09 Mar 2018	12 Mar 2018	05 Sep 2018	16 Mar 2018	05 Sep 2018	19 Mar 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
29-BH1-0.1B	SE176608.001	LB143497	09 Mar 2018	12 Mar 2018	23 Mar 2018	14 Mar 2018	23 Apr 2018	16 Mar 2018

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
29-BH1-0.1B	SE176608.001	LB143446	09 Mar 2018	12 Mar 2018	23 Mar 2018	13 Mar 2018	22 Apr 2018	15 Mar 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
29-BH1-0.1B	SE176608.001	LB143446	09 Mar 2018	12 Mar 2018	23 Mar 2018	13 Mar 2018	22 Apr 2018	15 Mar 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)	29-BH1-0.1B	SE176608.001	%	60 - 130%	101

OP Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	29-BH1-0.1B	SE176608.001	%	60 - 130%	82
d14-p-terphenyl (Surrogate)	29-BH1-0.1B	SE176608.001	%	60 - 130%	84

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	29-BH1-0.1B	SE176608.001	%	70 - 130%	82
d14-p-terphenyl (Surrogate)	29-BH1-0.1B	SE176608.001	%	70 - 130%	84
d5-nitrobenzene (Surrogate)	29-BH1-0.1B	SE176608.001	%	70 - 130%	74

PCBs in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	29-BH1-0.1B	SE176608.001	%	60 - 130%	101

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	29-BH1-0.1B	SE176608.001	%	60 - 130%	73
d4-1,2-dichloroethane (Surrogate)	29-BH1-0.1B	SE176608.001	%	60 - 130%	91
d8-toluene (Surrogate)	29-BH1-0.1B	SE176608.001	%	60 - 130%	85
Dibromofluoromethane (Surrogate)	29-BH1-0.1B	SE176608.001	%	60 - 130%	91

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	29-BH1-0.1B	SE176608.001	%	60 - 130%	73
d4-1,2-dichloroethane (Surrogate)	29-BH1-0.1B	SE176608.001	%	60 - 130%	91
d8-toluene (Surrogate)	29-BH1-0.1B	SE176608.001	%	60 - 130%	85
Dibromofluoromethane (Surrogate)	29-BH1-0.1B	SE176608.001	%	60 - 130%	91

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
LB143706.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB143497.001		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)	%	-	86

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB143497.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	90
		d14-p-terphenyl (Surrogate)	%	-	90

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB143497.001	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

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.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result
LB143497.001		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)	%	-	80
		2-fluorobiphenyl (Surrogate)	%	-	90
		d14-p-terphenyl (Surrogate)	%	-	90

PCBs in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB143497.001		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
		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)	%	-	86

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

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

Sample Number		Parameter	Units	LOR	Result
LB143695.001		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
LB143497.001		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
LB143446.001	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)	%	-	83
		d4-1,2-dichloroethane (Surrogate)	%	-	96
		d8-toluene (Surrogate)	%	-	84
		Bromofluorobenzene (Surrogate)	%	-	87
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB143446.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	83
		d4-1,2-dichloroethane (Surrogate)	%	-	96
		d8-toluene (Surrogate)	%	-	84

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 %
SE176608.001	LB143706.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE176774.001	LB143706.024	Mercury	mg/kg	0.05	0.12	0.12	72	1

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE176606.001	LB143567.033	% Moisture	%w/w	0.5	8.0	8.3	42	3
SE176608.001	LB143567.036	% Moisture	%w/w	0.5	7.7	10	41	29
SE176670.009	LB143567.011	% Moisture	%w/w	0.5	14.285714285714	14.508928571429	37	2
SE176670.019	LB143567.022	% Moisture	%w/w	0.5	12.994923857868	11.111111111111	38	16

OC Pesticides in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE176584.001	LB143497.014	Hexachlorobenzene (HCB)	mg/kg	0.1	0	0	200	0
		Alpha BHC	mg/kg	0.1	0	0	200	0
		Lindane	mg/kg	0.1	0	0	200	0
		Heptachlor	mg/kg	0.1	0	0	200	0
		Aldrin	mg/kg	0.1	0	0	200	0
		Beta BHC	mg/kg	0.1	0	0	200	0
		Delta BHC	mg/kg	0.1	0	0	200	0
		Heptachlor epoxide	mg/kg	0.1	0	0	200	0
		o,p'-DDE	mg/kg	0.1	0	0	200	0
		Alpha Endosulfan	mg/kg	0.2	0	0	200	0
		Gamma Chlordane	mg/kg	0.1	0	0	200	0
		Alpha Chlordane	mg/kg	0.1	0	0	200	0
		trans-Nonachlor	mg/kg	0.1	0	0	200	0
		p,p'-DDE	mg/kg	0.1	0	0	200	0
		Dieldrin	mg/kg	0.2	0	0	200	0
		Endrin	mg/kg	0.2	0	0	200	0
		o,p'-DDD	mg/kg	0.1	0	0	200	0
		o,p'-DDT	mg/kg	0.1	0	0	200	0
		Beta Endosulfan	mg/kg	0.2	0	0	200	0
		p,p'-DDD	mg/kg	0.1	0	0	200	0
		p,p'-DDT	mg/kg	0.1	0	0	200	0
		Endosulfan sulphate	mg/kg	0.1	0	0	200	0
		Endrin Aldehyde	mg/kg	0.1	0	0	200	0
		Methoxychlor	mg/kg	0.1	0	0	200	0
		Endrin Ketone	mg/kg	0.1	0	0	200	0
		Isodrin	mg/kg	0.1	0	0	200	0
		Mirex	mg/kg	0.1	0	0	200	0
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.143	0.139	30	3

