



Environmental - Remediation - Engineering - Laboratories - Drilling

DETAILED SITE INVESTIGATION

**23-27 Schofields Road,
Schofields NSW**

Prepared for

Schofields One Unit Trust

18th October 2017

HEAD OFFICE: PO Box 398 Drummoyne NSW 1470
Aargus Pty Ltd ACN 050 212 710 • Aargus Holdings Pty Ltd ACN 063 579 313
Aargus Australia Pty Ltd ACN 086 993 937 • Aargus Recruitment Pty Ltd ACN 098 905 894
Telephone: 1300 137 038 • Facsimile: 1300 136 038 • Email: admin@aargus.net • Website: www.aargus.net

Other office locations in NSW - QLD - VIC - SA and 4 overseas countries

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ABBREVIATIONS

ADWG	Australian Drinking Water Guidelines
ANZECC	Australian and New Zealand Environment and Conservation Council
AST	Aboveground Storage Tank
BGL	Below Ground Level
BTEX	Benzene, Toluene, Ethyl benzene and Xylene
COC	Contaminants of Concern
DLWC	Department of Land & Water Conservation
DNR	Department of Natural Resources
DQOs	Data Quality Objectives
POEO	Protection of the Environment Operations
DSI	Detailed Site Investigation
EPA	Environment Protection Authority
ESA	Environmental Site Assessment
HIL	Health-Based Soil Investigation Level
LGA	Local Government Area
NEHF	National Environmental Health Forum
NEPC	National Environmental Protection Council
NEPM	National Environmental Protection Measure
NHMRC	National Health and Medical Research Council
OCP	Organochlorine Pesticides
OPP	Organophosphate Pesticides
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PID	Photo Ionisation Detector
PQL	Practical Quantitation Limit
PSH	Phase Separated Hydrocarbon
PSI	Preliminary Site Investigation
QA/QC	Quality Assurance / Quality Control
RAC	Remediation Acceptance Criteria
RAP	Site Remediation Plan
RPD	Relative Percentage Difference
SAC	Site Assessment Criteria
SCID	Stored Chemical Information Database
SEPP	State Environment Planning Policy
SMP	Site Management Plan
SVC	Site Validation Criteria
TCLP	Toxicity Characteristics Leaching Procedure
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbons
UCL	Upper Confidence Limit
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
VHC	Volatile Halogenated Compounds

EXECUTIVE SUMMARY

Aargus Pty Ltd ('Aargus') was appointed by Schofields One Unit Trust (the 'client') to undertake a Detailed Site Investigation (DSI) within the property located at 23-27 Schofields Road, Schofields NSW (the 'site'). The site is proposed for the construction of nine residential unit blocks with basement car parking, communal open places and internal roads to be undertaken in four stages. A setback for a traffic corridor is proposed along the Schofields Road boundary.

At the time of the inspection (11th & 12th September 2017), the site was comprised of three main lots, that being No.23, 25 and 27 Schofields Road. No.23 was vacant covered with long grass and trees. A fibro building and metal shed were located in the south eastern portion of the lot. A man made dam was observed in the north west portion of the lot. No.25 contained a single-storey brick house, a granny flat, a large semi demolished shed and a smaller shed in the southern portion. Empty paint containers, wooden sheets, old furniture were observed inside the semi demolished shed. The northern portion of the lot contains three large disused poultry sheds. A man made dam was located alongside the northern site boundary. No.27 was occupied by a single-storey brick house, with the remainder of the site grass and tree covered. Evidence of demolished metal sheds were observed in the southern portion of the site. In addition, a metal shed was observed along the western edge of the lot.

The land title information provided suggested that Lot 209 was owned by a farmer. Lot 210 was owned by plant operators until 1968, when ownership changed to a market gardener and in 1980 by a grain merchant. In 1983 the lot was purchased by the current owner Joseph Cremona when the site presumably became a poultry farm. Lot 211 was purchased by a plant operator.

Aerial photography indicated Lot 209 was predominantly vacant land, with the exception of two dams, with the dam in the south western portion of no longer evident. A fibro residential and metal shed in the south east portion remain the same from 1978. Lot 210 indicated the presence of two large warehouses in the northern portion and three small buildings in the southern portion in the 1978 aerial, with a third large warehouse, a few sheds, a house and driveway visible in the 2009 aerial. Lot 211 indicated that a large building and two to three

smaller buildings were observed in the southern portion in the 1978 aerial which had been demolished or replaced in 2009. The 2009 aerial shows the north eastern portion to be used for agricultural purposes. The general land use of the immediate site vicinity to the north, south and west were previously rural residential, with the adjacent lands to the east showing intensive agricultural and poultry activities.

The findings of the assessment indicated the following areas of potential environmental concern:

- All of heavy metals concentrations from the primary & field replicate samples analysed met their respective assessment criteria under the HIL 'B' land use scenario.
- TRH, BTEX and naphthalene concentrations from primary & field replicate met their respective HSLs assessment criteria.
- Total PAH concentrations were below their respective assessment criteria under the HIL 'B' land use scenario.
- No OCP and/or PCBs were detected above LOR or site criteria in selected samples.
- Asbestos was detected above the SAC at the following locations:
 - o A fragment at location S13 contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected in the form of ACM.
 - o S15 (0.0-0.1m) contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected at concentrations of 0.73% (AF) & 0.72% (ACM).
 - o D2 (duplicate of S15) contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected at concentrations of 0.3095% (ACM) & 0.0412% (AF).
 - o SS2 (replicate of S15) contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected at concentrations of 0.294% (AF) & 1.44% (ACM).
 - o A fragment at location S15 contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected in the form of ACM.
 - o A fragment at location S18 contained Chrysotile Asbestos and Amosite Asbestos detected in the form of ACM

- o A fragment at location S20 contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected in the form of ACM.

Based on the results of this investigation it is considered that the risks to human health and the environment associated with the soil contamination at the site are low to moderate within the context of the proposed use of the site for the construction of nine residential unit blocks with basement car parking, communal open places and internal roads to be undertaken in four stages. A setback for a traffic corridor is proposed along the Schofields Road boundary.

The site is therefore considered to be rendered suitable for the proposed use, subject to the following:

- An appropriate remedial / management strategy is developed, culminating in preparation of a Remedial Action Plan (RAP) in accordance with EPA guidelines, in regards to the asbestos in soil hotspot at location S15 and the ACM impacted hotspots in the vicinity of locations S13, S15, S18 & S20.
- Any soils requiring removal from the site, as part of future site works, should be classified in accordance with the “Waste Classification Guidelines, Part 1: Classifying Waste” NSW EPA (2014).

1 INTRODUCTION

1.1 Background

Aargus Pty Ltd ('Aargus') was appointed by Schofields One Unit Trust (the 'client') to undertake a Detailed Site Investigation (DSI) within the property located at 23-27 Schofields Road, Schofields NSW (the 'site'). The location of the property is presented in Figure 1 of Appendix A.

It is understood that the site is proposed for the construction of nine residential unit blocks with basement car parking, communal open places and internal roads to be undertaken in four stages. A setback for a traffic corridor is proposed along the Schofields Road boundary. The proposed development plans can be found in Appendix B.

A site investigation was requested by the client to determine the potential for onsite contamination as part of the Development Application (DA).

1.2 Objective

The primary objectives of this DSI are as follows:

- Identify potential areas where contamination may have occurred from current and historical activities;
- Identify potential contaminants associated with potentially contaminating activities;
- Assess the potential for soils to have been impacted by current and historical activities; and
- Assess the suitability of the site for construction of nine residential unit blocks with basement car parking, communal open places and internal roads to be undertaken in four stages. A setback for a traffic corridor is proposed along the Schofields Road boundary.

1.3 Scope of Works

The scope of works for this DSI includes:

- Review of the physical site setting and site conditions based on a site inspection, including research of the location of sewers, drains, holding tanks and pits, spills, patches of discoloured vegetation, etc. (where applicable);
- Research and review of the information available, including previous environmental investigations, current and historical titles information, review of aerial photographs, groundwater bore searches, EPA notices, anecdotal evidence, site survey and site records on waste management practices;
- Development of a preliminary Conceptual Site Model (CSM) to demonstrate the interactions between potential sources of contamination, exposure pathways and human/ecological receptors identified;
- A targeted soil boring/sampling investigative study – formulating and conducting a sampling plan and borehole investigation;
- Laboratory analysis and results from sample analysis – findings and comparison to regulatory guidelines;
- Field and laboratory Quality Assurance/Quality Control (QA/QC); and
- Recommendations for additional investigations should any data gaps be identified or possible strategies for the management of the site, where relevant.

This report was prepared with reference to the NSW Environment Protection Authority (EPA) "*Guidelines for Consultants Reporting on Contaminated Sites*" (2011).

2 SITE IDENTIFICATION AND DESCRIPTION

2.1 Site Identification

Site identification information and land use is summarised in the table below.

Table 1: Site Identification

Lot and DP Number (Address) *	Lot 209 in DP1189773 (23 Schofields Road, Schofields NSW) Lot 210 in DP1189773 (25 Schofields Road, Schofields NSW) Lot 211 in DP7789733 (27 Schofields Road, Schofields NSW)
Coordinates	(NE corner) Latitude: -33.695917, Longitude: 150.88264 (NW corner) Latitude: -33.696979, Longitude: 150.879743 (SW corner) Latitude: -33.69805, Longitude: 150.880344 (SE corner) Latitude: -33.697622, Longitude: 150.883767
Approx. Site Area	5.0 (ha)
Approx. Individual Lot Areas	Lot 209 : 1.432 ha Lot 210 : 1.769 ha Lot 211 : 1.720 ha
Local Government Area	Blacktown City Council
Parish	Gidley
County	Cumberland
Current Land Zoning**	R3– Medium Density Residential
Proposed Land Use	Residential units, communal landscaping areas and roads
Current Site Owner by title	Lot 209 - Enid Muriel Skinner Lot 210 - Joseph Cremona/Suzanne Catherine Cremona Lot 211 -Darren Charles Gauci / Mary Anne Gauci
Site End Users	Residents and Visitors (adults & children)

Notes: * refer to <http://maps.six.nsw.gov.au/>

** refer Section 149 Planning Certificate included in Appendix G

The site boundary and Lot and DP numbers are presented in Figure 2 of Appendix A. A survey plan provided by the client is included in Appendix B.

2.2 Site Inspection

A site visit was carried out on Monday 11th and 12th September 2017 by an Aargus field scientist to inspect the site for any potential sources of contamination and document any observations made regarding the current site conditions. At the time of the site inspection, the following observations were made:

No.23 Schofields Road (Lot 209)

- A residential building was located within the south eastern portion of the lot. The exterior of the house consists of fibro cement sheeting with a corrugated metal roof.
- A metal shed was observed to the north of the residential building.
- A man made dam observed within the north western portion of the lot.
- The remaining lot area was observed to be vacant land with grass, shrubs and trees.
- Access to the site was via Schofields Road along the southern boundary.
- No oil staining or ACM fragments were observed.
- Surface levels on the lot fall to the west.

No.25 Schofields Road (Lot 210)

- A single-storey brick house with a swimming pool, a granny flat, a fibro garage, a large semi-demolished shed and a smaller metal were located in the southern portion.
- Piles of rubbish and an empty paint container were observed inside and in front of the demolished shed.
- Three former poultry sheds were observed in the northern portion of the lot.
- The northern most poultry shed (Site Feature 9a) consisted of fibro-cement sheeting on the eastern and western walls with a corrugated metal roof. A small stockpile of fertilizer and a small stockpile of household rubbish was observed inside the shed.
- The middle poultry shed (Site Feature 9b) was completely demolished. The majority of the area was covered with remnants of insulation material and roofing.
- The southern most poultry shed (Site Feature 9c) contained metal cladding on the exterior walls, with the roof of the shed removed.
- Several chicken feed towers, an above ground gas tank and water tanks were observed.
- Along the northern lot boundary was a dam.

- Access to the site was off Schofields Road along the southern boundary.
- No oil staining was observed.
- ACM fragments were noted on the southern portion of the lot next to the granny flat and in front of the large semi demolished shed.
- Surface levels on the southern half of the lot fall from generally to the west. It appears that in order to facilitate levelling for the buildings some of the overburden has been removed to create a steep drop between the northern and southern portions of the lot. Exposed bedrock is evident within the centre portion of the lot where this cut appears to have occurred. Surface levels in the northern half of the site fall slightly to the west.

No.27 Schofields Road (Lot 211)

- A single-storey brick house with the evidence of fibro-cement sheeting on the exterior eaves was located in the southern portion.
- A small metal shed structure was observed in the western portion.
- Evidence of two previous demolished metal sheds were noted in the southern portion of the lot.
- The remainder of the site is grass and trees covered.
- ACM fragments were found around the house, in the south central portion and in the south west corner of the lot.
- No oil staining was observed.
- Access to the site was off Schofields Farm Road along the eastern boundary.
- Surface levels on the site generally fall gradually to the west and towards an east-west striking gully in the centre of the site.

The site features are presented in Figure 3 of Appendix A. Site photographs are included in Appendix C.

2.3 Topography and Surface Water Drainage

The following observations were made during the site inspection carried out on Monday 11th September 2017:

- No.27 Schofields Road falls gradually to the west and towards an east-west striking gully in the centre of the lot.
- No.25 Schofields Road falls gradually from the south to the west.
- No.23 Schofields Road gradually falls from the east to the west.
- Stormwater runoff from each lot would follow the topography noted in the aforementioned points.

2.4 Surrounding Land Uses

The surrounding land uses identified are described in the table below:

Table 2: Surrounding Land Uses

Orientation	Description
North	Gloucester Street, then neighbouring residential subdivision- currently under construction
South	Neighbouring Road upgrade - currently under construction
East	Neighbouring Road upgrade - currently under construction
West	Rural residential land then Junction Road

3 SITE HISTORY

3.1 Land Titles

A review of historical documents held at the NSW Department of Lands offices was undertaken to identify the current and previous land owners, and potential land uses. The results of the title search are summarised in the following table.

Table 3: Land Title Information

Year	Lot 209 in DP1189733
2003-2016	Enid Muriel Skinner
	Prior: 62/2912
1957-2003	Eric Skinner/Enid Muriel Skinner
	Prior: Vol.1516, Fol.54
1950-1957	Lillian Anna William
1929-1950	Brunte Cadogan
1920-1929	Albert Llewellyn Cadogan
1904-1920	Thomas Hayes

Year	Lot 210 in DP1189773
2003-2016	Joseph Cremona/Suzanne Catherine Cremona
	Prior: 63/2912
1983-2003	Joseph Cremona
	Prior: Vol.19159, Fol.95
1980-1983	Robert Donald Ruttley/Leonie Kay Ruttely
1968-1980	Joseph Xerri
	Prior: Vol.11516, Fol.54
1959-1968	Patrick Bohan/Isabel Bohan
1959-1959	Patrick Bohan
1957-1959	Philip Duke/Patrick Bohan
1950-1957	Lillian Anna Williams
1929-1950	Brunte Cadogan
1920-1929	Albert Llewellyn Cadogan
1904-1920	Thomas Hayes

Year	Lot 211 in DP1189773
1995-2016	Darren Charles Gauci/Mary Anne Gauci
	Prior: 64/2912
1979-1995	Mary Winifred Gallagher
	Prior: Vol.17458, Fol.195
1957-1979	James Joseph Gallagher
	Prior: Vol.11516, Fol.54
1950-1957	Lillian Anna Williams

1929-1950	Brunte Cadogan
1920-1929	Albert Llewellyn Cadogan
1904-1920	Thomas Hayes

In summary, the land title information provided suggested that each of the lots were used by private individuals from at least 1904. A summary of pertinent ownership usage for each lot is provided below:

- Lot 209: farmer.
- Lot 210: grain merchant and poultry farmer.
- Lot 211: plant operator and market gardener.

A copy of the historical land titles information obtained by Aargus can be found in Appendix D.

3.2 Aerial Photographs

Selected aerial photographs obtained from the NSW Department of Lands were reviewed to describe the site features and surrounding areas at various timelines. A summary of the review is presented in the table below.

Table 4: Summary of Historical Aerial Photos

Year	Site	Surrounding areas
1947	All three lots are vacant and grass covered with numerous trees.	N: Vacant grass and tree covered land S: A road, then vacant grass covered land E: A road, then vacant grass and treed covered land W: Rural residential
1978	Lot 209 – Two buildings and shed constructed in the south east portion of the lot. Some trees are gone at the rear of the lot, possibly due to construction of the dam. The remainder of the site is generally vacant. Lot 210 – Two large warehouses observed in the northern portion of the site plus some vegetation and grass been cleared from the far northern end of the site. Three small buildings have been constructed in the southern portion of the site. The remainder of the site has been cleared of vegetation and appeared to be grass covered. Lot 211 – A large and two to three smaller buildings observed in the southern portion of the site. A significant amount of vegetation are gone from the remainder of the site.	No apparent changes were observed from the previous photograph, with the exception of: N: A new rural residential property E: Market gardening activities are visible.
1998	Lot 209 – No apparent changes were observed from the previous photograph with the exception of a new dam observed in the south west portion of the site. Lot 210 – No apparent changes were observed from the previous photograph. Lot 211 – No apparent changes were observed from the previous photograph with the exception of: the large building has been demolished or replaced, what remains appears to be the metal sheds.	No apparent changes were observed from the previous photograph with the exception of : E: Construction of some poultry sheds

Year	Site	Surrounding areas
2009	Lot 209 – No apparent changes were observed from the previous photograph. Lot 210 – It appears that a third large warehouse , few additional buildings, main house and driveway have been constructed Lot 211 – No apparent changes were observed from the previous photograph with the exception of the north eastern portion being used for agricultural purposes.	No apparent changes were observed from the previous photograph.
2017	Lot 209 – No apparent changes with the exception of the middle dam no longer evident. Lot 210 – No apparent changes with the exception of a dam to north. The large warehouse in the middle with some small sheds been completely demolished. Large shed in the south portion appears to be semi demolished. Lot 211 – No apparent changes with the exception that market garden activities have ceased and now a dirt track is evident in this area. Metal sheds in the south portion no longer exist.	N: A street, then neighbouring residential subdivision-currently under construction S: Neighbouring Road upgrade-currently under construction E: Neighbouring Road upgrade-currently under construction W: Rural residential land

In summary, the aerial photographs indicate the following:

- Lot 209: Appeared to have been vacant and grass covered from 1947. In 1978, two buildings and shed have been constructed in the south portion of the lot which appear to be the building and shed that exist on site today. From 1998 the layout of the lot remains the same to the most current day with the exception of the dam in the south west portion which is no longer present.
- Lot 210: The site has been vacant and grass covered from 1947. In 1978, two large warehouses in the northern portion and three small buildings in the southern portion have been constructed. The layout of the site appears much the same until 2009. In 2009, a third large warehouse, few buildings, a house and driveway been constructed in the southern portion of the lot. The lot appears much as it does today, however, large warehouse in the middle, some small sheds completely demolished and one large shed in the southern portion been semi demolished. In addition, a man made dam located along northern boundary.

- Lot 211: The site has been vacant and grass covered from 1947. In 1978, a large building and two to three smaller buildings observed in the southern portion of the site. In 1998, it appears the large buildings been demolished or replaced and what remains appears to be metal sheds. In 2009, the majority of the site is being used for agricultural purposes. The lot layout remains similar to the 2009 photos with the exception that the site is no longer being used for agricultural purposes and metal sheds in the south portion of the lot are no longer present.

Copies of current and historical aerial photographs are presented in Appendix E.

3.3 EPA Records

3.3.1 CLM Act 1997

The NSW EPA publishes records of contaminated sites under Section 58 of the Contaminated Land Management (CLM) Act 1997. The notices relate to investigation and/or remediation of site contamination considered to pose a significant risk of harm under the definition in the CLM Act. However, it should be noted that the EPA record of Notices for Contaminated Land does not provide a record of all contaminated land in NSW.

A search of the EPA database revealed that the subject site or the suburb of Schofields is not listed on the database.

Copies of the EPA records are included in Appendix F.

3.3.2 POEO Register

A search of the POEO Register revealed that the site was not listed. A copy of the POEO register search is included in Appendix F.

3.4 Section 149 Certificates

The Planning Certificate – Section 149 (2) of the Environmental Planning & Assessment Act 1979 for the site was obtained by the client and provided to Aargus for review. A summary of the information pertaining to the site is provided below:

- The site is zoned R3 – Medium Density Residential.
- Complying Developments may or may not be carried out on the subject land under an Environmental Planning Policy.
- The land does not include or comprise critical habitat.
- The land is not within a conservation area.
- No environmental heritage is situated on the land.
- The property is not affected by a road widening or road realignment under the Roads Act.
- The land is not within a proclaimed mine subsidence district.
- There are currently no mainstream or backwater flood related development controls adopted by council that apply to the land.
- Further development of subject land may incur levies contribution under section 94 of the Environmental Planning and Assessment Act 1979 for facilities and services.
- The land subject has been identified on Council's bush fire prone land map.
- The land is biodiversity certified land.
- The land is not subject to any biobanking agreement.
- The land is not affected by a property vegetation plan under the Native Vegetation Act 2003.
- There is not a current site compatibility certificate (seniors housing, infrastructure, affordable rental housing) relating to the land.
- The land has no matters relating to the *Contaminated Land Management Act, 1997*.