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE176584.001	LB143497.014	Naphthalene	mg/kg	0.1	0	0	200	0
		2-methylnaphthalene	mg/kg	0.1	0	0	200	0
		1-methylnaphthalene	mg/kg	0.1	0	0	200	0
		Acenaphthylene	mg/kg	0.1	0.03	0.02	200	0
		Acenaphthene	mg/kg	0.1	0	0	200	0
		Fluorene	mg/kg	0.1	0	0	200	0
		Phenanthrene	mg/kg	0.1	0.01	0.01	200	0
		Anthracene	mg/kg	0.1	0.01	0.01	200	0
		Fluoranthene	mg/kg	0.1	0.04	0.04	200	0
		Pyrene	mg/kg	0.1	0.05	0.05	200	0
		Benzo(a)anthracene	mg/kg	0.1	0.03	0.03	200	0
		Chrysene	mg/kg	0.1	0.02	0.02	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	0.05	0.04	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	0.03	0.03	200	0
		Benzo(a)pyrene	mg/kg	0.1	0.02	0.02	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.02	0.02	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	0	0	200	0
		Benzo(ghi)perylene	mg/kg	0.1	0.02	0.02	200	0

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 %
SE176584.001	LB143497.014		Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.242	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.121	0.121	175	0
			Total PAH (18)	mg/kg	0.8	0	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.39	0.39	30	0
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.46	0.45	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.46	0.46	30	0

PCBs in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE176584.001	LB143497.014		Arochlor 1016	mg/kg	0.2	0	0	200	0
			Arochlor 1221	mg/kg	0.2	0	0	200	0
			Arochlor 1232	mg/kg	0.2	0	0	200	0
			Arochlor 1242	mg/kg	0.2	0	0	200	0
			Arochlor 1248	mg/kg	0.2	0	0	200	0
			Arochlor 1254	mg/kg	0.2	0	0	200	0
			Arochlor 1260	mg/kg	0.2	0	0	200	0
			Arochlor 1262	mg/kg	0.2	0	0	200	0
			Arochlor 1268	mg/kg	0.2	0	0	200	0
			Total PCBs (Arochlors)	mg/kg	1	0	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.143	0.139	30	3

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 %
SE176608.001	LB143695.014		Arsenic, As	mg/kg	3	14	15	37	7
			Cadmium, Cd	mg/kg	0.3	<0.3	0.3	145	11
			Chromium, Cr	mg/kg	0.3	33	32	32	5
			Copper, Cu	mg/kg	0.5	25	28	32	14
			Nickel, Ni	mg/kg	0.5	2.8	3.5	46	23
			Lead, Pb	mg/kg	1	27	27	34	3
			Zinc, Zn	mg/kg	0.5	71	84	33	17
SE176771.008	LB143695.024		Arsenic, As	mg/kg	3	5.00589851325.1397182860		50	3
			Cadmium, Cd	mg/kg	0.3	0.13400937290.2030617408		200	0
			Chromium, Cr	mg/kg	0.3	12.186207175 12.603653846		34	3
			Copper, Cu	mg/kg	0.5	25.574175824 26.289726720		32	3
			Nickel, Ni	mg/kg	0.5	5.49006140914.8057945344		40	13
			Lead, Pb	mg/kg	1	52.99854557258.1659075573		32	9
			Zinc, Zn	mg/kg	0.5	56.845911441 53.418100539		33	25

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE176584.001	LB143497.014		TRH C10-C14	mg/kg	20	0	0	200	0
			TRH C15-C28	mg/kg	45	0	0	200	0
			TRH C29-C36	mg/kg	45	0	0	200	0
			TRH C37-C40	mg/kg	100	0	0	200	0
			TRH C10-C36 Total	mg/kg	110	0	0	200	0
			TRH C10-C40 Total (F bands)	mg/kg	210	0	0	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	0	0	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	0	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	0	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	0	0	200	0

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE176608.001	LB143446.014	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
SE176624.008	LB143446.024	Monocyclic	Benzene	mg/kg	0.1	0.03	0.03	200	0
		Aromatic	Toluene	mg/kg	0.1	0	0	200	0
			Ethylbenzene	mg/kg	0.1	0.01	0.01	200	0
			m/p-xylene	mg/kg	0.2	0.02	0.02	200	0
			o-xylene	mg/kg	0.1	0	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0.03	0.03	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.15	4.13	50	0

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.

VOC's in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE176624.008	LB143446.024	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.04	4.12	50	2
			d8-toluene (Surrogate)	mg/kg	-	5.04	4.85	50	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.54	4.39	50	3
		Totals	Total Xylenes	mg/kg	0.3	0.02	0.02	200	0
			Total BTEX	mg/kg	0.6	0.06	0.06	200	0

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE176608.001	LB143446.014	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
SE176624.008	LB143446.024		TRH C6-C10	mg/kg	25	5.89	3.94	200	0
			TRH C6-C9	mg/kg	20	4.87	3.09	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.15	4.13	30	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.04	4.12	30	2
			d8-toluene (Surrogate)	mg/kg	-	5.04	4.85	30	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.54	4.39	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0.03	0.03	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	5.83	3.88	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 %
LB143706.002	Mercury	mg/kg	0.05	0.21	0.2	70 - 130	103

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB143497.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	111
		Aldrin	mg/kg	0.1	0.3	0.2	60 - 140	125
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	96
		Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	122
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	117
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	81
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.15	40 - 130	87

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB143497.002		Dichlorvos	mg/kg	0.5	1.7	2	60 - 140	84
		Diazinon (Dimpylate)	mg/kg	0.5	1.9	2	60 - 140	95
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.9	2	60 - 140	94
		Ethion	mg/kg	0.2	1.4	2	60 - 140	71
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	88
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB143497.002		Naphthalene	mg/kg	0.1	3.6	4	60 - 140	90
		Acenaphthylene	mg/kg	0.1	3.5	4	60 - 140	89
		Acenaphthene	mg/kg	0.1	3.6	4	60 - 140	91
		Phenanthrene	mg/kg	0.1	5.0	4	60 - 140	124
		Anthracene	mg/kg	0.1	4.2	4	60 - 140	104
		Fluoranthene	mg/kg	0.1	4.8	4	60 - 140	120
		Pyrene	mg/kg	0.1	4.9	4	60 - 140	122
		Benzo(a)pyrene	mg/kg	0.1	3.9	4	60 - 140	98
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	76
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	88
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB143497.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	102

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 %
LB143695.002	Arsenic, As	mg/kg	3	350	325	80 - 120	106
	Cadmium, Cd	mg/kg	0.3	450	416.6	69 - 131	107
	Chromium, Cr	mg/kg	0.3	40	35.2	80 - 120	115
	Copper, Cu	mg/kg	0.5	360	314	80 - 120	115
	Nickel, Ni	mg/kg	0.5	210	183	80 - 120	112
	Lead, Pb	mg/kg	1	100	91.5	80 - 120	111
	Zinc, Zn	mg/kg	0.5	290	275	80 - 120	105

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB143497.002		TRH C10-C14	mg/kg	20	46	40	60 - 140	115
		TRH C15-C28	mg/kg	45	46	40	60 - 140	115
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	75
	TRH F Bands	TRH >C10-C16	mg/kg	25	51	40	60 - 140	128
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	95
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	65

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 %
LB143446.002	Monocyclic	Benzene	mg/kg	0.1	2.7	2.9	60 - 140	92
	Aromatic	Toluene	mg/kg	0.1	2.6	2.9	60 - 140	89
		Ethylbenzene	mg/kg	0.1	2.8	2.9	60 - 140	96
		m/p-xylene	mg/kg	0.2	5.4	5.8	60 - 140	93
		o-xylene	mg/kg	0.1	2.8	2.9	60 - 140	95
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	5	60 - 140	82
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.9	5	60 - 140	97
		d8-toluene (Surrogate)	mg/kg	-	4.4	5	60 - 140	88
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	5	60 - 140	83

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB143446.002		TRH C6-C10	mg/kg	25	26	24.65	60 - 140	104
		TRH C6-C9	mg/kg	20	20	23.2	60 - 140	88
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	5	60 - 140	82
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.9	5	60 - 140	97
		d8-toluene (Surrogate)	mg/kg	-	4.4	5	60 - 140	88
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	5	60 - 140	83
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	129

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%
SE176670.020	LB143706.004	Mercury	mg/kg	0.05	0.24	0.04365548954	0.2	100

OC Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE176611.011	LB143497.018		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	0.2	106
			Aldrin	mg/kg	0.1	<0.1	0.2	125
			Beta BHC	mg/kg	0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	<0.1	0.2	90
			Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
			o,p'-DDE	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	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.05	0.2	118
			Endrin	mg/kg	0.2	<0.2	0.2	116
			o,p'-DDD	mg/kg	0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	-	-
			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	0.2	76
			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)	mg/kg	-	0.14	-	93

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE176611.011	LB143497.018		Naphthalene	mg/kg	0.1	<0.1	4	94
			2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	<0.1	4	93
			Acenaphthene	mg/kg	0.1	<0.1	4	96
			Fluorene	mg/kg	0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	<0.1	4	93
			Anthracene	mg/kg	0.1	<0.1	4	95
			Fluoranthene	mg/kg	0.1	<0.1	4	91
			Pyrene	mg/kg	0.1	<0.1	4	91
			Benzo(a)anthracene	mg/kg	0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	<0.1	4	99
			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	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	-	80
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	-	92

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.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE176611.011	LB143497.018	Surrogates	d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	84

PCBs in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE176611.011	LB143497.018		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	-	-
			Arochlor 1260	mg/kg	0.2	<0.2	0.4	114
			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)	mg/kg	-	0	-	94

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%
SE176687.021	LB143695.004		Arsenic, As	mg/kg	3	57	5.86402344614	50	103
			Cadmium, Cd	mg/kg	0.3	55	0.08772948462	50	109
			Chromium, Cr	mg/kg	0.3	70	16.7009234682	50	106
			Copper, Cu	mg/kg	0.5	71	22.7265538597	50	96
			Nickel, Ni	mg/kg	0.5	81	24.9798164122	50	111
			Lead, Pb	mg/kg	1	71	13.3025602742	50	115
			Zinc, Zn	mg/kg	0.5	120	71.8920039814	50	101