Copies of the certificates are included in Appendix G.

3.5 Industrial Processes and Products Manufactured

Based on the historical record and site inspection, it is unlikely that any industrial processes and activity would have previously occurred on site.

3.6 Former Chemical Storage and Transfer Areas

Lot 210: chemicals associated with the poultry sheds activities, or above ground gas tank may have been stored within the site next to the sheds, however, no such areas were evident.

Lot 211: Chemicals associated with the agricultural activities may have been stored within the site, however, no such areas were evident.

3.7 Product Spill & Loss History

The site was primarily used for rural residential purposes. The majority of the site is currently grass covered with a few asphalt driveways. At the time of the inspection, no staining was observed on the driveway surfaces on site.

3.8 Discharges to Land, Water and Air

Based on POEO register search, the site was not issued with any Environmental Protection Licence under Section 55 of Protection of the Environment Operation Act to discharge any pollution into land, water or air.

3.9 Historical Use of Adjacent Land

Based on the aerial photographs, the adjacent lands to the north, south and west were previously rural residential, however, the adjacent lands to the east showed intensive agricultural and poultry activities.

3.10 Discussion and Summary of Site History

Based on available information, the site historical usage is summarised as follows:

- The land title information provided suggested that Lot 209 was owned by a farmer. Lot 210 was owned by plant operators until 1968, when ownership changed to a market gardener and in 1980 by a grain merchant. In 1983 the lot was purchased by the current owner Joseph Cremona when the site presumably became a poultry farm. Lot 211 was purchased by a plant operator.
- Aerial photography indicated Lot 209 was predominantly vacant land, with the exception of two dams, with the dam in the south western portion of no longer evident. A fibro residential and metal shed in the south east portion remain the same from 1978. Lot 210 indicated the presence of two large warehouses in the northern portion and three small buildings in the southern portion in the 1978 aerial, with a third large warehouse, a few sheds, a house and driveway visible in the 2009 aerial. Lot 211 indicated that a large building and two to three smaller buildings were observed in the southern portion in the 1978 aerial which had been demolished or replaced in 2009. The 2009 aerial shows the north eastern portion to be used for agricultural purposes.
- The general land use of the immediate site vicinity to the north, south and west were previously rural residential, with the adjacent lands to the east showing intensive agricultural and poultry activities.
- The land has no matters relating to the Contaminated Land Management Act, 1997.
- No records were present on the NSW EPA and POEO databases.

4 ENVIRONMENTAL SETTING

4.1 Sensitive Environmental Receptors

The nearest watercourses in the site vicinity include:

- A tributary of Cattai Creek 150m to the north east.
- A tributary of Killarney Chain of Ponds 250m to the south west.
- A tributary of Killarney Chain of Ponds 600m north-west.
- Seconds Pond Creek 500m to the south east.

4.2 Soil

The Soil Landscape Map of Penrith (soil Landscape Series Sheet 9030, Scale 1:100,000, 1989), prepared by the Soil Conservation Service of NSW, indicates that the site is located within the Blacktown landscape area and typically consists of highly plastic and relatively impermeable residual soil.

4.3 Geology

The Geological Map of Penrith (Geological Series Sheet 9030, Scale 1:100,000, Edition 1, 1991) published by the Department of Minerals and Energy indicates the residual soils within the site to be underlain by Triassic Age Shale of the Wianamatta Group, comprising dark grey to black claystone, siltstone and fine sandstone-siltstone laminite.

According to the *Preliminary Geotechnical Investigation Report* by Douglas Partners (Reference: 85329.00, April 2016), the underlying geology was silty or sandy clay residual soil and then shale/siltstone or sandstone bedrock.

4.4 Acid Sulfate Soils

To determine whether there is a potential for acid sulphate soils to be present within a site, reference was made to the NSW Department of Land & Water Conservation (DLWC) *Acid Sulphate Soil Risk Map* (Edition Two, December 1997, Scale 1:25,000). The search of the data based revealed that no map is available for the site located within the Schofields area.

4.5 Hydrogeology

Based on available information, our desktop study indicates that groundwater from the site is likely to be flowing towards Eastern Creek to the west.

A search of the Department of Natural Resources (DNR) borehole database information revealed there are no groundwater wells within 500 metres of the selected point.

During the “*Preliminary Geotechnical Investigation Report*” prepared by Douglas Partners (Reference: 85329.0, April 2016), water seepages was observed at a depth of 1.4m in one of the test pits. Based on field information, it is expected that it could be representative of temporary perched groundwater along the rock surface. The pit location was noted to be a low point on the site. The regional groundwater table is likely to be below the bedrock surface.

A copy of the groundwater bore search records can be found in Appendix H.

4.6 Summary of Local Meteorology

The monthly rainfall of the local area can be represented by the data collected by Bureau of Meteorology (BOM) from the rainfall gauge located in Box Hill (McCall Gardens), which is located approximately 5.2km north east of the site. Records indicate that the annual mean rainfall from 1990 to 2017 is 712.0 mm. Reference can be made to Appendix J – Local Meteorology.

5 SUMMARY OF PREVIOUS REPORTS

5.1 Douglas Partners PSI

Douglas Partners previously undertook a “*Preliminary Site Investigation*” (Ref: 85329.01, dated 21st April 2016) within the site.

The investigation involved a desktop study of the historical land uses of the site, with the objective of identifying potentially contaminating activities that could have taken place at the site including contaminated associate with agricultural land use, contaminants associated with stockpile items, contaminants associated with the incineration of site-generated waste, contaminants associated with demolition activities, contaminants associated with the maintenance of buildings on the site, naturally occurring elements in the soils and rock and potential for hazardous building materials including asbestos.

Based on a preliminary soil salinity analysis, the filling and natural soils are generally non saline when assessed with the values given in the Departments of Land and Water Conservation (2002) Site Investigations for Urban Salinity.

Based on PSI, an intrusive investigation is warranted to assess contamination at the site. However, if contaminants are identified on the site, the site could still be made suitable for the intended use by soil remediation. There is nothing to suggest that the site can not be made suitable for high-density residential land use.

Douglas Partners recommended that a hazardous building material survey be undertaken of the site structures in accordance with the requirements of the NSW Work Health and Safety Regulation (2011) prior to demolition.

Waste classification in accordance with current NSW EPA policies and guidelines will need to be undertaken on the materials to be removed from the site.

5.2 Aargus HAZMAT

Aargus undertook a “*Hazardous Materials Assessment*” (Ref: ES7021, dated 25th September 2017) within the site.

The investigation was to ascertain the extent, type and condition of hazardous materials within the nominated building, associated building structures and surrounding soils to identify any potential hazardous materials found at the site and determine if these materials present a potential health risk. The survey consisted of visual walk-through inspection with limited sampling/analysis as required.

Based on the results for Asbestos Containing Materials Chrysotile Asbestos, Amosite asbestos and Crocidolite Asbestos detected from exterior walls of No.23 house in south eastern portion and Chrysotile Asbestos detected from bathroom wall. Chrysotile Asbestos detected from exterior chicken shed 1 wall in the northern portion of No.27 and from granny flat exterior wall in southern portion. Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected from bathroom wall of No.27 house in south portion of lot. In addition, Chrysotile Asbestos and Amosite Asbestos detected on the surface ground in south central and south western portion of the site.

According to Aargus Hazardous Materials Assessment, Asbestos fibre containing construction materials have been identified within the properties of No.23, No.25 and No.27 Schofields Road. All asbestos materials were considered to be non-friable.

All works associated with the disturbance and removal of asbestos containing materials must be undertaken by Licenced Class B Asbestos Removalist. Air monitoring is not mandatory for non-friable asbestos removal, however, in consideration of the surrounding land use air monitoring should be undertaken during the proposed works. Besides, all lead containing paint films, SMF containing materials should be removed.

The findings of this report indicates that the site as it currently stands, presents minimal environmental or human health concerns from asbestos, synthetic mineral fibres, lead in paint and PCB contamination.

6 AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

Based on the site inspection, site history, previous reports and review of available information from the desktop study, the potential Areas of Environmental Concern (AEC) and their associated Contaminants of Concern (CoC) for the site were identified. These are summarised in the following table.

Table 5: Summary of Potential Areas and Contaminants of Concern

Potential AEC	Potentially contaminating activity	Potential CoCs	Likelihood of Site Impact	Justification
Houses and poultry sheds in Lot 210	Potential for pesticides to have been sprayed or injected on or underneath concrete slabs	OCP	Low	If use of OCPs has occurred, the impact is likely to have been localised and limited to the surface layer.
Metal sheds and metal storage area	Metal degradation	Metals	Low	Metal constructed features and metal storage were observed on the unsealed surfaces of the site.
Vicinity of poultry sheds in Lot 210	Potential cut and fill activities on site for	Metals, OCP	Low	Based on the site observations and site topography, the presence of cut and fill activities is likely near / under the poultry sheds.
Lot 210	Burial of chicken carcasses, eggs and shells	Various	Low	If this has occurred, there is a potential for microbiological impact to the soils within the burial pit.
Lot 210 Dam & Lot 211 Gully	Migration of contaminants from activities within the site	Metals, OCP	Low	If this has occurred, there is a potential for the water and sediment to be impacted.
Lot 211	Historical market garden activities	Metals, OCP	Low	The vegetation at the site was found to be generally healthy. Furthermore, the use of persistent pesticides, such as dieldrin, heptachlor and DDT, have been either restricted or prohibited from agricultural use since 1986/1987.
Gravel driveways and car parking areas	Leaks from vehicles	Metals, TPH, BTEX, PAH	Low	The majority of the site was unsealed. However, no staining was observed on the gravel driveway or in car parking areas.
Lots 210 & 211	Fibro fragments	Asbestos	Low	Fibro fragments were noted on the site surfaces within Lots 210 & 211, however, these were in a bonded form

Potential AEC	Potentially contaminating activity	Potential CoCs	Likelihood of Site Impact	Justification
				and will be removed by a licensed contractor.
Building Structures – current and former	Potential Asbestos/Fibro Features	Asbestos	Moderate	Potential fibro-cement building features were likely to be present within the site features. However, if present, these will be removed by licensed contractors. It is unknown if the former residential dwellings and associated features were constructed of asbestos products.
Eastern Site Boundary	Contamination of soils by migration of contaminants from adjoining market garden activities	Various	Low	If this has occurred, the impact is likely to have been localised. The vegetation in these areas was found to be generally healthy.

7 DATA QUALITY OBJECTIVES

7.1 Step 1 – State the Problem

7.1.1 Problem Statement

The site is proposed for the construction of nine residential unit blocks with basement car parking, communal open places and internal roads to be undertaken in four stages. A setback for a traffic corridor is proposed along the Schofields Road boundary. As part of the DA application, it is a Council requirement that a site investigation report be prepared by a consultant to assess whether the site is suitable for the proposed development.

However, the desktop study identified some areas of potential environmental concern such as pesticide use, metal degradation, cut & fill activities, market garden activities, poultry farming & associated activities, leaks from vehicles, chemical storage, on & off-site migration, and asbestos.

7.1.2 Objectives

The objectives of the DSI are:

- To assess the potential for the soils to have been impacted by current and historically contaminating activities; and
- To assess the suitability of the site the construction of nine residential unit blocks with basement car parking, communal open places and internal roads to be undertaken in four stages, and a setback for a traffic corridor is proposed along the Schofields Road boundary as part of Council's requirements for the DA.

7.1.3 Project Team

The nominated core project team and their responsibilities are listed in the table below.

Table 6: Project Team and Responsibilities

Project Team Member	Responsibilities
Mark Kelly – Principal Environmental Consultant	Project Manager and Technical Reviewer
Setareh Kazemi – Environmental Engineer	Report Author
Setareh Kazemi – Environmental Engineer	Field Representative

7.2 Step 2 - Identify the Decisions of the Study

The decisions required to address the contamination problem are as follows:

- Is soil contamination present within the areas of potential environmental concern identified?
- Is soil contamination likely to present an unacceptable risk of harm to humans or the environments?
- Is the site currently suitable for the proposed land use?
- Is there a potential for onsite/offsite migration issues?
- If not, does the site require further investigation and/or remediation works?

7.3 Step 3 - Identify Information Inputs

The following information is required for input into the decisions identified in Step 2:

- Findings from previous contaminated land reports prepared for the site as summarised in Section 5 of this report;
- Identification of potential areas and contaminants of concern as detailed in Section 6 of this report;
- Selection of soil assessment criteria from appropriate guidelines as detailed in Section 9 of this report;
- Collection of soil samples from site;
- Headspace analysis for screening of VOCs present within soils using a PID; and
- Comparison and interpretation of results against the adopted soil assessment criteria.

7.4 Step 4 – Define the Study Boundaries

The spatial and temporal aspects of the investigation area that the data must represent to support the decisions identified in Step 2 are as follows:

- The lateral extent of the study boundary is defined by the site boundaries as shown in the Site Location Plans (refer to Figure 1).
- The vertical extent of the study boundary is defined by the depth of the deepest borehole at a depth of 1.5 metres below the ground surface.

7.5 Step 5 – Develop the Analytical Approach

The acceptable limits for laboratory QA/QC parameters are shown in the table below and are based upon the laboratory reported acceptable limits and those stated within the NEPM 2013 Guidelines.

Table 7: Acceptable Limits for QC Samples

Type of QC Sample	Control Limit
FIELD	
Rinsate Blanks	Analytes <LOR
Intra-Laboratory Duplicates	RPD's <50%
Inter-Laboratory Duplicates	RPD's <50%
Trip Blanks	Volatiles <LOR
Trip Spike Recovery	>70%
LABORATORY	
Method Blanks	< Laboratory LOR
Matrix Spike	Recovery targets: - Metals: 70% to 130% - Organics: 60% to 140%
Laboratory Duplicate	RPD's <30%
Laboratory Control Samples	Recovery targets: 60% to 140%
Surrogate Spike	Recovery targets: 60% to 140%

The following conditions should be adopted:

- If the control limits are exceeded, then an assessment of the significance of the results should be carried out;
- If the results of the DQI assessment indicate that the data set is reliable, then the data set will be deemed to be acceptable for the purposes of the investigation; and
- If the measured concentrations of soil and groundwater samples analysed meet their respective validation criteria, then no additional assessment is required.

7.6 Step 6 - Specify Limits on Decision Errors

There are two types of decision errors:

- **Sampling errors**, which occur when the samples collected are not representative of the conditions within the investigation area; and
- **Measurement errors**, which occur during sample collection, handling, preparation, analysis and data reduction.

These errors may lead to following (null hypothesis):

- Deciding that the site is not suitable for the proposed development when it actually is (Type I error);
- Deciding that the site is suitable for the proposed development when it is actually not (Type II error);
- Deciding that the risks to human health from soil vapour concentrations are high and require further management or remediation, when the risks are actually low (Type I error); and
- Deciding that the risks to human health from soil vapour concentrations are low and requires no further management, when the risks are actually high (Type II error).

A 5% significance level has been selected for Type I errors on the basis that 95% of the data set will satisfy the DQIs. Therefore, the acceptable limit of the decision errors is based on a 5% probability of the hypothesis being incorrect.

An assessment will be made as to the likelihood of a decision error being made based on:

- The acceptable limits for inter/intra laboratory duplicate sample comparisons as specified in Step 5 of the DQOs; and
- The acceptable limits for laboratory QA/QC parameters are based upon the laboratory reported acceptable limits and those stated within the NEPM Guidelines.

If the concentration of a particular contaminant of concern exceeds its assessment criteria, then a further assessment is required to address the significance of the result.

Statistical analysis based on 95% UCL may be used to assess the significance of the data provided the following conditions are met:

- the arithmetic mean of the data set must be less than its respective threshold level; that is, it is acceptable for individual results to exceed its respective threshold level, but the cumulative mean of the data set of soil sample results must not exceed the threshold level;
- the standard deviation of the data set is less than 50% of the relevant threshold level; and
- no individual sample result should be greater than 250% of the relevant threshold level.

Ecological data is not included in this assessment process as ecological results cannot be statistically interpreted.

7.7 Step 7 - Optimise the Design for Obtaining Data

The optimum design for obtaining data in order to achieve the Data Quality Objectives is as follows:

- Only NATA-accredited environmental testing laboratories will be commissioned to analyse soil samples and will implement a quality control plan conforming to the NEPM (Assessment of Site Contamination) Measure Schedule B(3) Guidelines for Analysis of Potentially Contaminated Soils;
- Review of previous contaminated land reports relevant to the Site and the surrounding area;
- An assessment of the Data Quality Indicators to determine if the field procedures and laboratory analytical results are reliable;
- The investigation will be carried out by an experienced and qualified Environmental Scientist, who is trained in sampling at contaminated sites in accordance with Aargus protocols based on best practice industry standards;
- Collection of QA/QC samples at frequencies prescribed in the NEPM Guidelines; and
- In accordance with the NSW EPA “Sampling Design Guidelines” (September 1995) a minimum of fifty-five (55) sampling points for a site area of approximately 5.0 hectares will be adopted to provide general site coverage.

8 DATA QUALITY INDICATORS

8.1 General

The five Data Quality Indicators (DQIs) comprising completeness; comparability; representativeness; precision and accuracy provide an assessment of the reliability of field procedures and laboratory analytical results in accordance with the 'Guidelines for the NSW Site Auditor Scheme (2nd Edition), 2006. These are addressed in the following sub-sections.

8.2 Completeness

Data Completeness is a measure of the amount of useable data (expressed as %) from a data collection activity. The completeness is equal to the percentage of valid quality assurance and quality control results.

The assessment should address the following:

Table 8: Data Completeness

Field	Laboratory
• All critical locations are sampled; • All samples collected from critical grids and depths; • Consistency in the use of standard operating procedures, equipment, sampler; • Completion and correctness of field documentation.	• All critical samples and analytes are analysed in accordance with the DQOs; • Appropriateness of laboratory methods and PQLs.

The minimum target frequency for each type of QA/QC sample should be carried out in accordance with the following tables:

Table 9: QA/QC Requirements

Field QA/QC Sample	Frequency (Soil)
Intra-Laboratory Duplicate	1 in 20 samples
Inter-Laboratory Duplicate	1 in 20 samples
Field Blanks	1 per day (rinsate)
Trip Blank	1 per sample batch
Trip Spike	1 per sample batch

Where any of the above objectives are not achieved for particular samples, steps will be taken to rectify the non-conformance, if possible. Alternatively, data qualifiers detailing the nature of the quality problem will be documented in the report and attached to relevant data in the result summary tables.

The target for overall completeness for each data set is a minimum of 95%. A data completeness of less than 95% may be accepted where it can be justified that the non-conformance does not have a significant effect on the outcome of the results.

8.3 Comparability

Data Comparability is the confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event.

The qualitative assessment should address the following:

Table 10: Data Comparability

Field	Laboratory
- Consistency in the use of standard operating procedures, equipment, sampler - Consistency in the method of sample collection for each media - Quantification of influence by climatic conditions	- Consistency of analytical methods and limits of reporting (LOR) for each analyte - Whether laboratory limits of reporting are set at < 20% of the adopted site criteria value for each analyte - Consistent use of one primary and one secondary laboratory

8.4 Representativeness

Data Representativeness is the confidence (expressed qualitatively) that data are representative of each media present on the site.

The qualitative assessment should address the following:

Table 11: Data Representativeness

Field	Laboratory
• Samples are collected in accordance with the proposal • Receipt of samples within holding times • Receipt of intact samples • Receipt of adequately preserved samples	• All samples are extracted and analysed within their respective holding times

8.5 Precision

Data Precision is a quantitative measure of the variability (or reproducibility) of data.

Intra-laboratory or Inter-laboratory Duplicate Samples (B) results are compared with Primary Sample (A) results using Relative Percentage Differences (RPDs) according to the following formula:

$$\%RPD = \left| \frac{A - B}{A + B} \right| \times 200$$

Duplicate sampling rates for this assessment (**for each separate sample batch**) are to be tested for all the same analytes as the primary sample:

Table 12: Data Precision

Type of QC Sample	Control Limit
Field Intra-Laboratory Duplicate (Blind)	RPD < +/- 50%
Field Inter-Laboratory Duplicate (Split)	RPD < +/- 50%

Where the laboratory has reported results for a particular analyte below the limit of reporting for either the primary sample or a duplicate sample, the RPD is reported as ‘Not Calculable’ or NC. A discussion should be made as to which sample should be adopted and compared against the relevant assessment criteria. However, no discussion is required where both the primary sample and the duplicate sample for a particular analyte are below the limit of reporting.

8.6 Accuracy

Data Accuracy is a quantitative measure of the closeness of reported data to the true value. Laboratory measured recovery of analytes in lab control samples with known concentrations. Laboratory QA/QC testing is to include:

Table 13: Data Accuracy

Laboratory QA/QC Sample	Frequency
Method Blank	1 per 20 samples
Matrix Spike	1 per 20 samples
Laboratory Duplicate	Laboratory defined
Laboratory Control	Laboratory defined
Surrogate Spike	All organic samples

9 SITE INVESTIGATION AND SCREENING LEVELS

9.1 General

The selection of appropriate human health and ecological site assessment criteria were based on the “National Environmental Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1)”, NEPC (2013). Full details of the site investigation and screening levels for each potential contaminant of concern in soils identified in Section 6 are presented in Appendix J.

9.2 Soils Investigation and Screening Levels

9.2.1 Health Investigation Levels (HILs)

The NEPM presents Tier 1 Health Investigation Levels (HILs) for a broad range of chemicals such as metals, inorganics, PAHs, phenols, pesticides and other organics. The HILs are applicable to generic land uses such as residential, commercial/industrial or public open space and all soil types, generally within the first 3 metres of soil below ground level. The HILs have been applied to assess human health risks via all relevant pathways of exposure.

Based on the proposed development, soil investigation results within the site will be assessed against the **HIL ‘B’** – *Residential with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high rise buildings and apartments.*

9.2.2 Health Screening Levels (HSLs)

The NEPM presents Tier 1 Health Screening Levels (HSLs) for the following petroleum compounds and fractions:

- Benzene, Toluene, Ethylbenzene and Xylenes (BTEX);
- Naphthalene; and
- TPH C6-C10 and TPH >C10-C16 fractions

The HSLs are applicable to generic land uses such as residential, commercial/industrial or recreational/public open space and different soil types between the ground surface and soils >4 metres below ground level. The HILs have been applied to assess human health risks via the inhalation and direct contact pathways of exposure.

9.2.3 Ecological Investigation Levels (EILs)

The NEPM presents Ecological Investigation Levels (Interim EILs) for As, Cu, CrIII, Ni, Pb, Zn, DDT and naphthalene.

The EILs are applicable to generic land uses such as areas of ecological significance, urban residential areas and public open space, and commercial/industrial land uses. The EILs have been applied to assess risks to terrestrial ecosystems, generally, within the top 2 metres of soil at the final surface/ground level.

Site specific EILs for Copper, Zinc, Nickel and Chromium III can be derived by adding the Ambient Background Concentration (ABC) to the Added Contaminant Limits (ACL), as per the formula, $EIL = ABC + ACL$.

The ABC of a contaminant is the soil concentration in a specified locality that is the sum of the naturally occurring background level and the contaminant levels that have been introduced from diffuse or non-point sources by generating anthropogenic activity not attributed to industrial, commercial, or agricultural activities.

The ACL is the added concentration (above the ABC) of a contaminant above which further appropriate investigation and evaluation of the impact on ecological values is required. ACLs are based on the soil characteristics of pH, CEC and clay content. Different soils types / profiles will have different contaminant EILs rather than a single generic EIL for each contaminant. ACLs apply chromium III (CrIII), copper (Cu), nickel (Ni) and zinc (Zn) for site-specific EIL determination.

The soil properties to be measured for site-specific derivation of ACLs for CrIII, Cu, Ni and Zn are summarised below:

- pH - Cu
- CEC - Cu, Ni, Zn
- % clay - CrIII

Note – the lowest concentration of copper that is derived from the pH or the CEC calculation is to be used for the ACL.

Insufficient data was available to derive ACLs for As, Pb, DDT and naphthalene. As a result, the derived EILs are generic to all soils and are presented as total soil contaminant concentrations in Tables 1(B)4 and 1(B)5.

9.2.4 Ecological Screening Levels (ESLs)

Table 1B (6) of the NEPM presents Ecological Screening Levels (ESLs) for TPH C6-C40 fractions, BTEX and benzo(a)pyrene.

The ESLs are applicable to generic land uses such as areas of ecological significance, urban residential areas and public open space, and commercial/industrial land uses. The ESLs have been applied to assess risks to terrestrial ecosystems, generally, within the top 2 metres of coarse or fine soil at the final surface/ground level.

9.2.5 Petroleum Hydrocarbon Management Limits

Table 1B (7) of the NEPM presents petroleum hydrocarbon management limits for application to TPH fractions C₆-C₁₀, >C₁₀-C₁₆, >C₁₆-C₃₄ and >C₃₄-C₄₀. The management limits are applicable for coarse or fine soils in residential, parkland, public open space or commercial/industrial land uses following consideration of relevant ESLs and HSLs.

9.2.6 Asbestos

Health screening for asbestos in soil, which are based on scenario-specific likely exposure levels, are adopted from the WA DoH guidelines and are referred in Table 7 in Schedule B1.

Table 14 Health screening levels for asbestos contamination in soil

Form of asbestos	Health Screening Level (w/w)			
	Residential A ¹	Residential B ²	Recreational C ³	Commercial/Industrial D ⁴
Bonded ACM	0.01%	0.04%	0.02%	0.05%
FA and AF ⁵ (friable asbestos)	0.001%			
All forms of asbestos	No visible asbestos for surface soil			

1. Residential A with garden/accessible soil also includes children's day care centres, preschools and primary schools.
2. Residential B with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.
3. Recreational C includes public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and unpaved footpaths.
4. Commercial/industrial D includes premises such as shops, offices, factories and industrial sites.
5. The screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures (refer Section 4.10). This screening level is not applicable to free fibres.

9.3 Export of Waste

To assess the waste classification of materials to be disposed of off-site, the NSW EPA refers to the NSW EPA (2014) "*Waste Classification Guidelines, Part 1: Classifying Waste*".

10 SOIL INVESTIGATION

10.1 General Methodology

The soil investigation was carried out on the 11th and 12th September 2017 and was designed to meet the Data Quality Objectives. The fieldwork procedures adopted were carried out in general accordance with the Aargus fieldwork protocols, which are based on industry standard practice as prescribed in the NEPM.

Upon clearance of the proposed sampling locations, each borehole was drilled using solid stem augers attached to a truck-mounted drill rig, with the exception of one location where a hand auger was utilised. After completion, the boreholes were backfilled with clean spoil.

A description of sub-surface conditions observed during drilling are presented in borehole logs included in Appendix K.

10.2 Sampling Design Rationale

Sixty boreholes (BH1 to BH39 & S1 to S21) were drilled by adopting a systematic grid and targeted sampling pattern across the site to provide general site coverage with consideration given to accessibility, site features and the proposed development zones.

The sampling rationale is summarised below:

- BH1 to BH18 – former market garden area in Lot 211 and onsite migration along the eastern boundary (BH1 to BH6).
- BH19 to BH23 – general coverage in Lot 211.
- BH24 – adjacent to dam in Lot 210.
- BH25 & BH26 – adjacent to driveways in Lot 210.
- BH27 to BH29 – grass covered open area in south western portion of Lot 210.
- BH30 – rear of semi demolished large shed in lot 210.
- BH31 to BH39 – grass covered open area in Lot 209.
- S1 to S9 – adjacent to the poultry sheds in Lot 210.

- S10 to S11 - adjacent to the sheds in Lot 209.
- S12 to S16 – adjacent to sheds, main house and granny flat in Lot 210.
- S17 to S21 – adjacent to former and current metal sheds and house in Lot 211.

It is considered that the number of sampling points adopted meets the minimum requirements of the NSW EPA “Sampling Design Guidelines” (1995) for a site area of approximately 5.0 hectare and to detect a hotspot diameter of 35.6m. The borehole locations are shown in Figure 4b of Appendix A.

10.3 Sampling Density and Sampling Depth

Boreholes were advanced through topsoil and/or fill material and terminated at least 0.1m into natural soils to allow for the collection of at least one soil sample from topsoil material. In addition, some natural soil samples were recovered. A maximum target depth of 1.5 metre was adopted in boreholes BH1 to BH38 & S1 to S21.

10.4 Sampling Methodology

Soil sampling was carried out in general accordance with Aargus Fieldwork Protocols. In summary:

- Soil samples were collected directly from the solid flight auger, hand auger and/or trowel.
- Samples were transferred into clean laboratory supplied containers.
- In general, each soil sample was divided into two sub-samples. One of the sub-samples was placed into a laboratory-supplied container and a second sub-sample was placed in a separate zip-lock bag for field headspace screening using a PID.
- One wetted 500ml sample (where possible) was recovered from locations targeted for asbestos analysis.

10.5 Field Tests

A calibrated Photo-ionisation Detector (PID) meter was used to obtain the following field measurements:

- Background concentrations of ionisable volatile organic compounds (VOCs) in the ambient air taken approximately 5 to 10 metres upwind of the general work area; and
- Headspace analysis of bagged soil samples collected to detect the presence of ionisable VOCs.

The PID readings were observed before and after each measurement of a sample to ensure that the PID was operating correctly. The procedures followed in performing field headspace on soil samples can be found in the Aargus Field Protocols.

Readings of PID maximums, fluctuations and general comments of observation were recorded in Aargus field record forms included in Appendix L. The PID calibration certificate can be found also in Appendix L.

10.6 Soil Laboratory Analysis

Soil samples were submitted to their respective laboratories as specified in Section 11.2. The schedules of analysis for each sampling batch are presented in Appendix P.

11 QUALITY ASSURANCE / QUALITY CONTROL

11.1 Field QA/QC

11.1.1 General

The frequency required for each field quality assurance / quality control (QA/QC) sample is presented in the table below.

Table 15: QA/QC Sampling Frequency

	Intra-Lab Duplicates	Inter-Lab Duplicates	Rinsates	Trip Blanks	Trip Spikes
Sampling Frequency	1 in 20 primary samples	1 in 20 primary samples	1 / Day	1 / Day	1 / Day

11.1.2 Field Duplicates

Duplicates of primary samples were collected to enable the assessment of variability in analyte concentrations between samples collected from the same sampling point. The tables below list the duplicate soil samples collected with their corresponding primary samples.

Table 16: Soil Field Duplicate Samples

Primary Sample ID	Sample Depth (m bgl)	Blind Duplicate ID	Split Duplicate ID	Date Sampled
BH9	0-0.1	D1	SS1	11.09.2017
S15	0-0.1	D2	SS2	11.09.2017
S1	0-0.1	D3	SS3	12.09.2017
S13	0-0.1	D4	SS4	11.09.2017

11.1.3 Rinsates

Rinsate samples recovered for each day in which sampling took place to identify possible cross contamination between the sampling locations are listed in the table below.

Table 17: Rinsate Samples

Sample ID	Equipment Type	Sample Media	Date Collected
R1	Solid Flight Auger	Soil	11.09.2017
R2	Solid Flight Auger	Soil	12.09.2017

11.1.4 Trip Blanks / Spikes

Trip spike and trip blank samples were collected to assess the effect of sample handling on volatile concentrations in the samples collected and are listed in the table below.

Table 18: Trip Blank/Trip Spikes

Sample ID	QC Sample Type	Media	Date Collected
TB2	Trip Blank	Soil	12.09.2017
TS2	Trip Spike	Soil	12.09.2017

11.1.5 Sample Handling, Storage and Transport

The following sampling handling, storage and transport procedures were adopted to ensure sample integrity:

- Samples were collected in laboratory supplied containers. A list of sample preservation methods and the types of sample containers used are attached in Appendix M.
- Soil sample containers were placed immediately into a chilled cooler box and dispatched to their respective analytical laboratories on the same day. If this was not possible, samples were temporarily held overnight in the Aargus office refrigerator at a temperature of no greater than 4 °C and dispatched the following day.
- A Chain of Custody form (COC) was completed for all samples collected and included with the samples for transport to their respective laboratories for chemical analysis. Copies of COCs are included in Appendix N.

- All glass bottles were individually bubble wrapped for protection and insulated containers/coolers were used for sample shipment.
- Disposable nitrile gloves were used for OH&S purposes and were changed between every sample location.

11.1.6 Decontamination Procedures

The decontamination of non-dedicated sampling equipment was achieved by washing with phosphate-free detergent and tap water, followed by a final rinse with distilled water. Decontamination was conducted after the collection of samples at each sample location. A clean pair of disposable gloves was used when handling each sample.

The drilling augers were decontaminated between sampling locations by physically removing soil material between boreholes, washing the augers with Decon 90 and rinsing them with water.

11.1.7 Calibration of Equipment

The 10.6eV lamp of the PID was calibrated with isobutylene gas at 100ppm prior to commencement of fieldwork and prior to commencement of each day's fieldwork. The battery in the PID unit was recharged after every day's use in the field.

Copies of calibration records for each relevant item of equipment used can be found in Appendix L.

11.2 Laboratory QA/QC

11.2.1 Laboratories Used

The following NATA-accredited laboratories were commissioned to carry out laboratory analysis of soil samples collected:

- Primary Laboratory – ALS Environmental (Sydney).
- Secondary Laboratory – ALS Environmental (Melbourne).
- ASET was assigned to conduct asbestos analysis on selected soil samples.

These laboratories also operate Quality Systems that are designed to comply with ISO/IEC 17025. All primary samples, blind duplicates, rinsate samples, trip blank/spikes were dispatched to the primary laboratory. All split samples were dispatched to the secondary laboratory. Laboratory Certificates of Analysis are included in Appendix N.

11.2.2 Holding Times

The holding times for chemicals analysed are presented in Appendix M and were based on USEPA methods, Standard Methods for the Examination of Water and Wastewater (APHA).

11.2.3 Test Methods and Practical Quantitation Limits

The test methods adopted by ALS Environmental – Sydney & Melbourne are listed in Appendix M and Practical Quantitation Limits (PQLs) adopted are specified within the Laboratory Certificates of Analysis included in Appendix N.

The methods used by the laboratories generally comply with those listed in the NEPM and the Australian and New Zealand Environment and Conservation Council (ANZECC)-1996 “*Guidelines for the Laboratory Analysis of Contaminated Soils*”. Alternate methods used by the laboratories (i.e. not identified in the NEPM and ANZECC guidelines) have been validated by the laboratories, as recommended in the NEPM and ANZECC guidelines, and endorsed by NATA.

11.3 QA/QC Data Evaluation

A full evaluation of the Data Quality Indicators (DQIs) for both fieldwork and laboratory procedures is presented in Appendix O. These were assessed with reference to Appendix V of the NEPM and Guidelines for the NSW Site Auditor Scheme (2nd ed.), 2006. In summary, the findings of the QA/QC evaluation indicated the following:

- Data Completeness – The data set is considered to be complete. However, the following minor non-conformances were identified:
 - Only one set of trip spike/blank were analysed. However, since all samples were dispatched to lab on the same day and the recoveries were in control limit, the data set is considered to be completed.
 - Laboratory duplicate samples testing for PAH and TRH were not provided for rinsate sample.
 - Matrix Spike sample for PCB was not tested by ALS Melbourne and matrix Spike for rinsate was not tested for PAH and TRH in Sydney laboratory.
- Data Comparability – The data set is considered to be adequately comparable.
- Data Representativeness – The data set is considered to be adequately representative.
- Data Precision – The data set is considered to be adequately precise.
- Data Accuracy – The data set is considered to be adequately accurate. However, the following minor non-conformances were identified:
 - The results show recovery of trip spike concentrations, ranging within control limits except Arsenic, Lead, and Zinc. However, the results for these analytes were all below their respective PQLs. Therefore, the non-conformance is not considered to have any effect on the investigation outcome.
 - One set of trip spike/trip blanks were tested.

The sampling methods (including sample preservation, transport and decontamination procedures) and laboratory methods followed during this investigation works were consistent with Aargus protocols and were found to meet the DQOs for this project.

It is therefore considered that the data is sufficiently reliable and that the results can be used for the purpose of this project.

12 FIELD OBSERVATIONS

12.1 Geology

Based on surface and sub-surface conditions observed during the intrusive investigation, the surface and sub-surface profile across the site is summarised in the table below.

Table 19: Summary of Geological Observations

Geological Unit	Lithological Description	Depth Ranges: Top to Base (m bgl)
Topsoil	Silty Clay, low plasticity, brown, with some roots	Ground level to 0.1m
Natural Soils (Residual)	CLAY, low plasticity, reddish brown / grey	0.1m to 1.5m
Fill	Clayey sand, brown to dark grey with gravel	0.0-1.2m (S1, S2,S3,S5,S6)

The following additional observations were made:

- No hydrocarbon staining was observed within any of the borehole locations.
- No hydrocarbon odours were encountered within any of the borehole locations.
- Fibro-containing fragments were observed on the surfaces at borehole locations S18 & S20 in the southern central portion of the site adjacent to the house in Lot 211, and at borehole locations S13 & S15 in the southern portion adjacent to the semi-demolished shed and granny flat in Lot 210.

We recommend that this section be read in conjunction with Figure 4b (Sample Location Plan) in Appendix A, the Daily Work Sheets in Appendix L and the borehole logs in Appendix K.

12.2 Field Headspace Results

Ionisable VOC detections in PID readings taken from soil samples subjected to field headspace analysis were noted in the field to be all 0.0ppm.

The PID field record forms can be found in Appendix L.

13 LABORATORY RESULTS

13.1 General

A comparison of soil laboratory results against their respective assessment criteria (as specified in Section 9) are presented in the summary tables in Appendix P. Certificates of laboratory analysis are attached in Appendix N. A discussion of the results is presented in the following sub-sections.

13.2 Soil Results

13.2.1 Heavy Metals

13.2.1.1 Health Investigation Levels (HILs)

As indicated in Table A1, the concentrations of the heavy metals were below the Health Investigation Level (HIL) either for a residential development with accessible soil, that being the HIL 'B'.

13.2.1.2 Ecological Investigation Levels (EILs)

As indicated in Table A1, the arsenic concentrations were below the Ecological Investigation Level (EIL) for urban residential and public open space.

The EILs for Copper, Zinc, Nickel and Chromium III were derived by adding the Ambient Background Concentration (ABC) to the Added Contaminant Limits (ACL), as per the formula, $EIL = ABC + ACL$.

The ABC for the site has been determined by recovering a sample from an appropriate reference point, that being boreholes BH21 (0.9-1.0m), BH29 (1.0-1.1m) & BH38 (0.9-1.0m), from uncontaminated (NATURAL) strata from within the site.

The ABC concentrations are summarised in Table A3 in Appendix P.

The results of pH & CEC for the natural soil samples are summarised in Table A2 in Appendix P. Based on the results in Table A2, the site ACLs for Cu, Ni and Zn have been derived and are provided in Table A3.

The calculated EIL for Cu, Pb, Ni and Zn, after appropriate rounding, have been summarised in Table A3.

Therefore, as shown in Table A4, the Cu, Pb, Ni and Zn concentrations from all sampling locations were below the site derived EILs.

13.2.2 TRH, BTEX, NAPHTHALENE &/OR BENZO(a)PYRENE

13.2.2.1 Health Screening Levels (HSLs)

As indicated in Table B1, the F1 (C₆-C₁₀), F2 (>C₁₀-C₁₆), benzene, toluene, ethyl benzene, xylenes and naphthalene concentrations were below the HSL 'A', HSL 'B' & HSL 'D' for a clay soil profile with a source depth of "0m to <1m".

13.2.2.2 Ecological Screening Levels (ESLs)

As indicated in Table B2, the F1 (C₆-C₁₀), F2 (>C₁₀-C₁₆), F3 (C₁₆-C₃₄), F4 (C₃₄-C₄₀), benzene, toluene, ethyl benzene, xylenes and benzo(a)pyrene concentrations were below the ESL for a fine grained soil texture in an "urban residential and public open space" environment.

13.2.2.3 Management Limits

As indicated in Table B3, the F1 (C₆-C₁₀), F2 (>C₁₀-C₁₆), F3 (C₁₆-C₃₄), F4 (C₃₄-C₄₀), benzene, toluene, ethyl benzene, xylenes and benzo(a)pyrene concentrations were below the Management Limits for a fine grained soil texture in an "residential parkland and public open space" environment.

13.2.3 PAH, PCB & OCP

13.2.3.1 Health Investigation Levels (HILs)

As indicated in Table C, the concentrations of the benzo(a)pyrene (as TEQ), Total PAH, PCB & OCP were below the Health Investigation Level (HIL) for residential with accessible soil .

13.2.3.2 Ecological Investigation Levels (EILs)

As indicated in Table C, the concentrations of naphthalene and DDT/DDE/DDD were below the Ecological Investigation Level (EIL) for urban residential development.

13.2.3.3 Ecological Screening Levels (ESLs)

As indicated in Table C, the benzo(a)pyrene concentrations were below the ESL for a fine grained soil texture in an “urban residential and public open space” environment.

13.2.4 Asbestos

As indicated in Table D, asbestos was not detected within the recovered samples tested with the exception of:

- A fragment at location S13 contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected in the form of ACM.
- S15 (0.0-0.1m) contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected at concentrations of 0.73% (AF) & 0.72% (ACM).
- D2 (duplicate of S15) contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected at concentrations of 0.3095% (ACM) & 0.0412% (AF).
- SS2 (replicate of S15) contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected at concentrations of 0.294% (AF) & 1.44% (ACM).

- A fragment at location S15 contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected in the form of ACM.
- A fragment at location S18 contained Chrysotile Asbestos and Amosite Asbestos detected in the form of ACM.
- A fragment at location S20 contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected in the form of ACM.

14 DISCUSSION OF RESULTS

The findings of the assessment indicated the following areas of potential environmental concern:

- All of heavy metals concentrations from the primary & field replicate samples analysed met their respective assessment criteria under the HIL 'B' land use scenario.
- TRH, BTEX and naphthalene concentrations from primary & field replicate met their respective HSLs assessment criteria.
- Total PAH, OCP and/or PCB concentrations were below their respective assessment criteria.
- Asbestos was detected above the SAC at the following locations:
 - o A fragment at location S13 contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected in the form of ACM.
 - o S15 (0.0-0.1m) contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected at concentrations of 0.73% (AF) & 0.72% (ACM).
 - o D2 (duplicate of S15) contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected at concentrations of 0.3095% (ACM) & 0.0412% (AF).
 - o SS2 (replicate of S15) contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected at concentrations of 0.294% (AF) & 1.44% (ACM).
 - o A fragment at location S15 contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected in the form of ACM.
 - o A fragment at location S18 contained Chrysotile Asbestos and Amosite Asbestos detected in the form of ACM
 - o A fragment at location S20 contained Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected in the form of ACM.