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE176611.011	LB143497.018		TRH C10-C14	mg/kg	20	<20	40	120
			TRH C15-C28	mg/kg	45	<45	40	120
			TRH C29-C36	mg/kg	45	<45	40	78
			TRH C37-C40	mg/kg	100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	-	-
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	40	130
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	40	103
			TRH >C34-C40 (F4)	mg/kg	120	<120	-	-

VOC's in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE176658.001	LB143446.004	Monocyclic	Benzene	mg/kg	0.1	2.7	<0.1	2.9	91
		Aromatic	Toluene	mg/kg	0.1	2.6	<0.1	2.9	88
			Ethylbenzene	mg/kg	0.1	2.8	<0.1	2.9	97
			m/p-xylene	mg/kg	0.2	5.5	<0.2	5.8	94
			o-xylene	mg/kg	0.1	2.8	<0.1	2.9	96
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.7	-	82
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.8	5.5	-	96
			d8-toluene (Surrogate)	mg/kg	-	4.5	4.6	-	90
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	4.8	-	86
		Totals	Total Xylenes	mg/kg	0.3	8.3	<0.3	-	-
			Total BTEX	mg/kg	0.6	16	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE176658.001	LB143446.004		TRH C6-C10	mg/kg	25	25	<25	24.65	102
			TRH C6-C9	mg/kg	20	20	<20	23.2	87
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.7	-	82
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.8	5.5	-	96
			d8-toluene (Surrogate)	mg/kg	-	4.5	4.6	-	90
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.3	4.8	-	86
		VPH F	Benzene (F0)	mg/kg	0.1	2.7	<0.1	-	-

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.

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE176658.001	LB143446.004	VPH F	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	122

MATRIX SPIKE DUPLICATES

SE176608 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.

SGS

LIMS No: _____

Request for Laboratory Services and Chain of Custody Form

SGS Australia, Unit 16, 33 Maddox Street, Alexandria, NSW 2015 Ph: +61 2 8594 0400 Fax: +61 2 8594 0499 Email: au.samplereceipt.sydney@sgs.com

Laboratory Section

Received Date: 13/3/18 Received By: [signature] Cooling Method: ☐ Ice ☑ Icepack ☐ None Samples Intact: ☑ Yes ☐ No

Logged-in Date: _____ Time of Receipt: 2:45 Cooler Sealed: ☐ Yes ☐ No ☐ N/A Temperature: ☐ Ambient ☑ Chilled

COD must pay via cheque or credit card before analysis is commenced. AMEX & DINERS cards incur a 5% surcharge

INVOICE TO:

Name:

Company: DLA Environmental Services

Address: Unit 11/277 Lane Cove Road, Macquarie Park

Email: sydney@dlaenvironmental.com.au

Phone: 9476 1765 Fax:

Quote #: _____

Attached Parameter List: ☑ Yes ☐ No

Replacement Sample Containers Required: ☐ Yes ☐ No

Results Required By: standard 5 days Urgent TA requires lab approval

Notes:

Client information | **PO No.:** | **Project No.:** DLA101 - West Schofields

Company Name: DLA Environmental Services

Contact Name: Amy

Address: Unit 11/277 Lane Cove Road, Macquarie Park

Phone Number: 9476 1765 **After Hours Phone Number:**

Fax Number: **Email:** sydney@dlaenvironmental.com.au amy.darrington@...

Note: Results will be sent via email to an unlimited number of addresses for no additional fee. In the absence of email, fax is available upon request.

Indicate results format (please check one): Email ☑ Fax ☐

SAMPLE INFORMATION

Lab Sample ID	Sample Identifier	Date Sampled	Time	Matrix: Soil Water Other	# of Bottles	Analysis Requested: CLM7											
	29_BH1_0.1B	9.3.18	-	Soil	1	X											

SGS EHS Alexandria Laboratory

SE176608 COC

Received: 12 – Mar – 2018

Sampled By: AD **Date:** 12.3.18

Relinquished By: AD **Date:** 12.3.18 **Time:**

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Amy Dorrington
Client	DLA ENVIRONMENTAL SERVICES PTY LTD
Address	Unit 11 Macquarie Link 277 Lane Cove Road Macquarie Park NSW 2113
Telephone	61 2 9476 1765
Facsimile	61 2 98700999
Email	sydney@dlaenvironmental.com.au
Project	**DL4101 - West Schofields**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

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Laboratory	SGS Alexandria Environmental
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SGS Reference	**SE176150 R0**
Date Received	1/3/2018
Date Reported	7/3/2018

COMMENTS

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

SIGNATORIES

Akheeqar Beniameen
Chemist

Huong Crawford
Production Manager

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

VOC's in Soil [AN433] Tested: 5/3/2018

PARAMETER	UOM	LOR	S4_0.2B SOIL - 1/3/2018 SE176150.001
Benzene	mg/kg	0.1	<0.1
Toluene	mg/kg	0.1	**1.0**
Ethylbenzene	mg/kg	0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2
o-xylene	mg/kg	0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3
Total BTEX	mg/kg	0.6	**1.1**
Naphthalene	mg/kg	0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 5/3/2018

PARAMETER	UOM	LOR	S4_0.2B SOIL - 1/3/2018 SE176150.001
TRH C6-C9	mg/kg	20	<20
Benzene (F0)	mg/kg	0.1	<0.1
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 5/3/2018