Reference should be made to Figure 5 in Appendix A for a copy of the hotspot plan.

15 CONCEPTUAL SITE MODEL

15.1 Conceptual Site Model

The refined Conceptual Site Model (CSM) presented in the table below provides a representation of the potential risks associated with the linkages between the following elements:

- Potential contamination sources and their associated contaminants of concern identified in Section 6. Only potential areas of concern with a significance rating of low to high were included;
- Potential human receptors that may be impacted by site contamination are current and future end-users, construction workers and the general public within the immediate vicinity;
- Potential environmental receptors identified in Section 4;
- Potential exposure pathways; and
- Whether each source-pathway-receptor pollution linkage are complete, limited or not present, based on current and future site conditions.

Table 20: Conceptual Site Model

Potential Sources	Potential Receptor	Potential Exposure Pathways	Complete Linkages	Risk	Justification
AF & ACM asbestos in soils at location S15 ACM fragments at locations S13, S15, S18 & S20	Site users or the general public	Dermal contact, inhalation or ingestion of exposed impacted soils	Limited (Current)	Low to moderate	There is direct contact with impacted asbestos soils at S15, with other locations restricted to bonded asbestos in fragments.
			No (Future)	Negligible	If present, contaminated soils are likely to be remediated and/or removed for off-site disposal.
Asbestos in buildings	Site user or visitors	Inhalation of airborne fibres	Limited (Current)	Low	Asbestos material is likely to be limited to the building's exterior and interior.
			No (future)	Negligible	Licensed contractors would have to remove any asbestos likely to be present.

15.2 Data Gap

Based on the CSM, the following data gaps were identified with respect to the pollution linkages identified:

- The lateral and vertical extent of friable asbestos in borehole S15 is currently unknown.
- The lateral extent of ACM fragments in the vicinity of locations S13, S15, S18 & S20 is currently unknown.

16 CONCLUSION AND RECOMMENDATIONS

Based on the results of this investigation it is considered that the risks to human health and the environment associated with the soil contamination at the site are low to moderate within the context of the proposed use of the site for the construction of nine residential unit blocks with basement car parking, communal open places and internal roads to be undertaken in four stages. A setback for a traffic corridor is proposed along the Schofields Road boundary.

The site is therefore considered to be rendered suitable for the proposed use, subject to the following:

- An appropriate remedial / management strategy is developed, culminating in preparation of a Remedial Action Plan (RAP) in accordance with EPA guidelines, in regards to the asbestos in soil hotspot at location S15 and the ACM impacted hotspots in the vicinity of locations S13, S15, S18 & S20.
- Any soils requiring removal from the site, as part of future site works, should be classified in accordance with the “Waste Classification Guidelines, Part 1: Classifying Waste” NSW EPA (2014).

Thank you for the opportunity to undertake this work. We would be pleased to provide further information on any aspects of this report.

For and on behalf of

Aargus Pty Ltd

Written by:



Setareh Kazemi

Environmental Engineer

Reviewed By:



Mark Kelly

Environmental Manager

LIMITATIONS

The Aargus assessment is based on the result of limited site investigations and sample testing. Neither Aargus, nor any other reputable consultant, can provide unqualified warranties nor does Aargus assume any liability for site conditions not observed or accessible during the time of the investigations.

Despite all reasonable care and diligence, the materials encountered and concentrations of contaminants measured may not be representative of conditions between the locations sampled and investigated. There is always some disparity in subsurface conditions across a site that cannot be fully defined by investigation. Hence it is unlikely that measurements and values obtained from sampling and testing during environmental works carried out at a site will characterise the extremes of conditions that exist within the site. In addition, site characteristics may change at any time in response to variations in natural conditions, chemical reactions, truck movement or contractor movement of soils and other events, e.g. groundwater movement and or spillages of contaminating substances. These changes may occur subsequent to Aargus investigations and assessment.

This report and associated documentation and the information herein have been prepared solely for the use of the client at the time of writing the report and is valid (for the purposes of management or transport of material) for a period of one month only from the date of issue. Any other reliance assumed by third parties on this report shall be at such parties' own risk. Any ensuing liability resulting from use of the report by third parties cannot be transferred to Aargus.

Whilst this report provides a review of site conditions encountered at sampling locations within the investigation, it should be noted that if materials are proposed to be moved from site - Part 5.6, Section 143 of the Protection of the Environment Operations (POEO) Act 1997 states that it is an offence for waste to be transported to a place that cannot lawfully be used as a facility to accept that waste. It is the duty of the owner and transporter of the waste to ensure that all material removed from a site must be accompanied by an appropriate waste classification report and materials are disposed of appropriately. An environmental or validation report does not constitute a waste classification report and results are treated

differently. Aargus accepts no liability for the unlawful disposal of waste materials from any site. Aargus does not accept any responsibility for the material tracking, loading, management, transport or disposal of waste from the site. If material is to be removed from a site, before disposal of any material to a licensed landfill is undertaken, the site owner must ensure an appropriate waste classification exists for all materials on the site planning to be removed, the waste producer will need to obtain prior consent from the licensed landfill/recycler. The receiving site should check to ensure that the material received matches the description provided in the report.

Opinions are judgements, which are based on our understanding and interpretation of current regulatory standards, and should not be construed as legal opinions.

Appendix Q – Important information about your environmental site report should also be read in conjunction with this report.

REFERENCES

This report was prepared with reference to the following guiding documents:

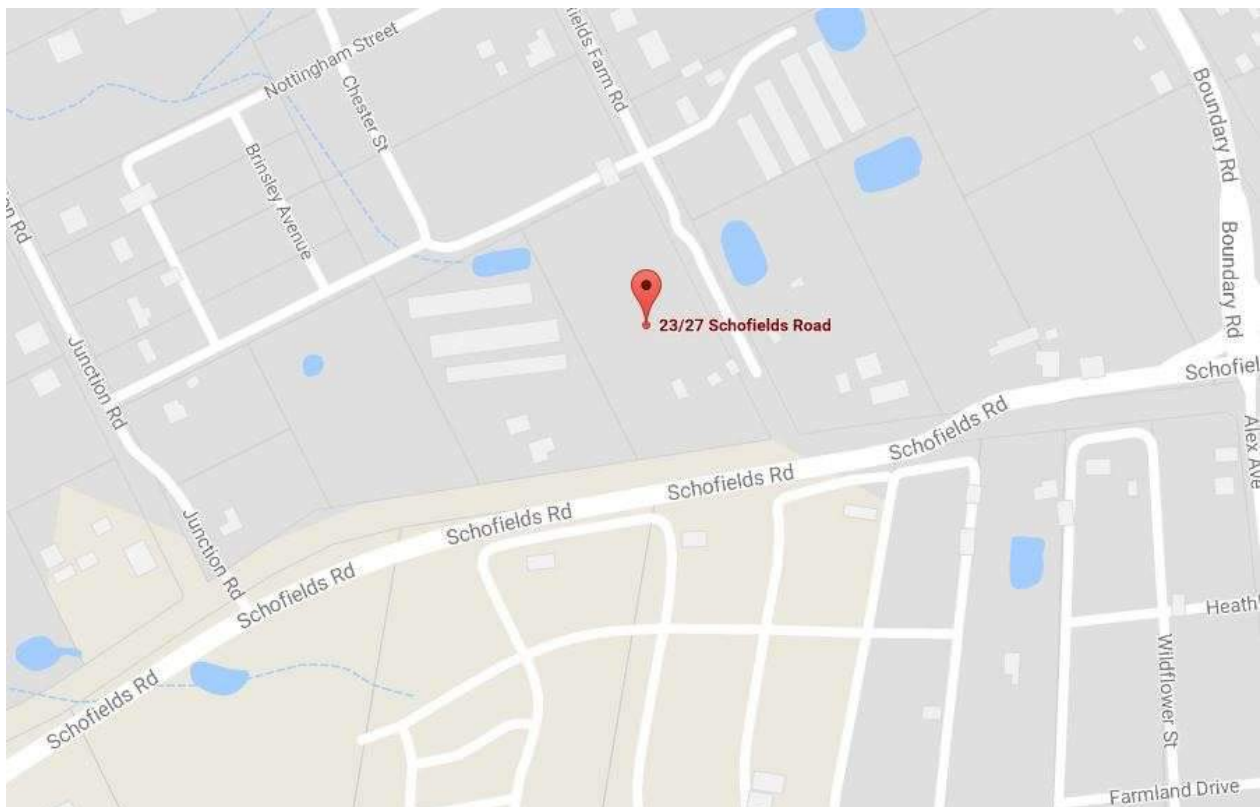
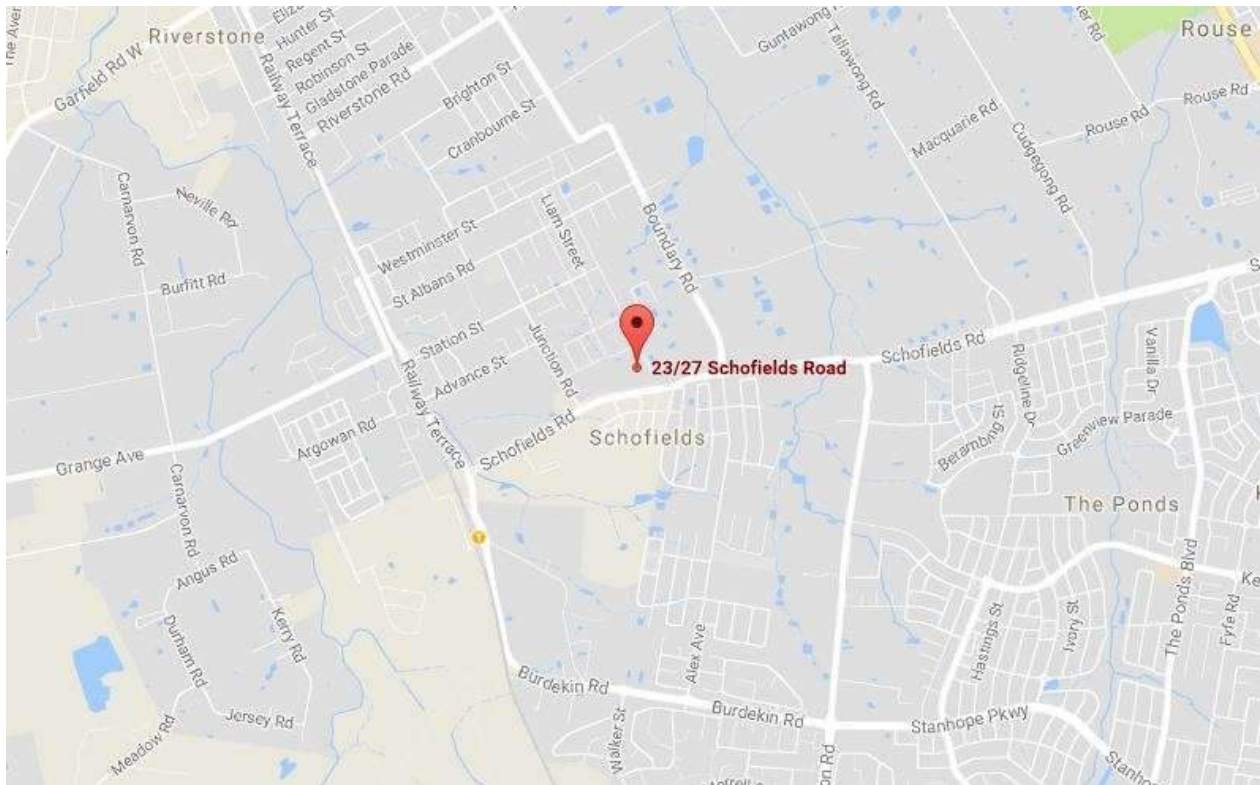
- ANZECC/NHMRC (1992) – “Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites”. Australian and New Zealand Environment and Conservation Council and the National Health and Medical Research Council, Canberra.
- Department of Urban Affairs and Planning – EPA (1998) “Managing Land Contamination – Planning Guidelines – SEPP 55 – Remediation of Land”.
- National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1).
- NSW DEC “Guidelines for the NSW Site Auditor Scheme” (2006, 2nd edition). NSW Environment Protection Authority, Sydney.
- NSW EPA (2014) – “Waste Classification Guidelines, Part 1: Classifying Waste”;
- NSW EPA “Guidelines for Consultants Reporting on Contaminated Sites” (2011). NSW Environment Protection Authority, Sydney.
- NSW EPA “Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997” (2009). NSW Environment Protection Authority, Sydney.
- NSW EPA “Sampling Design Guidelines” (1995). NSW Environment Protection Authority, Sydney.
- Douglas Partners Pty Ltd (2016) - “*Preliminary Site Investigation*” (Ref: 85329.01, dated 21st April 2016).

APPENDIX A

SITE PLANS



SITE LOCALITY MAP



PROJECT DETAILS

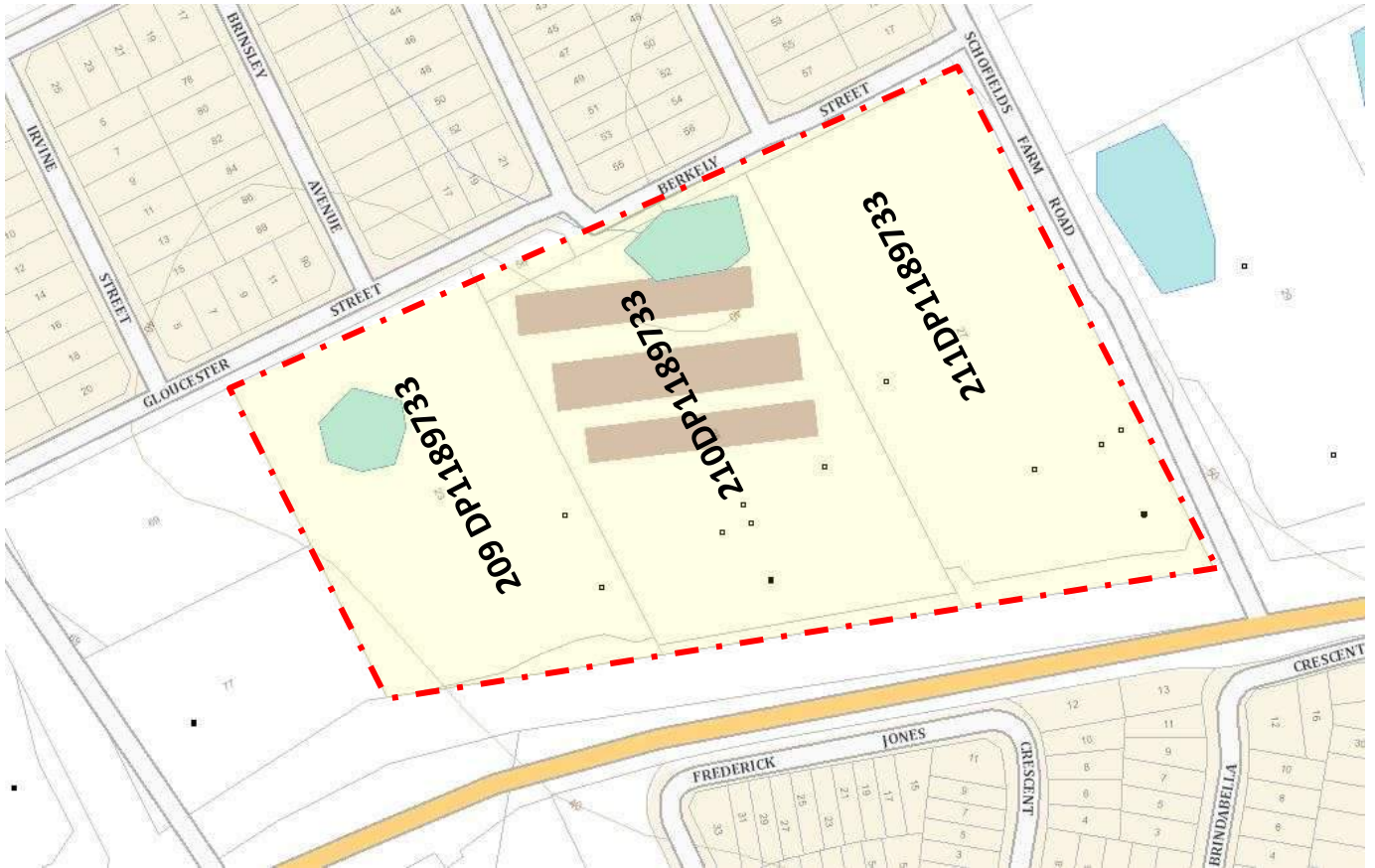
Project Title	Detailed Site Investigation
Project No.	ES7021/2
Client	Schofields One Unit Trust
Site Address	23-27 Schofields Road ,Schofields NSW



DRAWING DETAILS

Figure No.	1	Rev No.	0
Scale	As above	Size	A4
Drawn by	SP	Date	21.09.2017
Approved by	MK	Date	10.10.2017

LOT & DEPOSITED PLAN



PROJECT DETAILS

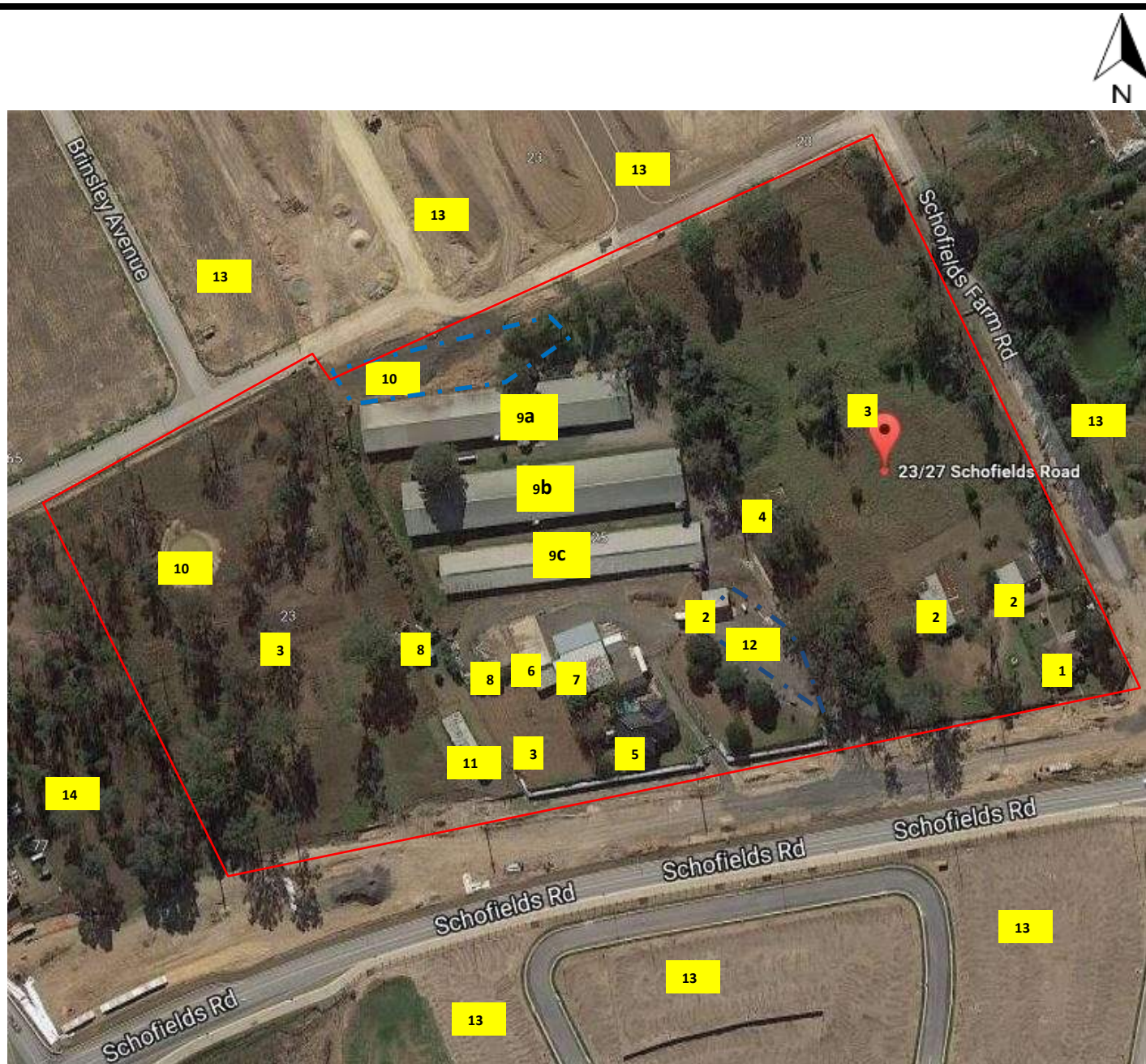
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Project No.	ES7021/2
Client	Schofields One Unit Trust
Site Address	23-27 Schofields Road , Schofields NSW



DRAWING DETAILS

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Drawn by	SP	Date	21.09.2017
Approved by	MK	Date	10.10.2017

SITE FEATURES

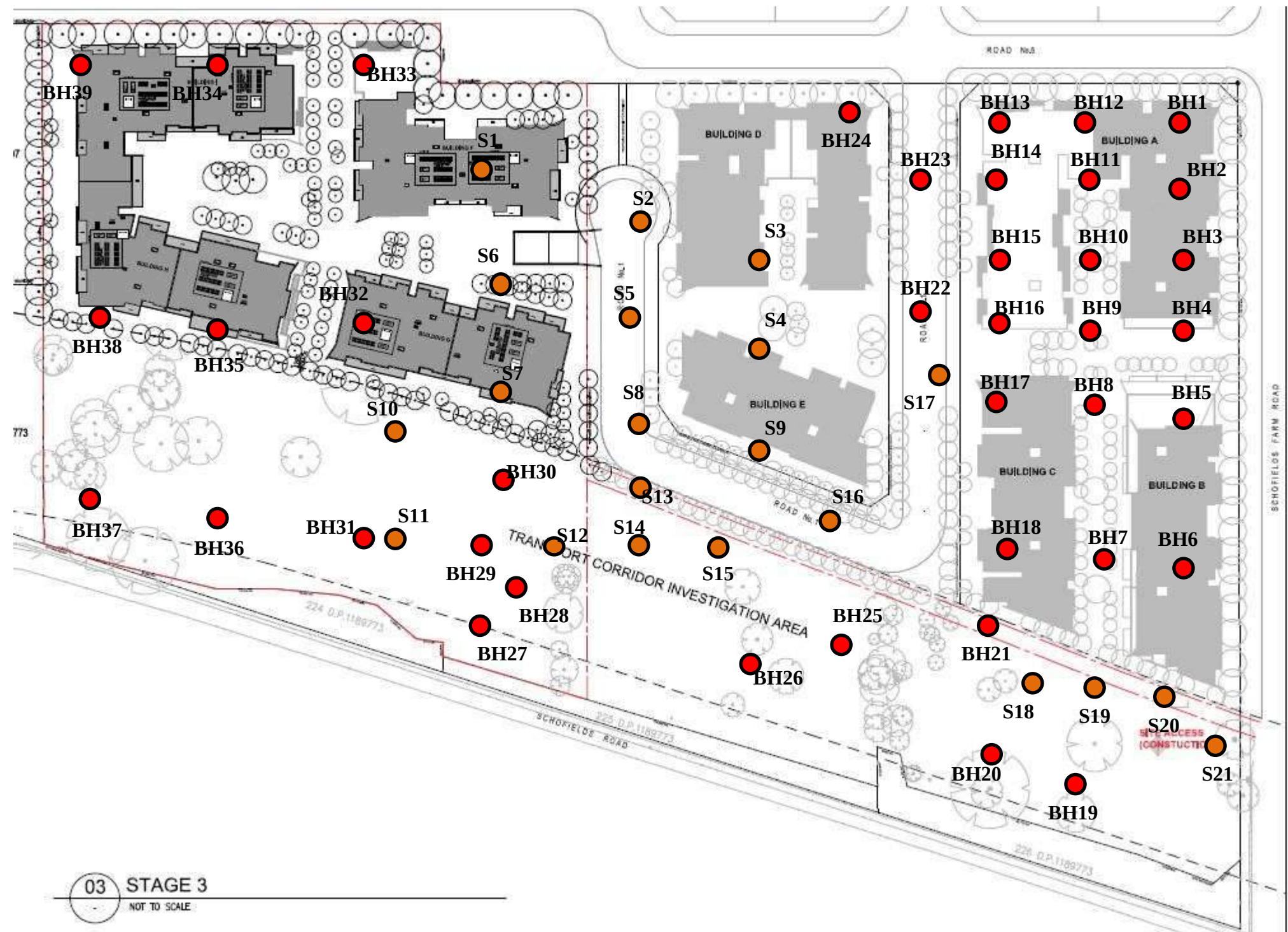


SITE FEATURES - LEGEND

1. Single-storey brick house
2. Previous metal sheds
3. Open grass covered area
4. Small metal shed
5. Single-storey residential house
6. Fibro granny flat
7. Structure of previous shed
8. Small metal shed
9. Former Poultry sheds(9a: fibro cement sheeting on the eastern and western wall with a corrugated metal roof/ 9b: demolished/9c: metal cladding on the exterior walls
10. Dam
11. Fibro residential house
12. Gravel and bitumen driveway
13. Residential subdivision, under construction

PROJECT DETAILS			DRAWING DETAILS			
Project Title	Detailed Site Investigation		Figure No.	3	Rev No.	0
Project No.	ES7021/2		Scale	As above	Size	A4
Client	Schofields One Unit Trust		Drawn by	SP	Date	21.09.2017
Site Address	23-27 Schofields Road, Schofields NSW		Approved by	MK	Date	10.10.2017

SAMPLING LOCATIONS ON PROPOSED DEVELOPMENT PLAN



Legend:

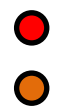
Borehole location

PROJECT DETAILS			DRAWING DETAILS			
Project Title	Detailed Site Investigation		Figure No.	4a	Rev No.	0
Project No.	ES7021/2		Scale	As shown	Size	A4
Client	Schofields One Unit Trust		Drawn by	SP	Date	03.10.2017
Site Address	23-27 Schofields Road, Schofields		Approved by	MK	Date	03.10.2017

SAMPLING LOCATIONS ON AERIAL VIEW



Legend:



Borehole location

PROJECT DETAILS

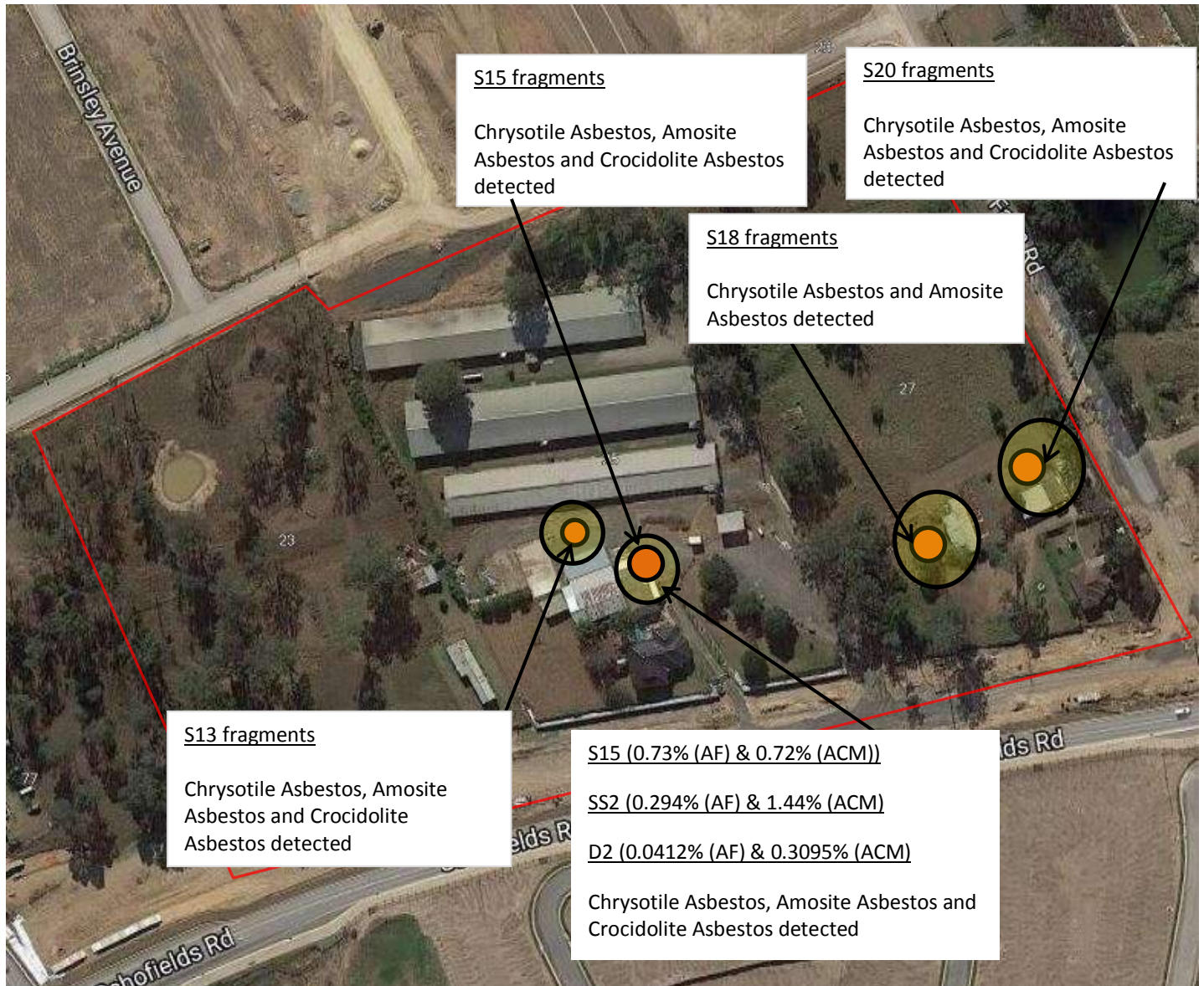
Project Title	Detailed Site Investigation
Project No.	ES7021/2
Client	Schofields One Unit Trust
Site Address	23-27 Schofields Road, Schofields



DRAWING DETAILS

Figure No.	4a	Rev No.	0
Scale	As shown	Size	A4
Drawn by	SP	Date	03.10.2017
Approved by	MK	Date	03.10.2017

SOIL EXCEEDANCE AND AREAS OF ENVIRONMENTAL CONCERN



LEGEND

Site Boundary



Borehole locations



PROJECT DETAILS

Project Title	Detailed Site Investigation
Project No.	ES7021/2
Client	Schofields One Unit Trust
Site Address	23-27 Schofields Road, Schofields NSW



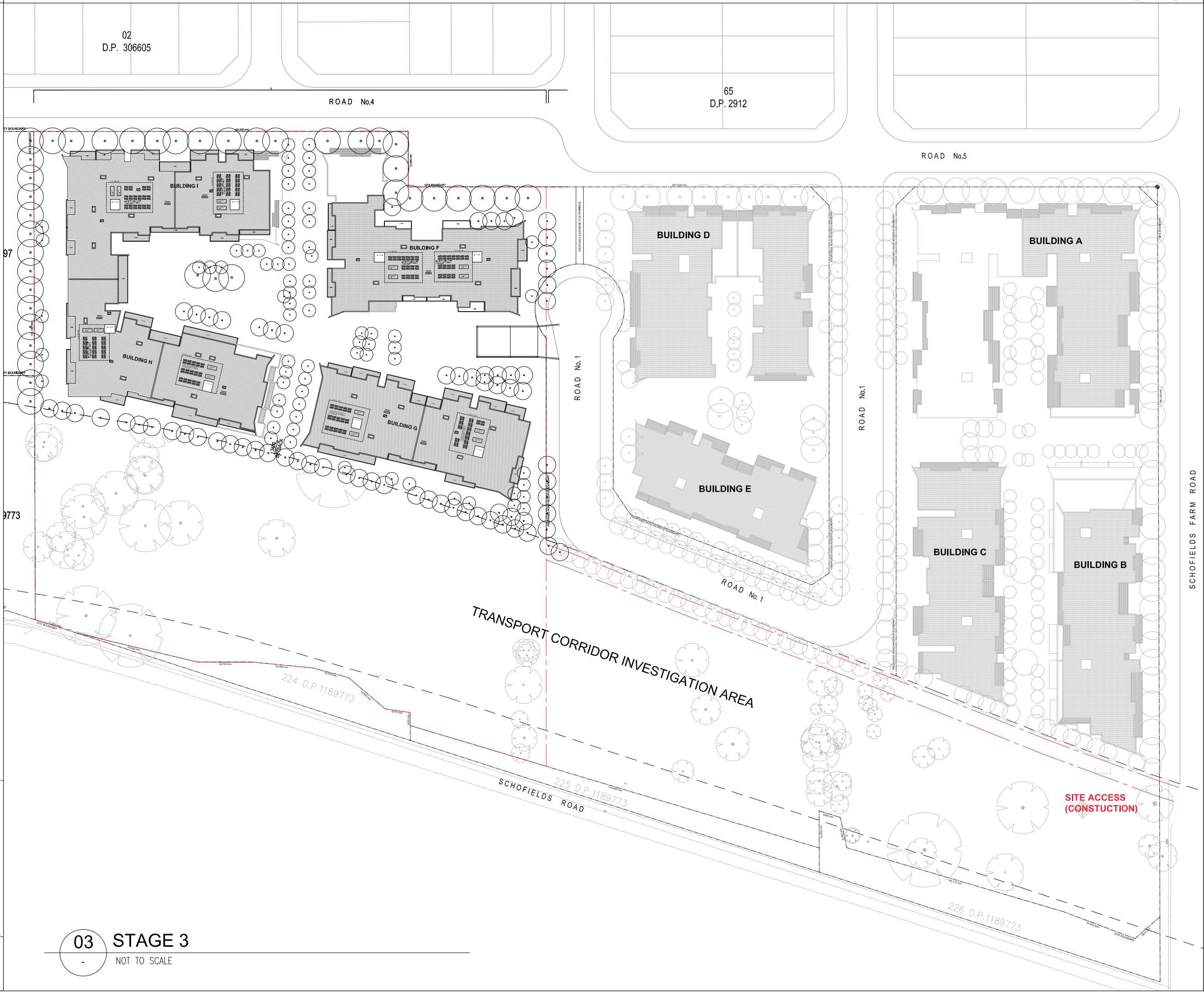
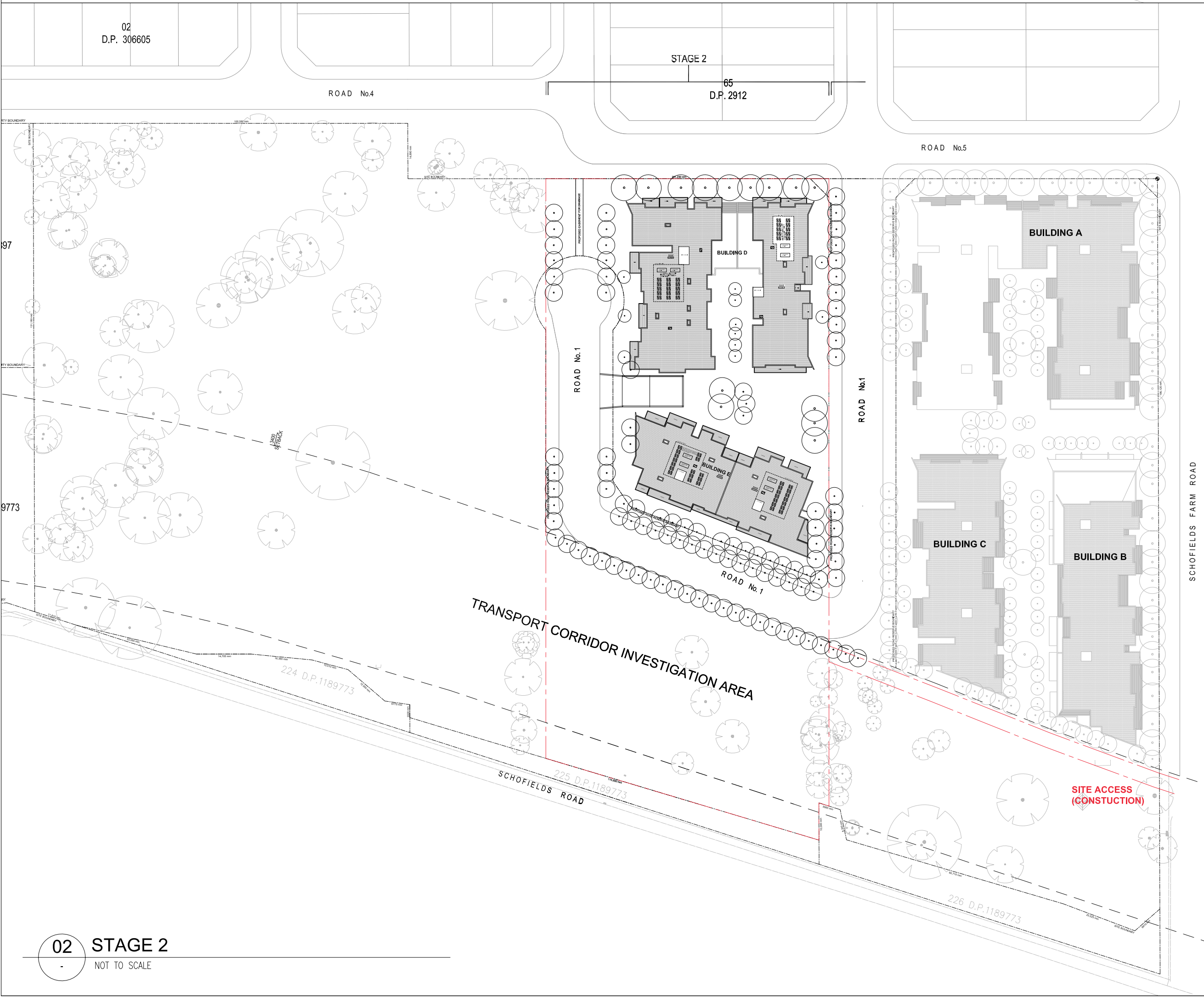
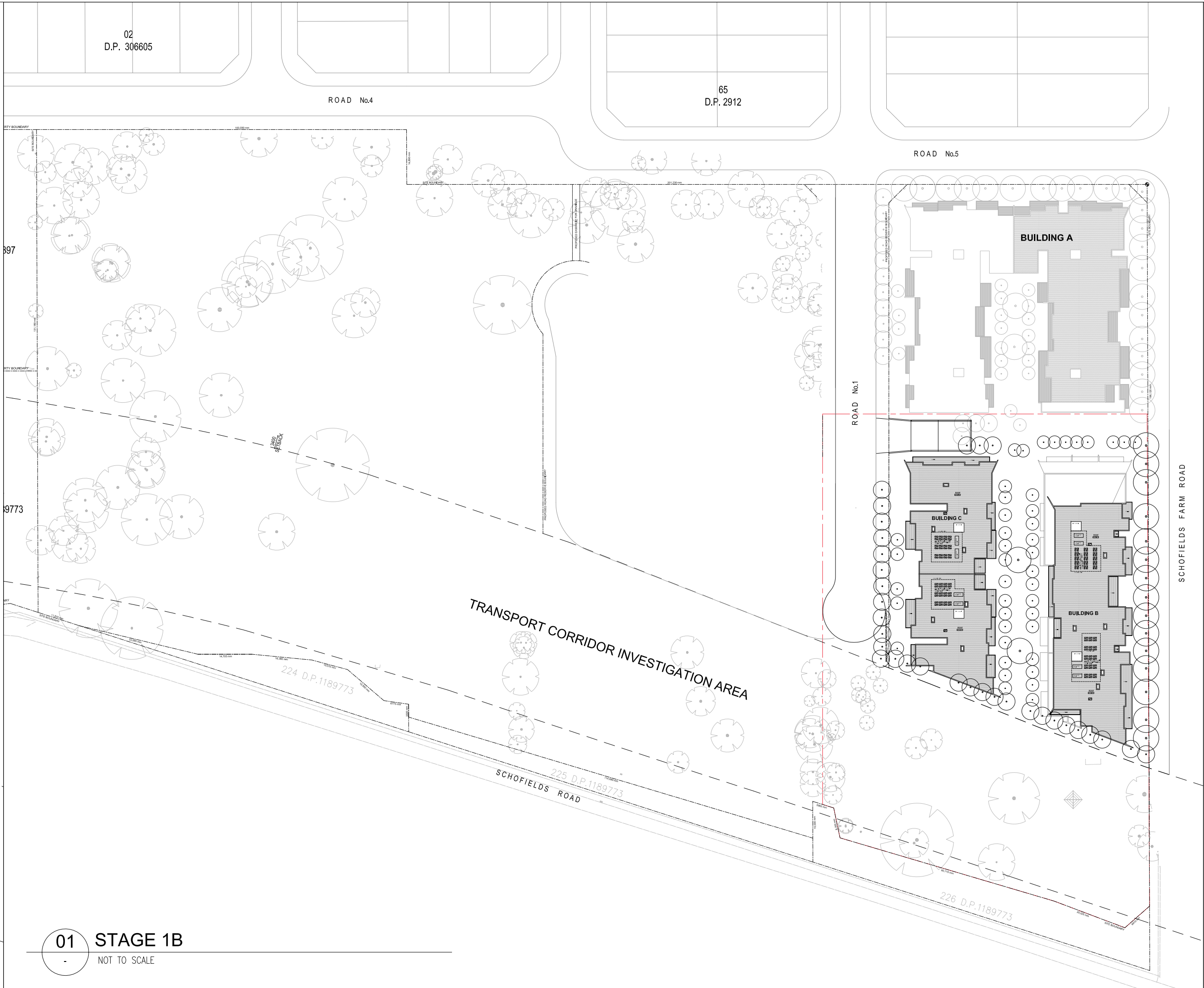
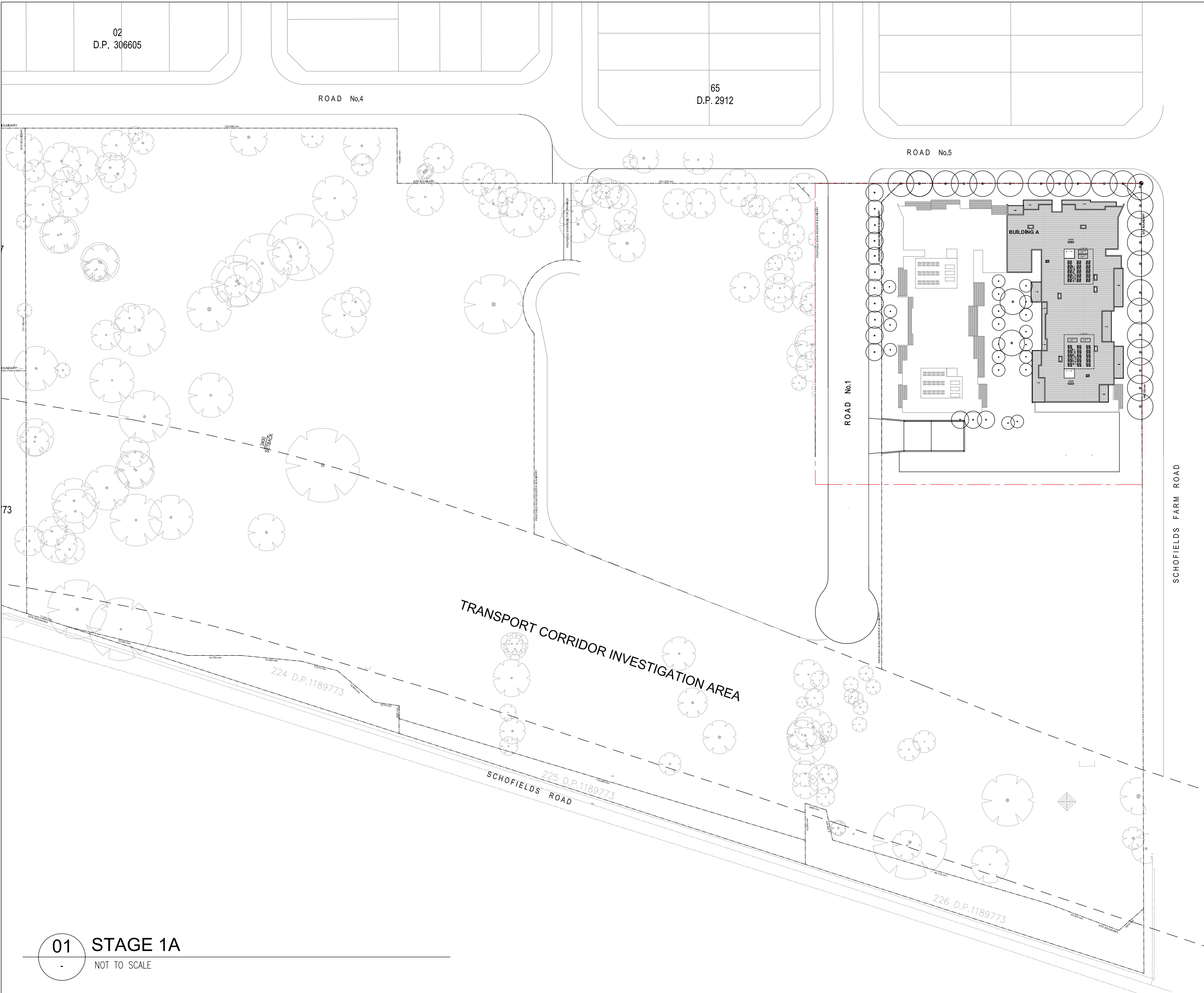
DRAWING DETAILS