PARAMETER	UOM	LOR	S4_0.2B SOIL - 1/3/2018 SE176150.001
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-C16	mg/kg	25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120
TRH C10-C36 Total	mg/kg	110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 5/3/2018

PARAMETER	UOM	LOR	S4_0.2B SOIL - 1/3/2018 SE176150.001
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(b&j)fluoranthene	mg/kg	0.1	<0.1
Benzo(k)fluoranthene	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
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 5/3/2018

PARAMETER	UOM	LOR	S4_0.2B SOIL - 1/3/2018 SE176150.001
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
o,p'-DDE	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
trans-Nonachlor	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
o,p'-DDD	mg/kg	0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1
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
Total CLP OC Pesticides	mg/kg	1	<1

OP Pesticides in Soil [AN420] Tested: 5/3/2018

PARAMETER	UOM	LOR	S4_0.2B SOIL - 1/3/2018 SE176150.001
Dichlorvos	mg/kg	0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2
Malathion	mg/kg	0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2
Methidathion	mg/kg	0.5	<0.5
Ethion	mg/kg	0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7

PCBs in Soil [AN420] Tested: 5/3/2018

PARAMETER	UOM	LOR	S4_0.2B SOIL - 1/3/2018 SE176150.001
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
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

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 6/3/2018

PARAMETER	UOM	LOR	S4_0.2B SOIL - 1/3/2018 SE176150.001
Arsenic, As	mg/kg	3	**4**
Cadmium, Cd	mg/kg	0.3	<0.3
Chromium, Cr	mg/kg	0.3	**12**
Copper, Cu	mg/kg	0.5	**28**
Lead, Pb	mg/kg	1	**24**
Nickel, Ni	mg/kg	0.5	**3.2**
Zinc, Zn	mg/kg	0.5	**99**

Mercury in Soil [AN312] Tested: 6/3/2018

PARAMETER	UOM	LOR	S4_0.2B SOIL - 1/3/2018 SE176150.001
Mercury	mg/kg	0.05	<0.05

Moisture Content [AN002] Tested: 5/3/2018

PARAMETER	UOM	LOR	S4_0.2B SOIL - 1/3/2018 SE176150.001
% Moisture	%w/w	0.5	**20**

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.

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

SE176150 R0

CLIENT DETAILS

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Address	Unit 11 Macquarie Link 277 Lane Cove Road Macquarie Park NSW 2113
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Email	sydney@dlaenvironmental.com.au
Project	**DL4101 - West Schofields**
Order Number	(Not specified)
Samples	1

LABORATORY DETAILS

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Laboratory	SGS Alexandria Environmental
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Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE176150 R0**
Date Received	01 Mar 2018
Date Reported	07 Mar 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	1 item

SAMPLE SUMMARY

HOLDING TIME SUMMARY

SE176150 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.

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S4_0.2B	SE176150.001	LB142851	01 Mar 2018	01 Mar 2018	29 Mar 2018	06 Mar 2018	29 Mar 2018	07 Mar 2018

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S4_0.2B	SE176150.001	LB142758	01 Mar 2018	01 Mar 2018	15 Mar 2018	05 Mar 2018	10 Mar 2018	06 Mar 2018

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S4_0.2B	SE176150.001	LB142762	01 Mar 2018	01 Mar 2018	15 Mar 2018	05 Mar 2018	14 Apr 2018	07 Mar 2018

OP Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S4_0.2B	SE176150.001	LB142762	01 Mar 2018	01 Mar 2018	15 Mar 2018	05 Mar 2018	14 Apr 2018	07 Mar 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
S4_0.2B	SE176150.001	LB142762	01 Mar 2018	01 Mar 2018	15 Mar 2018	05 Mar 2018	14 Apr 2018	07 Mar 2018

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S4_0.2B	SE176150.001	LB142762	01 Mar 2018	01 Mar 2018	15 Mar 2018	05 Mar 2018	14 Apr 2018	07 Mar 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
S4_0.2B	SE176150.001	LB142864	01 Mar 2018	01 Mar 2018	28 Aug 2018	06 Mar 2018	28 Aug 2018	06 Mar 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
S4_0.2B	SE176150.001	LB142762	01 Mar 2018	01 Mar 2018	15 Mar 2018	05 Mar 2018	14 Apr 2018	07 Mar 2018

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S4_0.2B	SE176150.001	LB142768	01 Mar 2018	01 Mar 2018	15 Mar 2018	05 Mar 2018	14 Apr 2018	07 Mar 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
S4_0.2B	SE176150.001	LB142768	01 Mar 2018	01 Mar 2018	15 Mar 2018	05 Mar 2018	14 Apr 2018	07 Mar 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)	S4_0.2B	SE176150.001	%	60 - 130%	88

OP Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	S4_0.2B	SE176150.001	%	60 - 130%	92
d14-p-terphenyl (Surrogate)	S4_0.2B	SE176150.001	%	60 - 130%	114

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	S4_0.2B	SE176150.001	%	70 - 130%	92
d14-p-terphenyl (Surrogate)	S4_0.2B	SE176150.001	%	70 - 130%	114
d5-nitrobenzene (Surrogate)	S4_0.2B	SE176150.001	%	70 - 130%	82

PCBs in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	S4_0.2B	SE176150.001	%	60 - 130%	88