Figure No.	5	Rev No.	0
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Drawn by	SP	Date	3.10.2017
Approved by	MK	Date	3.10.2017

APPENDIX B

PROPOSED DEVELOPMENT PLANS & SITE SURVEY PLAN





GENERAL NOTES:

- All work to comply with Building Code of Australia, requirements of relevant Statutory Authorities/ Local Government & relevant Australian Building Standards
- Contractor to verify all dimensions on site before commencing work should a discrepancy be identified please confirm with Architect prior to proceeding (do not scale from drawings)
- Copyright of design shown hereon is retained by this office and authority is required for any reproduction
- When proprietary products are referred to, install in accordance with the manufacturers written instructions

LEGEND:

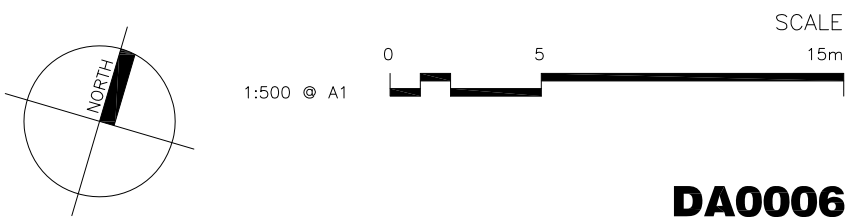
AW	AWNING (TO FUTURE DETAIL)
ELEC	ELECTRICAL SERVICES (TO FUTURE ENG'S DETAILS)
FS	FIRE STAIRS
FH	FIRE HYDRANT
FHR	FIRE HOSE REEL
GB	FRAMELESS TOUGHENED GLASS BALUSTRADE (TO BCA/ AUSTRALIAN STANDARDS)
H/W	HIGHLIGHT WINDOW. SILL HEIGHT 1800MM AFFL
LS	LANDSCAPING (REFER TO LANDSCAPE ARCHITECTS DRAWINGS)
MA	MAINTENANCE ACCESS
MB	MAILBOX TO FUTURE DETAIL
MF	METAL FENCING (TO FUTURE SELECTION)
MS	PERFORATED METAL SCREEN (TO FUTURE DETAIL)
MV	MECHANICAL RISER (TBC BY CONSULTANT- PRELIMINARY LOCATION ONLY)
PB	PLANTER BOX (TO FUTURE DETAIL)
PC	PANEL CLADDING (TO FUTURE SELECTION)
PO	ENTRY PORTICO (TO FUTURE DETAILS)
PS1	PRIVACY SCREEN (TO FUTURE SELECTION)
PS2	PRIVACY SCREEN (TO FUTURE SELECTION)
PS3	PERFORATED METAL PRIVACY SCREENS (TO FUTURE SELECTION)
RP	RIVER PEBBLES
CONC.	ROOF WITH INSULATION AS REQUIRED)
RW	RENDERED WALL/ SELECTED PAINT FINISH
SC	STONE CLADDING (TO FUTURE DETAIL)
SK	SKYLIGHT TO FUTURE DETAILS
TC	TIMBER CLADDING (TO FUTURE SELECTION)
TL	TILE FLOORING (TO FUTURE SELECTION)
RS	ROLLER SHUTTER

B		
A	17.05.2016	ISSUE FOR DA
REVISION	DATE	DESCRIPTION

NOT FOR CONSTRUCTION

PROPOSED RESIDENTIAL DEVELOPMENT
23-27 SCHOFIELD'S ROAD, SCHOFIELD'S
PROJECT No.1518

For HOMEBUSH ONE PTY LTD

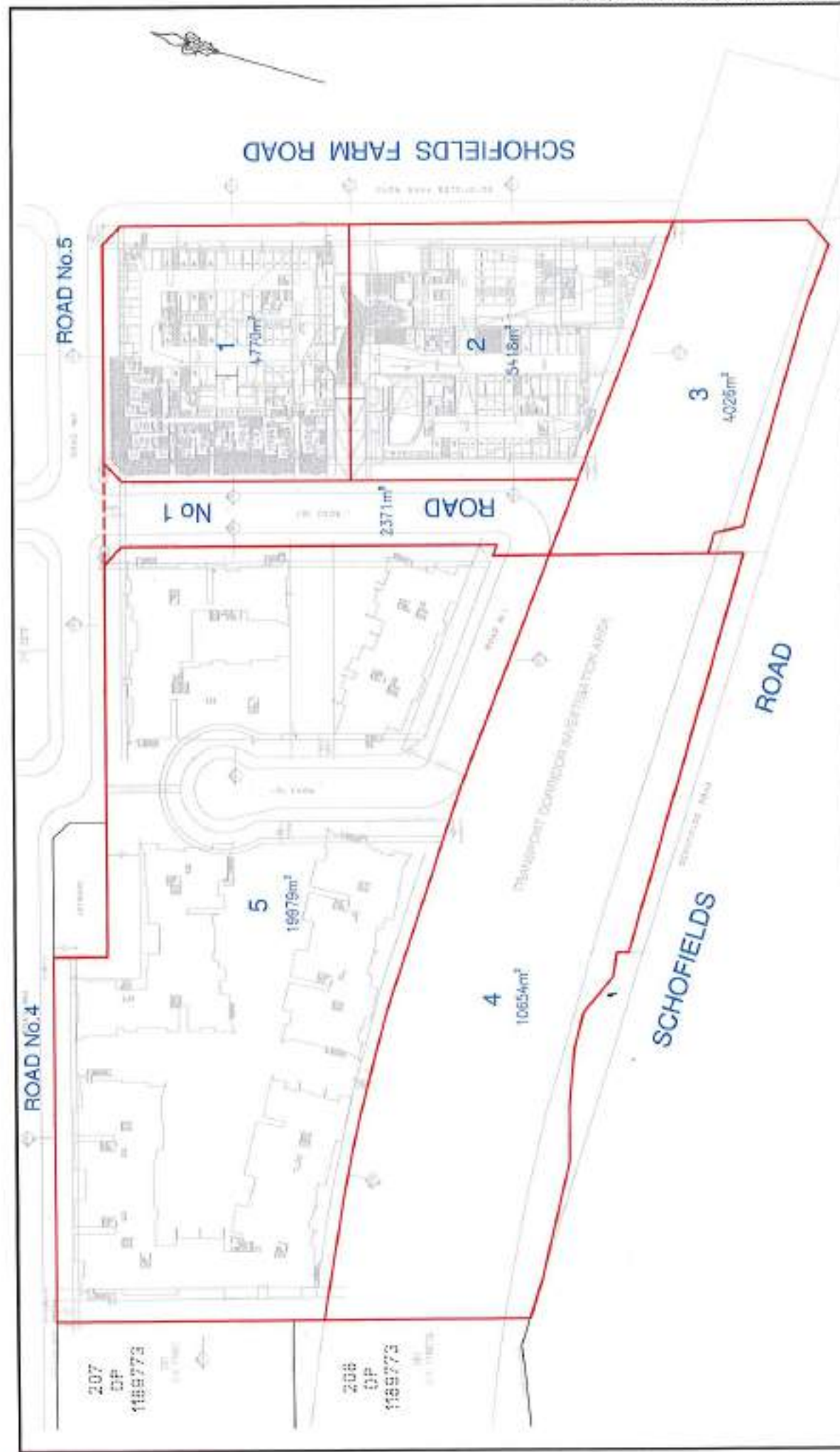


DA0006
CONSTRUCTION STAGING PLAN

PBD | ARCHITECTS

abn 36 147 035 550
P - (02) 9698 8140 E - info@pbdarchitects.com.au W - www.pbdarchitects.com.au
Level 2, 52 Albion Street, Surry Hills NSW 2010

Contractor to verify all dimensions on site before commencing work.
Copyright of designs shown hereon is retained by this office and authority is required for any reproduction.



ISSUE	DATE	AMENDMENT	BY	DATE	CONCEPT PLAN - STAGE 1	REDUCTION RATIO 1 : 1000	TITLE No.	DATE OF SURVEY	ISSUE No.	REF: 15/12/15	ISSUE DATE: 31.07.17	SHEET SIZE: A3	SHEET 1 OF 1 SHEETS
2	06/08/17	AMEND LOTS & AREAS	MA/PH		SUBDIVISION OF	0 10 20 30 40 50 60 70 80 90 100 LENGTHS ARE IN METRES			ISSUE-3				
3	11/08/17	ROAD No 1 AREA ADDED	MA/LG		LOTS 209,210 AND 211 IN DP 1189773				DATE OF SURVEY: MA				
					No 23-27 SCHOFIELDS ROAD				SURVEYOR: MA				
					SCHOFIELDS				DRAFTER: DW				
					CLIENT: SCHOFIELDS ONE UNIT TRUST								

Suite 301, Level 3, 55 Hill Street
 Sydney Hills NSW 2010
 PO Box 1807
 Schofields Hills NSW 2012
 E: 02 9212 4000
 F: 02 9212 5254
 email: reception@linersurveying.com.au
 web site: www.linersurveying.com.au

Licensed by a scheme approved under Professional Standards Legislation





SCHEDULE OF REFERENCE

FINDING PLANNED AND FUTURE

PLAN	DATE	PLAN	DATE	PLAN	DATE
DP 179597	10/12/12	DP 179597	10/12/12	DP 179597	10/12/12
DP 306605	10/12/12	DP 306605	10/12/12	DP 306605	10/12/12
DP 179597	10/12/12	DP 179597	10/12/12	DP 179597	10/12/12
DP 306605	10/12/12	DP 306605	10/12/12	DP 306605	10/12/12
DP 179597	10/12/12	DP 179597	10/12/12	DP 179597	10/12/12
DP 306605	10/12/12	DP 306605	10/12/12	DP 306605	10/12/12
DP 179597	10/12/12	DP 179597	10/12/12	DP 179597	10/12/12
DP 306605	10/12/12	DP 306605	10/12/12	DP 306605	10/12/12
DP 179597	10/12/12	DP 179597	10/12/12	DP 179597	10/12/12
DP 306605	10/12/12	DP 306605	10/12/12	DP 306605	10/12/12

PLAN	DATE	PLAN	DATE	PLAN	DATE
DP 179597	10/12/12	DP 179597	10/12/12	DP 179597	10/12/12
DP 306605	10/12/12	DP 306605	10/12/12	DP 306605	10/12/12
DP 179597	10/12/12	DP 179597	10/12/12	DP 179597	10/12/12
DP 306605	10/12/12	DP 306605	10/12/12	DP 306605	10/12/12
DP 179597	10/12/12	DP 179597	10/12/12	DP 179597	10/12/12
DP 306605	10/12/12	DP 306605	10/12/12	DP 306605	10/12/12
DP 179597	10/12/12	DP 179597	10/12/12	DP 179597	10/12/12
DP 306605	10/12/12	DP 306605	10/12/12	DP 306605	10/12/12
DP 179597	10/12/12	DP 179597	10/12/12	DP 179597	10/12/12
DP 306605	10/12/12	DP 306605	10/12/12	DP 306605	10/12/12

Surveyor: RICHARD MCLEOD
 Date of Survey: 28/05/2013
 Surveyor's Ref: 13052-DP-1
 RMS: 27055-13052
 THEORETICAL LAND ACQUISITION
 EXEMPTED FROM THE ROADS ACT, 1993

PLAN OF LAND TO BE ACQUIRED FOR
 THE PURPOSES OF THE ROADS ACT, 1993

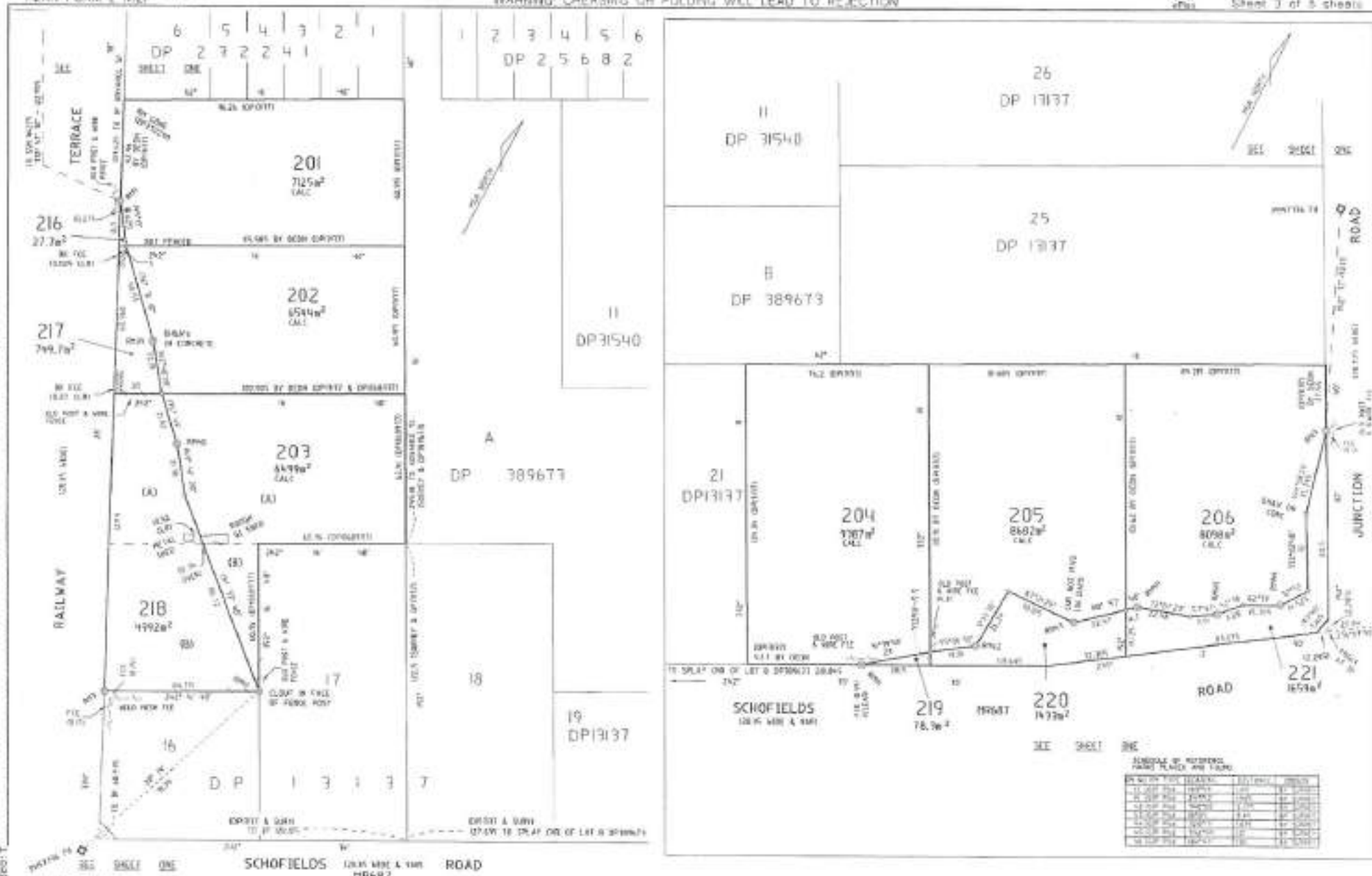
LGA: BLACKTOWN
 Locality: SCHOIELDS
 Subdivision No: N/A
 Length: 1000 metres, Relative Scale 1:2000

Registered



05-10-2013

DP1189773



Year	Age	Gender	Height (cm)	Weight (kg)	Body Fat (%)
1998	22	Male	178	75	12
2000	24	Male	180	80	15
2002	26	Male	182	85	18
2004	28	Male	185	90	20
2006	30	Male	188	95	22
2008	32	Male	190	100	25
2010	34	Male	192	105	28
2012	36	Male	195	110	30
2014	38	Male	198	115	32
2016	40	Male	200	120	35
2018	42	Male	202	125	38
2020	44	Male	205	130	40

IN DURING COVENANT
IN OTHER COVENANT

Surveyor ROHARD MUELSMAN
Date of Survey 26/08/2019
Surveyor's Ref. Q038-CP-4
REG. #F1996-00067
ORNLIST, LAWS REPORT SUPPLIED
DISPATCH BY NOTARIES AND OTHERS

PLAN OF LAND TO BE ACQUIRED FOR
THE PURPOSES OF THE ROADS ACT, 1993

LGA BLACKTOWN
Locality: SCHOFIELDS
Subdivision No: N/A
Lot/No: 10 x 1000 (Section 8)

Registered

06-10-2013

DP1189773



SCHEDULE OF REFERRED PARCELS TO BE ACQUIRED

PARCEL	AREA (m²)	OWNER
212	1627	DP1189773
213	1598	DP1189773
214	1394	DP1189773
215	6332	DP1189773
219	4508	DP1189773
230	1211	DP1189773

SCHEDULE OF REFERRED PARCELS TO BE ACQUIRED

PARCEL	AREA (m²)	OWNER
212	1627	DP1189773
213	1598	DP1189773
214	1394	DP1189773
215	6332	DP1189773
219	4508	DP1189773
230	1211	DP1189773

RE K337401 - EASEMENT FROM WATER PIPE TO GAS MAIN

Surveyor: RICHARD MULLERMAN
 Date of Survey: 26/08/2013
 Surveyor's Ref: 13032-DP-1
 ONE DRIVE/ROAD
 ONE/OF, LANA REPORT SUPPLIED
 PREPARED FOR: 13032-DP-1

PLAN OF LAND TO BE ACQUIRED FOR
 THE PURPOSES OF THE ROADS ACT, 1993

LOCAL BLACKTOWN
 Locality: SCHODFIELDS
 Subdivision No: N/A
 Length: 100 m approx. Relative Date: 1/1/2000

Registered



08-10-2013

DP1189773

APPENDIX C

SITE PHOTOGRAPHS



SITE PHOTOGRAPHS

Client:	Schofields One Unit Trust
Project:	DSI
Site Location:	23 Schofields Road, Schofields
Job No.:	ES7021/2
Photos Taken By:	SP

Photograph N° 1



View of: Fibro building
Looking east
Inspected on 12.09.2017

Photograph N° 2



View of: Man made dam
Looking west
Inspected on 12.09.2017

Photograph N° 3



View of: Old metal shed structure
Looking east
Inspected on 12.09.2017

Photograph N° 4



View of: Rubbish stockpile in the central portion
Looking North
Inspected on 12.09.2017

Photograph N° 5



View of: North western portion of the site
Looking North west
Inspected on 12.09.2017

Photograph N° 6



View of: trees stockpile
Looking North west
Inspected on 12.09.2017

SITE PHOTOGRAPHS

Client:	Schofields One Unit Trust
Project:	DSI
Site Location:	25 Schofields Road, Schofields
Job No.:	ES7021/2
Photos Taken By:	SP

Photograph N° 7



View of: Gravel & bitumen driveway
Looking North
Inspected on 12.09.2017

Photograph N° 8



View of: Residential house
Looking South
Inspected on 12.09.2017

Photograph N° 9



View of: Former poultry shed structures
Looking West
Inspected on 12.09.2017

Photograph N° 10



View of: Poultry shed structures
Looking North
Inspected on 12.09.2017

Photograph N° 11



View of: Man made dam
Looking west
Inspected on 12.09.2017

Photograph N° 12



View of: Shed structures in the southern portion
Looking South west
Inspected on 12.09.2017

SITE PHOTOGRAPHS

Client:	Schofields One Unit Trust
Project:	DSI
Site Location:	27 Schofields Road, Schofields
Job No.:	ES7021/2
Photos Taken By:	SP



Photograph N° 13



View of: Single-storey brick house and old shed structure in the front
Looking South east
Inspected on 11.09.2017

Photograph N°14



View of: Asbestos fragment in the south portion
Looking South
Inspected on 11.09.2017

Photograph N° 15



View of: Shed structures in the western portion
Looking West
Inspected on 11.09.2017

Photograph N° 16



View of: Western portion of the site
Looking North west
Inspected on 11.09.2017

Photograph N° 17



View of: The entire site
Looking North
Inspected on 11.09.2017

Photograph N° 18



View of: North east portion of the site
Looking North east
Inspected on 11.09.2017

APPENDIX D

LAND TITLE INFORMATION





Legal Liaison Services

Legal Liaison Services hereby certifies that the information contained in this document has been provided electronically by the Registrar General.

Information provided through *Thi-Search* an approved LPI/NSW Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

8/2/2016 1:09PM

FOLIO: 54/1013

First Title(s): SEE PRIOR TITLE(S)

PRIOR TITLE(S) 1007 7458 1007/1995

Recorded	Number	Type of Instrument	C.T. Issue
27/11/1989		TITLE AUTOMATIC PROJECT	LOT RECORDED FOLIO NOT CREATED

12/4/1985		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
-----------	--	-----------------------------	--------------------------------

22/12/1995	0792859	TRANSFER	EDITION 1
22/12/1995	0792859	MORTGAGE	EDITION 2

31/7/1998	516644	DISCHARGE OF MORTGAGE	EDITION 2
-----------	--------	-----------------------	-----------

24/3/2000	6666434	MORTGAGE	EDITION 3
-----------	---------	----------	-----------

8/10/2013	0P1185773	DEPOSITED PLAN	
-----------	-----------	----------------	--

27/2/2014	A1985870	REQUEST	
-----------	----------	---------	--

28/5/2014	A1614432	DEPARTMENTAL DEALING	
-----------	----------	----------------------	--

27/6/2014	A1615928	REQUEST	FOLIO CANCELLED
-----------	----------	---------	-----------------

*** END OF SEARCH ***

schofield@

PRINTED ON 8/2/2016

*ANY ENTRY PRESENTED BY AN AGENCY DO NOT APPEAR ON THE CERTIFICATE OF THE REGISTRAR OF TITLE. VARIOUS, THE INFORMATION APPEARING UNDER NOTATIONS HAS NOT BEEN FORMALLY RECORDED IN THE REGISTER.

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Information provided through **IT-Search** an approved **LPA/STP** Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FILE NO: 209/1189773

SEARCH DATE	TIME	EDITION NO	DATE
8/2/2016	11:06 PM	-	-

209/1189773 OF RECORDS HAS NOT ISSUED

LAND

LOT 209 IN DEPOSITED PLAN 1189773
AT SCHOFIELDS
LOCAL GOVERNMENT AREA BLACKTOWN
PARISH OF SIDLEY COUNTY OF CUMBERLAND
TITLE DIAGRAM DP1189773

FIRST SCHEDULE

2016/1189773 SKIPPED

SECOND SCHEDULE (2 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT (3)
- * 2 AJ368018 CAVEAT BY SCHOFIELDS SQUARE PTY LTD

NOTATIONS

CERTIFICATE OF TITLE NOT ISSUED. LODGED DEALINGS MUST BE ACCOMPANIED
BY PRIOR CERTIFICATE OF TITLE 62/2912 (EDITION 1)
UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

8/2/2016 1:07PM

FOLIO: 206/115376

First Title(s): OLD SYSTEM
SECOND TITLE: 62/2947

Recorded	Number	Type of Instrument	C.T. Issue
8/10/2013	DL189713	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
27/6/2014	AL693693	DEPARTMENTAL DEALING	FOLIO CREATED CT NOT ISSUED
5/6/2015	AJ546021	CAVEAT	
15/6/2015	AJ566017	WITHDRAWAL OF CAVEAT	
15/6/2015	AJ566018	CAVEAT	

*** END OF SEARCH ***

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

8/2/2016 1:07PM

FOLIO: 62/2011

FIRST TITLE(S) SEE PRIOR TITLE(S)
TITLE CANCELLATION NO 1420 FOR 143

Recorded	Number	Type of Instrument	C.T. Issue
26/11/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
7/3/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
18/4/2000	2008960	NOTICE OF DEATH	EDITION 1
8/10/2013	DP1189773	DEPOSITED PLAN	
27/2/2014	A1385870	REQUEST	
28/5/2014	A1614422	DEPARTMENTAL DEALING	
27/6/2014	A1615928	REQUEST	FOLIO CANCELLED

*** END OF SEARCH ***

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Legal Liaison Services

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

8/2/2016 1:08PM

FILED: 21/11/2013

First Title(s): OLD SYSTEM
Second Title(s): 55/5973

Recorded	Number	Type of Instrument	C.T. Issue
8/10/2013	DP1169713	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
27/6/2014	AL693737	DEPARTMENTAL DEALING	FOLIO CREATED CT NOT ISSUED

7/8/2015 AJ713949 CAVENAT

24/8/2015 AJ759840 CAVENAT

*** END OF SEARCH ***

schofielda

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

PLAN 63 210/119773

SEARCH DATE	TIME	EDITION NO	DATE
8/2/2016	1:06 PM	-	-

CERTIFICATE OF TITLE 462/483137 ISSUED

LAND

LOT 210 IN DEPOSITED PLAN 1189773
AT SCHORFELDS
LOCAL GOVERNMENT AREA BLACKTOWN
PARISH OF GIDLEY COUNTY OF CUMBERLAND
TITLE DIAGRAM DP1189773

FIRST SCHEDULE

LOANED TO THE
SCHOOL COUNCIL OF THE
AS JOINT TENANT

SECOND SCHEDULE (3 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 AG997502 MORTGAGE TO SINCORP-METWAY LIMITED
- 3 AJ568032 CAVEAT BY SCHORFELDS SQUARE PTY LTD

NOTATIONS

CERTIFICATE OF TITLE NOT ISSUED. LOGGED DEALINGS MUST BE ACCOMPANIED BY PRIOR CERTIFICATE OF TITLE 63/2912 (EDITION 5)
UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

schofieldg

PRINTED ON 8/2/2016

*ANY DEALINGS PROVIDED BY AN APPROVED TRU-SEARCH OR THE CROWN OFFICE OF THE CERTIFICATE OF TITLE, INCLUDING THE INFORMATION APPEARING UNDER NOTATIONS WAS NOT BEEN FORMALLY RECORDED IN THE REGISTER.



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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

8/2/2016 1:07PM

FOLIO: 210/116510

First Title(s): OLD SYSTEM
REGISTRATION: 1972012

Recorded	Number	Type of Instrument	C.T. Issue
8/10/2013	DP189773	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
27/6/2014	AI693710	DEPARTMENTAL DEALING	FOLIO CREATED CT NOT ISSUED
5/6/2015	AJ546017	CAVEAT	
15/6/2015	AJ568031	WITHDRAWAL OF CAVEAT	
15/6/2015	AJ568032	CAVEAT	

*** END OF SEARCH ***

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

8/2/2016 11:08PM

FOUNDED 1922

First title(s): SEE PRIOR TITLE(S)
Prior title(s): 501-9159-301105

Recorded	Number	Type of Instrument	C.T. Issue
21/8/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
4/10/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
6/8/1999	6072271	MORTGAGE	EDITION 1
28/3/2003	9482544	DISCHARGE OF MORTGAGE	EDITION 2
28/3/2003	9482544	DISCHARGE OF MORTGAGE	EDITION 3
25/11/2004	AB116210	MORTGAGE	EDITION 4
8/3/2007	AC981056	DISCHARGE OF MORTGAGE	EDITION 5
21/5/2012	AG997502	MORTGAGE	
8/10/2013	DE1189773	DEPOSITED PLAN	
27/2/2014	AI385870	REQUEST	
28/5/2014	AI614422	DEPARTMENTAL DEALING	
27/6/2014	AI615928	REQUEST	FOLIO CANCELLED

*** END OF SEARCH ***

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LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOI: 2016/01181373

SEARCH DATE	TIME	EDITION NO	DATE
8/2/2016	1:06 PM	-	-

CERTIFICATE OF TITLE HAS NOT ISSUED

LAND

LOT 211 IN DEPOSITED PLAN 1189773
AT SCHOFFIELDS
LOCAL GOVERNMENT AREA BLACKTOWN
PARISH OF GIDLEY COUNTY OF CUMBERLAND
TITLE DIAGRAM D81189773

FIRST SCHEDULE

DARREN JIMMIE WHITE
HARRY ADRIAN GARDNER
AS JOINT TENANTS

SECOND SCHEDULE (4 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 6666434 MORTGAGE TO AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED
- 3 A0713949 CAVEAT BY SCHOFFIELDS SQUARE PTY LTD
- 4 A0754840 CAVEAT BY SCHOFFIELDS ONE PTY LTD

MOTATIONS

CERTIFICATE OF TITLE NOT ISSUED. LODGED DEALINGS MUST BE ACCOMPANIED BY PRIOR CERTIFICATE OF TITLE 64/2912 (EDITION 3)
UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

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PRINTED ON 8/2/2016

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FIRST SCHEDULE (continued)

1981 11:20 31 1989 V. C. N. 0140, Government Printer

REGISTERED PROPRIETOR

INSTRUMENT NUMBER	DATE	ENTRED	Signature of Registrar-General
Joseph Cremona by Transfer T555435. registered 5-6-1983	18-4-1965	18-4-1965	<i>Joseph Cremona</i>
Robert Donald Rutley of Solihull, Grain Merchant and Louise Kay Rutley, his wife, as joint tenants	20-6-1978	7-2-1980	<i>Robert Donald Rutley</i>

SECOND SCHEDULE (continued)

INSTRUMENT NUMBER	DATE	PARTICULARS	ENTRED	Signature of Registrar-General	CANCELLATION
Mortgage	18-4-1965	to Patrick Robert of Oakham, Lane House and Rachel Robert his wife	18-4-1965	<i>Joseph Cremona</i>	Discharged M681322
Mortgage	20-6-1978	to The Commercial Banking Company of Sydney Limited	20-6-1978	<i>Robert Donald Rutley</i>	Discharged 8543573
Mortgage	7-2-1980	to Friends Limited	7-2-1980	<i>Joseph Cremona</i>	Discharged T555434
Caveat	14-4-1980	by Joseph Cremona	14-4-1980	<i>Joseph Cremona</i>	Withdrawn T391701
8724181 Caveat by The Commercial Bank of Australia Limited Registered 12-10-1981				<i>Robert Donald Rutley</i>	Withdrawn T555432
8488875 Caveat by David Geoffrey Dunlop and Robert Donald Rutley Registered 6-4-1982				<i>Joseph Cremona</i>	Withdrawn T555434

CANCELLED

SEE AUTO FOLIO

APPENDIX E

CURRENT AND HISTORICAL AERIAL PHOTOGRAPHS



HISTORICAL AERIAL PHOTOGRAPHS - 1947



LEGEND



Site Boundary

ABN 75 050 212 710

Aargus Pty Limited

Environment – Remediation – Geotechnical Engineering

PROJECT DETAILS

Project Title	Detailed Site Investigation
Project No.	ES7021/2
Client	Schofields One Unit Trust
Site Address	23-27 Schofields Road, Schofields NSW



DRAWING DETAILS

Figure No.	A	Rev No.	0
Scale	As above	Size	A3
Drawn by	SP	Date	28.09.2017
Approved by	MK	Date	10.10.2017

CURRENT AERIAL PHOTOGRAPHS - 1978



LEGEND



Site Boundary

ABN 75 050 212 710

Aargus Pty Limited

Environment – Remediation – Geotechnical Engineering

PROJECT DETAILS			DRAWING DETAILS			
Project Title	Detailed Site Investigation		Figure No.	B	Rev No.	0
Project No.	ES7021/2		Scale	As above	Size	A3
Client	Schofields One Unit Trust		Drawn by	SP	Date	28.09.2017
Site Address	23-27 Schofields Road, Schofields NSW		Approved by	MK	Date	10.10.2017

HISTORICAL AERIAL PHOTOGRAPHS - 1998



LEGEND

 Site Boundary

ABN 75 050 212 710 Aargus Pty Limited Environment – Remediation – Geotechnical Engineering

PROJECT DETAILS			DRAWING DETAILS			
Project Title	Detailed Site Investigation		Figure No.	C	Rev No.	0
Project No.	ES7021/2		Scale	As above	Size	A3
Client	Schofields One Unit Trust		Drawn by	SP	Date	28.09.2017
Site Address	23-27 Schofields Road, Schofields NSW		Approved by	MK	Date	10.10.2017

HISTORICAL AERIAL PHOTOGRAPHS - 2009



LEGEND

Site Boundary

ABN 75 050 212 710		Aargus Pty Limited		Environment – Remediation – Geotechnical Engineering			
PROJECT DETAILS			DRAWING DETAILS				
Project Title	Detailed Site Investigation		Figure No.	D	Rev No.	0	
Project No.	ES7021/2		Scale	As above	Size	A3	
Client	Schofields One Unit Trust		Drawn by	SP	Date	28.09.2017	
Site Address	23-27 Schofields Road, Schofields NSW		Approved by	MK	Date	10.10.2017	

CURRENT AERIAL PHOTOGRAPHS - 2017



LEGEND

Site Boundary

ABN 75 050 212 710

Aargus Pty Limited

Environment – Remediation – Geotechnical Engineering

PROJECT DETAILS			DRAWING DETAILS			
Project Title	Detailed Site Investigation		Figure No.	D	Rev No.	0
Project No.	ES7021/2		Scale	As above	Size	A3
Client	Schofields One Unit Trust		Drawn by	SP	Date	28.09.2016
Site Address	23-27 Schofields Road, Schofields NSW		Approved by	MK	Date	10.10.2017

APPENDIX F

NSW EPA RECORDS





Healthy Environment, Healthy Community, Healthy Business

[Home](#) [Contaminated land](#) [Record of notices](#)

Search results

Your search for: Suburb: SCHOFIELDS

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the [planning process](#).

More information about particular sites may be available from:

- The [POEO public register](#)
- The appropriate planning authority: for example, on a planning certificate issued by the local council under [section 149 of the Environmental Planning and Assessment Act](#).

See [What's in the record and What's not in the record](#).

Search Again

Refine Search

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... [more search tips](#)

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.

This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register. [POEO public register](#)

[Connect](#)[Feedba](#)[Web su](#)
[Public c](#)

28 September 2017



Healthy Environment, Healthy Community, Healthy Business

[Home](#) > [Environment protection licences](#) > [POEO Public Register](#) > [Search for licences, applications and notices](#)

Search results

Your search for: **General Search** with the following criteria

Suburb - SCHOFIELDS

returned 49 results

[Export to excel](#)

1 of 3 Pages

[Search Again](#)

Number	Name	Location	Type	Status	Issued date
13189	CPB CONTRACTORS PTY LIMITED	Veron Road, SCHOFIELDS, NSW 2762	POEO licence	Surrendered	20 Nov 2009
1112501	CPB CONTRACTORS PTY LIMITED	Veron Road, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	29 Mar 2010
1120663	CPB CONTRACTORS PTY LIMITED	Veron Road, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	30 Dec 2010
1125652	CPB CONTRACTORS PTY LIMITED	Veron Road, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	04 Mar 2011
1129524	CPB CONTRACTORS PTY LIMITED	Veron Road, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	17 Jun 2011

1129835	CPB CONTRACTORS PTY LIMITED	Veron Road, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	28 Jun 2011
1020181	DRAGA HLEBAR	NORTH STREET, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	08 Oct 2002
1027880	DRAGA HLEBAR	NORTH STREET, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	03 Jun 2003
1054185	DRAGA HLEBAR	NORTH STREET, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	16 Jan 2006
1095234	DRAGA HLEBAR	NORTH STREET, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	15 Jun 2009
1109839	DRAGA HLEBAR	NORTH STREET, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	11 Feb 2010
1115441	DRAGA HLEBAR	NORTH STREET, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	18 Aug 2010
1125213	DRAGA HLEBAR	NORTH STREET, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	17 Jun 2011
1501544	DRAGA HLEBAR	NORTH STREET, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	09 Nov 2011
1506051	DRAGA HLEBAR	NORTH STREET, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	31 Oct 2012
1512613	DRAGA HLEBAR	NORTH STREET, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	23 Apr 2013
1514601	DRAGA HLEBAR	NORTH STREET, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	02 Aug 2013
4261	JIMMY BUTTIGIEG	101 HAMBLEDON ROAD, SCHOFIELDS, NSW 2762	POEO licence	Surrendered	03 Nov 1999
2014	PGH BRICKS & PAVERS PTY LIMITED	75 TOWNSON ROAD, SCHOFIELDS, NSW 2762	POEO licence	Issued	13 May 2000

Connect

Feedba

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Public c

[1007503](#) PGH BRICKS & PAVERS
PTY LIMITED

75 TOWNSON ROAD, s.58 Licence Issued
SCHOFIELDS, NSW Variation
2762

27 Jun 2002

[123](#)

28 September 2017



Healthy Environment, Healthy Community, Healthy Business

[Home](#) > [Environment protection licences](#) > [POEO Public Register](#) > [Search for licences, applications and notices](#)

Search results

Your search for: **General Search** with the following criteria

Suburb - SCHOFIELDS

returned 49 results

[Export to excel](#)

2 of 3 Pages

[Search Again](#)

Number	Name	Location	Type	Status	Issued date
1072482	PGH BRICKS & PAVERS PTY LIMITED	75 TOWNSON ROAD, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	22 Jun 2007
1075567	PGH BRICKS & PAVERS PTY LIMITED	75 TOWNSON ROAD, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	31 Aug 2007
1079899	PGH BRICKS & PAVERS PTY LIMITED	75 TOWNSON ROAD, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	15 Nov 2007
1107116	PGH BRICKS & PAVERS PTY LIMITED	75 TOWNSON ROAD,	s.58 Licence Variation	Issued	26 Mar 2010

1504791	PGH BRICKS & PAVERS PTY LIMITED	SCHOFIELDS, NSW 2762 75 TOWNSON ROAD, SCHOFIELDS, NSW 2762	s.58 Licence Issued Variation	12 Mar 2012	Connect	Feedba
3085766860	PGH BRICKS & PAVERS PTY LIMITED	75 TOWNSON ROAD, SCHOFIELDS, NSW 2762	Penalty Issued Notice	26 Nov 2012		
1509962	PGH BRICKS & PAVERS PTY LIMITED	75 TOWNSON ROAD, SCHOFIELDS, NSW 2762	s.58 Licence Issued Variation	30 Apr 2013		
1515968	PGH BRICKS & PAVERS PTY LIMITED	75 TOWNSON ROAD, SCHOFIELDS, NSW 2762	s.58 Licence Issued Variation	26 Aug 2013		
3085775523	PGH BRICKS & PAVERS PTY LIMITED	75 TOWNSON ROAD, SCHOFIELDS, NSW 2762	Penalty Issued Notice	24 Nov 2014		
3085778071	PGH BRICKS & PAVERS PTY LIMITED	75 TOWNSON ROAD, SCHOFIELDS, NSW 2762	Penalty Issued Notice	04 Dec 2015		
1538197	PGH BRICKS & PAVERS PTY LIMITED	75 TOWNSON ROAD, SCHOFIELDS, NSW 2762	s.58 Licence Issued Variation	19 Feb 2016		
1542863	PGH BRICKS & PAVERS PTY LIMITED	75 TOWNSON ROAD, SCHOFIELDS, NSW 2762	s.58 Licence Issued Variation	25 Jul 2016		
13078	REED CONSTRUCTIONS AUSTRALIA PTY LIMITED	VARIOUS STREETS IN KELLYVILLE AND, SCHOFIELDS, NSW 2762	POEO licence	Surrendered23 Jun 2009		
1005690	RIVERSTONE EARTHMOVING PTY. LTD.	127 BURFITT ROAD, SCHOFIELDS, NSW 2762	s.91 Clean Up Notice	Issued 30 Mar 2001		
4594	RIVERSTONE	127 BURFITT ROAD, POEO	Suspended	25 Jun 2001		