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	S4_0.2B	SE176150.001	%	60 - 130%	84
d4-1,2-dichloroethane (Surrogate)	S4_0.2B	SE176150.001	%	60 - 130%	78
d8-toluene (Surrogate)	S4_0.2B	SE176150.001	%	60 - 130%	78
Dibromofluoromethane (Surrogate)	S4_0.2B	SE176150.001	%	60 - 130%	73

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	S4_0.2B	SE176150.001	%	60 - 130%	84
d4-1,2-dichloroethane (Surrogate)	S4_0.2B	SE176150.001	%	60 - 130%	78
d8-toluene (Surrogate)	S4_0.2B	SE176150.001	%	60 - 130%	78
Dibromofluoromethane (Surrogate)	S4_0.2B	SE176150.001	%	60 - 130%	73

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
LB142851.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB142762.001		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)	%	-	76

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB142762.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	100
		d14-p-terphenyl (Surrogate)	%	-	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB142762.001	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

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.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result
LB142762.001		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)	%	-	86
		2-fluorobiphenyl (Surrogate)	%	-	98
		d14-p-terphenyl (Surrogate)	%	-	114

PCBs in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB142762.001		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
		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
LB142864.001		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
LB142762.001		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
LB142768.001	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)	%	-	70
		d4-1,2-dichloroethane (Surrogate)	%	-	76
		d8-toluene (Surrogate)	%	-	81
		Bromofluorobenzene (Surrogate)	%	-	80
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB142768.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	70
		d4-1,2-dichloroethane (Surrogate)	%	-	76
		d8-toluene (Surrogate)	%	-	81

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 %
SE176150.001	LB142851.024	Mercury	mg/kg	0.05	<0.05	<0.05	175	0
SE176260.006	LB142851.014	Mercury	mg/kg	0.05	<0.05	<0.05	156	0

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE176075.001	LB142758.011	% Moisture	%w/w	0.5	17	16	36	2
SE176075.011	LB142758.022	% Moisture	%w/w	0.5	9.3	8.3	41	12
SE176075.021	LB142758.033	% Moisture	%w/w	0.5	11	8.3	40	31
SE176161.001	LB142758.043	% Moisture	%w/w	0.5	7.5	7.1	44	6

OC Pesticides in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE176124.010	LB142762.014	Hexachlorobenzene (HCB)	mg/kg	0.1	0	0	200	0
		Alpha BHC	mg/kg	0.1	0	0	200	0
		Lindane	mg/kg	0.1	0	0	200	0
		Heptachlor	mg/kg	0.1	0	0	200	0
		Aldrin	mg/kg	0.1	0	0	200	0
		Beta BHC	mg/kg	0.1	0	0	200	0
		Delta BHC	mg/kg	0.1	0	0	200	0
		Heptachlor epoxide	mg/kg	0.1	0	0	200	0
		o,p'-DDE	mg/kg	0.1	0	0	200	0
		Alpha Endosulfan	mg/kg	0.2	0	0	200	0
		Gamma Chlordane	mg/kg	0.1	0	0	200	0
		Alpha Chlordane	mg/kg	0.1	0	0	200	0
		trans-Nonachlor	mg/kg	0.1	0	0	200	0
		p,p'-DDE	mg/kg	0.1	0	0	200	0
		Dieldrin	mg/kg	0.2	0	0	200	0
		Endrin	mg/kg	0.2	0	0	200	0
		o,p'-DDD	mg/kg	0.1	0	0	200	0
		o,p'-DDT	mg/kg	0.1	0	0	200	0
		Beta Endosulfan	mg/kg	0.2	0	0	200	0
		p,p'-DDD	mg/kg	0.1	0	0	200	0
		p,p'-DDT	mg/kg	0.1	0	0	200	0
		Endosulfan sulphate	mg/kg	0.1	0	0	200	0
		Endrin Aldehyde	mg/kg	0.1	0	0	200	0
		Methoxychlor	mg/kg	0.1	0	0	200	0
		Endrin Ketone	mg/kg	0.1	0	0	200	0
		Isodrin	mg/kg	0.1	0	0	200	0
		Mirex	mg/kg	0.1	0	0	200	0
		Total CLP OC Pesticides	mg/kg	1	0	0	200	0
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.125	30	4

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE176124.010	LB142762.014	Naphthalene	mg/kg	0.1	0.03	0.02	200	0
		2-methylnaphthalene	mg/kg	0.1	0.01	0.01	200	0
		1-methylnaphthalene	mg/kg	0.1	0.01	0.01	200	0
		Acenaphthylene	mg/kg	0.1	0.02	0.02	200	0
		Acenaphthene	mg/kg	0.1	0.01	0.01	200	0
		Fluorene	mg/kg	0.1	0.01	0.01	200	0
		Phenanthrene	mg/kg	0.1	0.29	0.3	64	3
		Anthracene	mg/kg	0.1	0.04	0.04	200	0
		Fluoranthene	mg/kg	0.1	0.66	0.65	45	2
		Pyrene	mg/kg	0.1	0.43	0.52	51	19
		Benzo(a)anthracene	mg/kg	0.1	0.22	0.27	71	20
		Chrysene	mg/kg	0.1	0.22	0.26	72	17
		Benzo(b&j)fluoranthene	mg/kg	0.1	0.37	0.38	57	3
		Benzo(k)fluoranthene	mg/kg	0.1	0.2	0.23	77	14
		Benzo(a)pyrene	mg/kg	0.1	0.29	0.2	71	37
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.2	0.25	74	22
		Dibenzo(ah)anthracene	mg/kg	0.1	0.01	0.04	200	0

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 %
SE176124.010	LB142762.014		Benzo(ghi)perylene	mg/kg	0.1	0.27	0.32	64	17
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0.3929	0.3188	66	21
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.4929	0.4188	76	16
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.4429	0.3688	59	18
			Total PAH (18)	mg/kg	0.8	3.14	3.38	55	7
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.39	0.39	30	0
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.49	0.46	30	6
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.57	0.51	30	11

PCBs in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE176124.010	LB142762.014		Arochlor 1016	mg/kg	0.2	0	0	200	0
			Arochlor 1221	mg/kg	0.2	0	0	200	0
			Arochlor 1232	mg/kg	0.2	0	0	200	0
			Arochlor 1242	mg/kg	0.2	0	0	200	0
			Arochlor 1248	mg/kg	0.2	0	0	200	0
			Arochlor 1254	mg/kg	0.2	0	0	200	0
			Arochlor 1260	mg/kg	0.2	0	0	200	0
			Arochlor 1262	mg/kg	0.2	0	0	200	0
			Arochlor 1268	mg/kg	0.2	0	0	200	0
			Total PCBs (Arochlors)	mg/kg	1	0	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.125	30	4

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 %
SE176150.001	LB142864.024		Arsenic, As	mg/kg	3	4	4	54	8
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
			Chromium, Cr	mg/kg	0.3	12	8.7	35	29
			Copper, Cu	mg/kg	0.5	28	39	32	32 ②
			Nickel, Ni	mg/kg	0.5	3.2	4.5	43	34
			Lead, Pb	mg/kg	1	24	29	34	18
			Zinc, Zn	mg/kg	0.5	99	130	32	30
SE176260.013	LB142864.014		Arsenic, As	mg/kg	3	<3	<3	178	30
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
			Chromium, Cr	mg/kg	0.3	2.8	2.8	48	1
			Copper, Cu	mg/kg	0.5	<0.5	<0.5	200	0
			Nickel, Ni	mg/kg	0.5	<0.5	<0.5	200	0
			Lead, Pb	mg/kg	1	3	3	68	2
			Zinc, Zn	mg/kg	0.5	1.3	1.5	173	0

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE176124.010	LB142762.014		TRH C10-C14	mg/kg	20	0	0	200	0
			TRH C15-C28	mg/kg	45	0	0	200	0
			TRH C29-C36	mg/kg	45	0	0	200	0
			TRH C37-C40	mg/kg	100	0	0	200	0
			TRH C10-C36 Total	mg/kg	110	0	0	200	0
			TRH C10-C40 Total (F bands)	mg/kg	210	0	0	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	0	0	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	0	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	0	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	0	0	200	0

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE176161.001	LB142768.025	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	1.0	1.1	40	4
			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	-	4.0	3.8	50	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.1	50	3

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.

VOC's in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE176161.001	LB142768.025	Surrogates	d8-toluene (Surrogate)	mg/kg	-	3.8	3.9	50	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	4.3	50	2
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	1.0	1.1	59	3

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE176161.001	LB142768.025		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	-	4.0	3.8	30	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.1	30	3
			d8-toluene (Surrogate)	mg/kg	-	3.8	3.9	30	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	4.3	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 %
LB142851.002	Mercury	mg/kg	0.05	0.21	0.2	70 - 130	103

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB142762.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	78
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	79
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	77
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	76
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	76
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	76
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.12	0.15	40 - 130	77

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB142762.002		Dichlorvos	mg/kg	0.5	2.0	2	60 - 140	100
		Diazinon (Dimpylate)	mg/kg	0.5	2.0	2	60 - 140	101
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.7	2	60 - 140	86
		Ethion	mg/kg	0.2	2.1	2	60 - 140	104
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	96
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB142762.002		Naphthalene	mg/kg	0.1	3.5	4	60 - 140	88
		Acenaphthylene	mg/kg	0.1	4.0	4	60 - 140	100
		Acenaphthene	mg/kg	0.1	3.3	4	60 - 140	83
		Phenanthrene	mg/kg	0.1	4.6	4	60 - 140	115
		Anthracene	mg/kg	0.1	4.2	4	60 - 140	106
		Fluoranthene	mg/kg	0.1	3.9	4	60 - 140	98
		Pyrene	mg/kg	0.1	3.2	4	60 - 140	79
		Benzo(a)pyrene	mg/kg	0.1	3.3	4	60 - 140	81
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.5	40 - 130	114

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB142762.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	101

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 %
LB142864.002	Arsenic, As	mg/kg	3	350	325	80 - 120	107
	Cadmium, Cd	mg/kg	0.3	430	416.6	69 - 131	104
	Chromium, Cr	mg/kg	0.3	31	35.2	80 - 120	87
	Copper, Cu	mg/kg	0.5	320	314	80 - 120	101
	Nickel, Ni	mg/kg	0.5	180	183	80 - 120	100
	Lead, Pb	mg/kg	1	94	91.5	80 - 120	103
	Zinc, Zn	mg/kg	0.5	290	275	80 - 120	106

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB142762.002		TRH C10-C14	mg/kg	20	43	40	60 - 140	108
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	108
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	75
	TRH F Bands	TRH >C10-C16	mg/kg	25	45	40	60 - 140	113
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	90
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	75

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 %
LB142768.002	Monocyclic	Benzene	mg/kg	0.1	2.4	2.9	60 - 140	83
	Aromatic	Toluene	mg/kg	0.1	2.7	2.9	60 - 140	91
		Ethylbenzene	mg/kg	0.1	2.4	2.9	60 - 140	82
		m/p-xylene	mg/kg	0.2	4.8	5.8	60 - 140	83
		o-xylene	mg/kg	0.1	2.4	2.9	60 - 140	82
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	5	60 - 140	76
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	85
		d8-toluene (Surrogate)	mg/kg	-	4.3	5	60 - 140	87
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	5	60 - 140	90

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB142768.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	94
		TRH C6-C9	mg/kg	20	22	23.2	60 - 140	93
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	5	60 - 140	76
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	85
		d8-toluene (Surrogate)	mg/kg	-	4.3	5	60 - 140	87
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	5	60 - 140	90
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	117

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%
SE176219.001	LB142851.004	Mercury	mg/kg	0.05	0.25	0.06	0.2	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE176124.002	LB142762.025		Naphthalene	mg/kg	0.1	3.6	0	4	89
			2-methylnaphthalene	mg/kg	0.1	<0.1	0	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	0	-	-
			Acenaphthylene	mg/kg	0.1	4.2	0	4	104
			Acenaphthene	mg/kg	0.1	3.1	0	4	77
			Fluorene	mg/kg	0.1	<0.1	0	-	-
			Phenanthrene	mg/kg	0.1	4.6	0	4	116
			Anthracene	mg/kg	0.1	4.4	0	4	111
			Fluoranthene	mg/kg	0.1	4.2	0	4	106
			Pyrene	mg/kg	0.1	3.1	0	4	78
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0	-	-
			Chrysene	mg/kg	0.1	<0.1	0.01	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0	-	-
			Benzo(a)pyrene	mg/kg	0.1	3.2	0	4	79
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	3.2	0	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	3.3	0.242	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	3.2	0.121	-	-
			Total PAH (18)	mg/kg	0.8	30	0	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.42	-	78
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.49	-	98
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.57	-	110

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%
SE176260.004	LB142864.004	Arsenic, As	mg/kg	3	52	<3	50	103
		Cadmium, Cd	mg/kg	0.3	50	<0.3	50	99
		Chromium, Cr	mg/kg	0.3	53	3.0	50	99
		Copper, Cu	mg/kg	0.5	51	2.3	50	98
		Nickel, Ni	mg/kg	0.5	51	0.7	50	100
		Lead, Pb	mg/kg	1	53	2	50	101
		Zinc, Zn	mg/kg	0.5	55	4.5	50	101

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE176124.002	LB142762.026		TRH C10-C14	mg/kg	20	36	0	40	90
			TRH C15-C28	mg/kg	45	45	0	40	113
			TRH C29-C36	mg/kg	45	51	6	40	113
			TRH C37-C40	mg/kg	100	<100	0	-	-
			TRH C10-C36 Total	mg/kg	110	130	0	-	-
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	0	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	37	0	40	93
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	37	0	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	9	40	138
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	-	-

MATRIX SPIKE DUPLICATES

SE176150 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.

SGS

LIMS No: _____

Request for Laboratory Services and Chain of Custody Form

SGS Australia, Unit 16, 33 Maddox Street, Alexandria, NSW 2015 Ph: +61 2 8594 0400 Fax: +61 2 8594 0499 Email: au.samplereceipt.sydney@sgs.com

Laboratory Section

Received Date: 1/3/18 Received By: A. Odisho Cooling Method: Ice ☑ Icepack ☐ None ☐ Samples intact: Yes ☑ No ☐

Logged-in Date: 11 Time of Receipt: 3:10pm Cooler Sealed: Yes ☑ No ☐ N/A ☐ Temperature: Ambient ☐ Chilled ☑

COD must pay via cheque or credit card before analysis is commenced. AMEX & DINERS cards incur a 5% surcharge

INVOICE TO:

Name:

Company: DLA Environmental Services

Address: Unit 3/38 Leighton Place Hornsby

Email: sydney@dlaenvironmental.com.au

Phone: 9476 1765 Fax:

Quote #:

Attached Parameter List: Yes ☐ No ☐

Replacement Sample Containers Required: Yes ☐ No ☐

Results Required By: Standard Urgent TA requires lab approval

Notes:

Client information | **PO No.:** | **Project No.:** DL4101 - West Schofields

Company Name: DLA Environmental Services

Contact Name: Amy

Address: Unit 3/38 Leighton Place Hornsby

Phone Number: 9476 1765 **After Hours Phone Number:**

Fax Number: **Email:** sydney@dlaenvironmental.com.au amy.dorrington@...

Note: Results will be sent via email to an unlimited number of addresses for no additional fee. In the absence of email, fax is available upon request.

Indicate results format (please check one): Email ☑ Fax ☐

SAMPLE INFORMATION

Lab Sample ID	Sample Identifier	Date Sampled	Time	Matrix: Soil Water Other	# of Bottles	Analysis Requested: CL17	
1	S4_0.2B	1/3	-	Soil	1	X	

SGS EHS Alexandria Laboratory

SE176150 COC

Received: 01-Mar-2018

Sampled By: Amy **Date:** 1/3/17

Relinquished By: Amy **Date:** 1/3/17 **Time:**