1014225	EARTHMOVING PTY. LTD. RIVERSTONE EARTHMOVING PTY. LTD.	SCHOFIELDS, NSW licence 2762 127 BURFITT ROAD, s.58 Licence Issued SCHOFIELDS, NSW Variation 2762	07 Feb 2002
1015644	RIVERSTONE EARTHMOVING PTY. LTD.	127 BURFITT ROAD, s.58 Licence Issued SCHOFIELDS, NSW Variation 2762	14 Mar 2002
1033314	RIVERSTONE EARTHMOVING PTY. LTD.	127 BURFITT ROAD, s.58 Licence Issued SCHOFIELDS, NSW Variation 2762	23 Dec 2003
1040958	RIVERSTONE EARTHMOVING PTY. LTD.	127 BURFITT ROAD, s.58 Licence Issued SCHOFIELDS, NSW Variation 2762	21 Oct 2004
1042481	RIVERSTONE EARTHMOVING PTY. LTD.	127 BURFITT ROAD, s.58 Licence Issued SCHOFIELDS, NSW Variation 2762	23 Nov 2004

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28 September 2017



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Search results

Your search for: **General Search** with the following criteria

Suburb - SCHOFIELDS

returned 49 results

[Export to excel](#)

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[Search Again](#)

Number	Name	Location	Type	Status	Issued date
1045664	RIVERSTONE EARTHMOVING PTY. LTD.	127 BURFITT ROAD, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	11 Apr 2005
1048914	RIVERSTONE EARTHMOVING PTY. LTD.	127 BURFITT ROAD, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	19 Jul 2005
1052803	RIVERSTONE EARTHMOVING PTY. LTD.	127 BURFITT ROAD, SCHOFIELDS, NSW 2762	s.58 Licence Variation	Issued	10 Jan 2006
1058461	RIVERSTONE EARTHMOVING PTY. LTD.	127 BURFITT ROAD, SCHOFIELDS, NSW 2762	s.79 Suspension of a Licence	Issued	20 Apr 2006
1097924	RIVERSTONE EARTHMOVING PTY. LTD.	127 BURFITT ROAD, SCHOFIELDS, NSW 2762	s.96 Prevention Notice	Issued	21 May 2009

1106745	RIVERSTONE EARTHMOVING PTY. LTD.	127 BURFITT ROAD, SCHOFIELDS, NSW 2762	s.110 Variation of Prevention Notice	Issued	29 Sep 2009		
1112495	RIVERSTONE EARTHMOVING PTY. LTD.	127 BURFITT ROAD, SCHOFIELDS, NSW 2762	s.110 Variation of Prevention Notice	Issued	24 Mar 2010	Connect	Feedba
1549686	Universal Property Group Pty Ltd	104 Burdekin Road, SCHOFIELDS, NSW 2762	s.91 Clean Up Notice	Issued	23 Feb 2017		Web su Public c
4578	VINKO HLEBAR	NORTH STREET, SCHOFIELDS, NSW 2762	POEO licence	Issued	28 Jun 2000		

[123](#)

28 September 2017

APPENDIX G

SECTION 149 CERTIFICATES



Applicant Details

Your reference SCHOFIELDS 85325

K MC PHEE
96 HERMITAGE RD
WEST RYDE NSW 2114

Certificate Details

Certificate no.	PL2016/12222	Fee \$53.00
Date issued	16 February 2016	Urgency fee
Receipt no.	2000051317	

Property information

Property ID	36472	Land ID	36472
Legal description	LOT 210 CP 1189 / 15		
Address	25 SCHOFIELDS ROAD SCHOFIELDS NSW 2762		
County	CLYBERLAND	Parish	GIDLEY

PLANNING CERTIFICATE (149 Part 2)

Blacktown City Council prepared this Planning Certificate under Section 149 of the *Environmental Planning and Assessment Act 1979*. The form and content of the Certificate is consistent with Schedule 4 of the *Environmental Planning and Assessment Regulation 2000*.

Disclaimer

Blacktown City Council gives notice and points out to all users of the information supplied herein, that the information herein has been compiled by Council from sources outside of Council's control. While the information herein is provided with all due care and in good faith, it is provided on the basis that Council will not accept any responsibility for and will not be liable for its contents or for any consequences arising from its use, and every user of such information is advised to make all necessary enquiries from the appropriate organisations, institutions and the like.

Blacktown City Council also gives notice to all users of the information supplied herein, that where any part of a strategy herein remains unanswered or has not been elaborated upon, such silence should not be interpreted as meaning or inferring either a negative or a positive response as the case may be.

Section 149(2)

The following information is provided under Section 149(2) of the *Environmental Planning and Assessment Act 1979*. The information relates to the subject land at the date of this Certificate.

1. Names of relevant planning instruments and development control plans

1.1 Environmental Planning Instrument

As at the date of this certificate the abovementioned land is not affected by Blacktown Local Environmental Plan 2015.

The land is affected by the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*.

1.2 Proposed Local Environmental Plans

Not applicable.

1.3 State Environmental Planning Policies

Attachment 1 contains a list of State Environmental Planning Policies that may apply to the carrying out of development on the subject land.

1.4 Proposed State Environmental Planning Policies

Council is not aware of any proposed State Environmental Planning Policy that is or has been the subject of community consultation or on public exhibition under the Act, applying to the subject land.

1.5 Development control plans

As at the date of this certificate the abovementioned land is affected by the NSW Government's *Blacktown City Council Growth Centre Precincts Development Control Plan 2014*.

Blacktown Development Control Plan 2015 generally does not apply to land that a Precinct Plan applies to, except where specifically referred to in the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* or the *Growth Centre Precincts Development Control Plan 2014*.

2. Zoning and land use under relevant environmental planning instruments

The following information will assist in determining how the subject land may be developed. It is recommended that you read this section in conjunction with a full copy of any relevant environmental planning instrument as there may be additional provisions that affect how the land may be developed.

2.1 Zoning

Under *State Environmental Planning Policy (Sydney Region Growth Centres) 2005*, the land is zoned:

Zone R3 Medium Density Residential

Below is an extract from the principal Environmental Planning Instrument, outlining the types of development that may or may not be carried out in the above zone.

2 Permitted without consent

Home occupations

3 Permitted with consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Child care centres; Community facilities; Dual occupancies; Dwelling houses; Farm homes; Manor homes; Multi dwelling housing; Neighbourhood shops; Places of public worship; Residential flat buildings; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Shop top housing; Studio dwellings; Any other development not specified in item 2 or 4

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Amusement centres; Boat repair facilities; Boat sheds; Business premises; Caravan parks; Cemeteries; Charter and tourist boating facilities; Correctional centres; Crematoriums; Depots; Electricity generating works; Entertainment facilities; Extractive industries; Freight transport facilities; Functon centres; Holidays; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industries; Information and education facilities; Mortuaries; Office premises; Passenger transport facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Restriction facilities; Retail premises; Rural supplies; Rural workers' dwellings; Service stations; Sex services premises; Signage; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Vehicle sales or hire premises; Waste management facilities; Waste or resource management facilities; Wholesale supplies.

2.2 Minimum land dimensions for the erection of a dwelling house

Not applicable

2.3 Critical habitat

The land does not include or comprise a critical habitat.

Notes: Critical habitat regions are kept by the National Parks and Wildlife Service under the *Threatened Species Conservation Act 1995* and the Department of Fisheries under the *Fisheries Management Act 1954*.

2.4 Conservation areas

The land is not within a conservation area.

2.5 Environmental Heritage

The land does not contain a record of environmental heritage under the protection of State Environmental Planning Policy (Sydney Region Growth Centres) 2006

3. Complying development

Complying development may or may not be carried out on the subject land under an Environmental Planning Policy. Council does not have sufficient information to determine the extent to which specific complying development may or may not be carried out.

4. Coastal protection

The subject land is not affected by the operation of Sections 38 or 39 of the *Coastal Protection Act, 1979*.

5. Mine subsidence

The subject land has not been proclaimed to be a mine subsidence district within the meaning of Section 15 of the *Mine Subsidence Compensation Act 1961*.

6. Road widening and road realignment

The subject land is not affected by road widening or road realignment

The subject land is affected by a road pattern.

7. Council and other public authority policies on hazard risk restrictions**7.1 Contaminated lands policy**

Council has adopted a policy on contaminated land which may restrict development on the subject land.

The land contamination policy applies when zoning or land use changes are proposed on land which has previously been used for certain purposes or has the potential to be affected by such purposes undertaken on nearby lands.

Council's records may not be sufficient to determine all previous uses or the land, or determine activities that may have taken place on this land.

Council's policy on contaminated land should be considered in the context of relevant State legislation and guidelines.

7.2 Other policies on hazard risk restrictions

Council has not adopted any other policies to restrict the development of the subject land by reason of the like flood of landslip, bushfire, tidal inundation, subsidence or the occurrence of acid sulphate soils.

Note: Although Council has not adopted a specific policy to restrict development bushfire prone land, it is bound by state-wide bushfire legislation that may restrict development on the subject land. Additional information relating to bushfire prone land is provided at point 11 below.

7a. Flood related development controls information

There are currently no downstream or backwater flood-related development controls adopted by Council that apply to the land subject to this Certificate

8. Land reserved for acquisition

State Environmental Planning Policy (Sydney Region Growth Centres) 2009 makes provision for land included on the Land Reservation Acquisition Map to be acquired by a public authority.

9. Contributions plans

Council currently levies contributions under Section 94 of the *Environmental Planning & Assessment Act 1979* for facilities and services. The further development of the subject land may incur such contributions.

Contributions Plan No. 20 - Riverstone and Alex Avenue Precincts applies to the subject land.

9a. Biodiversity certified land

The land is biodiversity certified land as defined by Part 7A of the *Threatened Species Conservation Act 1995*.

10. Biobanking agreements

The land is not subject to any biobanking agreement under Part 7A of the *Threatened Species Conservation Act 1995*.

11. Bushfire prone land

The Rural Fires and Environmental Assessment Amendment Act 2002, which came into force on 1 August 2002, introduced development provisions for bush fire prone land as shown on a Bush Fire Prone Land Map. "Bush fire prone land" is land that has been designated by the Commissioner of the NSW Rural Fire Service as being bush fire prone due to characteristics of vegetation and topography. The land the subject of this Certificate has been identified on Council's Bush Fire Prone Land Map as being:

Bushfire - 100m buffer

On land that is bush fire prone, certain development may require further consideration under Section 79BA of Section 91 of the Environmental Planning & Assessment Act 1979 and under Section 100B of the Rural Fires Act 1997.

12. Property vegetation plans

The subject land is not affected by a property vegetation plan under the Native Vegetation Act 2003. The Blacktown local government area is excluded from the operation of the Native Vegetation Act 2003 (refer Schedule 1 Part 3 of that Act).

13. Orders under Trees (Disputes Between Neighbours) Act 2006

No. Council has not been notified of any order made under the Trees (Disputes Between Neighbours) Act 2006 in relation to the subject land.

14. Directions under Part 3A

Land to which this Certificate applies is not subject to the above.

15. Site compatibility certificates and conditions for seniors housing

Land to which this Certificate applies is not subject to the above.

16. Site compatibility certificates for infrastructure

Land to which this Certificate applies is not subject to the above.

17. Site compatibility certificates and conditions for affordable rental housing

Land to which this Certificate applies is not subject to the above.

18. Site verification certificates

Council is not aware of any site verification certificate applying to the subject land.

Under the Contaminated Land Management Act 1997 and Contaminated Land Management Amendment Act 2008

- (a) the land to which this certificate relates has not been declared to be significantly contaminated land at the date when the certificate was issued
- (b) The land to which the certificate relates is not subject to a management order at the date when the certificate was issued
- (c) The land to which this certificate relates is not the subject of an approved voluntary management proposal at the date when the certificate was issued
- (d) The land to which this certificate relates is not subject to an ongoing maintenance order as at the date when the certificate was issued
- (e) The land to which this certificate relates is not the subject of a seizure statement provided to the Council.

Applicant Details

Your reference SCHOFIELDS 35329

K MAC PHEE
96 HERMITAGE RD
WEST RYDE NSW 2114

Certificate Details

Certificate no.	P.2016/12221	Fee	\$53.00
Date issued	16 February 2015	Urgency fee	
Receipt no.	P000051316		

Property information

Property ID	364474	Land ID	364474
Legal description	LOT 211 DP 189773		
Address	27 SCHOFIELDS ROAD SCHOFIELDS NSW 2162		
County	CUMBERLAND	Parish	G DLEY

PLANNING CERTIFICATE (149 Part 2)

Blacktown City Council prepared this Planning Certificate under Section 149 of the *Environmental Planning and Assessment Act 1979*. The form and content of the Certificate is consistent with Schedule 4 of the *Environmental Planning and Assessment Regulation 2000*.

Disclaimer

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Section 149(2)

The following information is provided under Section 149(2) of the *Environmental Planning and Assessment Act 1979*. The information relates to the subject land at the date of this Certificate.

1. Names of relevant planning instruments and development control plans**1.1 Environmental Planning Instrument**

As at the date of this certificate the abovementioned land is not affected by Blacktown Local Environmental Plan 2015.

The land is affected by the *State Environmental Planning Policy (Sydney Region Growth Centres, 2006)*.

1.2 Proposed Local Environmental Plans

Not applicable.

1.3 State Environmental Planning Policies

Attachment 2 contains a list of State Environmental Planning Policies that may apply to the carrying out of development on the subject land.

1.4 Proposed State Environmental Planning Policies

Council is not aware of any proposed State Environmental Planning Policy that is or has been the subject of community consultation or on public exhibition under the Act, applying to the subject land.

1.5 Development control plans

As at the date of this certificate the abovementioned land is affected by the NSW Government's *Blacktown City Council Growth Centre Precincts Development Control Plan 2014*.

Blacktown Development Control Plan 2015 generally does not apply to land that a Precinct Plan applies to, except where specifically referred to in the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* or the *Growth Centre Precincts Development Control Plan 2014*.

2. Zoning and land use under relevant environmental planning instruments

The following information will assist in determining how the subject land may be developed. It is recommended that you read this section in conjunction with a full copy of any relevant environmental planning instrument as there may be additional provisions that affect how the land may be developed.

7.1 Zoning

Under State Environmental Planning Policy (Sydney Region Growth Centres) 2006, the land is zoned:

Zone R3 Medium Density Residential

Below is an extract from the principal environmental planning instrument outlining the types of development that may or may not be carried out in the above zone.

2 Permitted without consent

Home occupations

3 Permitted with consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Child care centres; Community facilities; Dual occupancies; Dwelling houses; Group homes; Motor homes; Multi dwelling housing; Neighbourhood shops; Places of public worship; Residential flat buildings; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Shop top housing; Studio dwellings; Any other development not specified in item 2 or 4

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Amusement centres; Boat repair facilities; Boat sheds; Business premises; Caravan parks; Crematoriums; Charter and tourism boating facilities; Correctional centres; Crematoriums; Depots; Electricity generating works; Entertainment facilities; Extractive industries; Freight transport facilities; Function centres; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industries; Information and education facilities; Motorists; Mortuaries; Office premises; Passenger transport facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (outdoor); Recreation facilities (outdoor); Registered clubs; Restriction facilities; Retail premises; Rural supplies; Rural workers' dwellings; Service stations; Sex services premises; Signage; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Vehicle sales or hire premises; Waste management facilities; Waste or resource management facilities; Wholesale supplies

7.2 Minimum land dimensions for the erection of a dwelling house

Not applicable

2.3 Critical habitat

The land does not include or comprise a critical habitat.

Notable critical habitat registers are kept by the National Parks and Wildlife Service under the *Threatened Species Conservation Act 1995* and the Department of Fisheries under the *Fisheries Management Act 1994*.

2.4 Conservation areas

The land is not within a conservation area.

2.5 Environmental Heritage

The land does not contain an item of environmental heritage under the protection of State Environmental Planning Policy (Sydney Region Growth Controls) 2006

3. Complying development

Complying development may or may not be carried out on the subject land under an Environmental Planning Policy Council does not have sufficient information to determine the extent to which specific complying development may or may not be carried out.

4. Coastal protection

The subject land is not affected by the operation of Sections 38 or 39 of the *Coastal Protection Act, 1979*.

5. Mine subsidence

The subject land has not been proclaimed to be a mine subsidence district within the meaning of Section 15 of the *Mine Subsidence Conservation Act 1961*

6. Road widening and road realignment

The subject land is not affected by road widening or road realignment

The subject land is affected by a road pattern.

7. Council and other public authority policies on hazard risk restrictions**7.1 Contaminated lands policy**

Council has adopted a policy on contaminated land which may restrict development on the subject land.

The land contamination policy applies when zoning or land use changes are proposed on land which has previously been used for certain purposes or has the potential to be affected by such purposes undertaken on nearby lands.

Council's records may not be sufficient to determine all previous uses on the land, or determine activities that may have taken place on this land.

Council's policy on contaminated land should be considered in the context of relevant State legislation and guidelines.

7.2 Other policies on hazard risk restrictions

Council has not adopted any other policies to restrict the development of the subject land by reason of the likelihood of landslip, bushfire, tidal inundation, subsidence or the occurrence of acid sulphate soils.

Note: Although Council has not adopted a specific policy to restrict development bushfire prone land, it is borne by state-wide bushfire legislation that may restrict development on the subject land. Additional information relating to bushfire prone land is provided at point 1.1. below.

7a. Flood related development controls information

There are currently no mainstream or backwater flood-related development controls adopted by Council that apply to the land subject to this Certificate

8. Land reserved for acquisition

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 makes provision for land included on the Land Reservation Acquisition Map to be acquired by a public authority.

9. Contributions plans

Council currently levies contributions under Section 94 of the *Environmental Planning & Assessment Act 1979* for facilities and services. The further development of the subject land may incur such contributions.

Contributions Plan No. 20 - Riverstone and Alex Avenue Precincts applies to the subject land.

9a. Biodiversity certified land

The land is biodiversity certified land as defined by Part 7AA of the *Threatened Species Conservation Act 1995*.

10. Biobanking agreements

The land is not subject to any biobanking agreement under Part 7A of the *Threatened Species Conservation Act 1995*.

11. Bushfire prone land

The Rural Fires and Environmental Assessment Legislation Amendment Act 2002, which came into force on 1 August 2002, introduced development provisions for bush fire prone land as shown on a Bush Fire Prone Land Map. "Bush fire prone land" is land that has been designated by the Commissioner of the NSW Rural Fire Service as being bush fire prone due to characteristics of vegetation and topography. The land the subject of this certificate has been identified on Council's Bush Fire Prone Land Map as being:

Bushfire 100m Buffer

On land that is bush fire prone, certain development may require for the consideration under Section 79BA or Section 91 of the *Environment Planning & Assessment Act 1979* and under Section 100B of the *Rural Fires Act 1997*.

12. Property vegetation plans

The subject land is not affected by a property vegetation plan under the *Native Vegetation Act 2003*. The Blacktown local government area is excluded from the operation of the *Native Vegetation Act 2003* (refer Schedule 1 Part 3 of that Act).

13. Orders under *Trees (Disputes Between Neighbours) Act 2006*

No. Council has not been notified of any order made under the *Trees (Disputes Between Neighbours) Act 2006* in relation to the subject land.

14. Directions under Part 3A

Land to which this Certificate applies is not subject to the above

15. Site compatibility certificates and conditions for seniors housing

Land to which this Certificate applies is not subject to the above.

16. Site compatibility certificates for infrastructure

Land to which this Certificate applies is not subject to the above.

17. Site compatibility certificates and conditions for affordable rental housing

Land to which this Certificate applies is not subject to the above.

18. Site verification certificates

Council is not aware of any site verification certificate applying to the subject land.

Under the Contaminated Land Management Act 1997 and Contaminated Land Management Amendment Act 2008

- (a) The land to which this certificate relates has not been declared to be significantly contaminated land at the date when the certificate was issued.
- (b) The land to which the certificate relates is not subject to a management order at the date when the certificate was issued.
- (c) The land to which this certificate relates is not the subject of an approved voluntary management proposal at the date when the certificate was issued.
- (d) The land to which this certificate relates is not subject to an ongoing maintenance order as at the date when the certificate was issued.
- (e) The land to which this certificate relates is not the subject of a site audit statement provided to the Council.

23 OCT 2016



Applicant Details

Your reference: SCHJ01ELD5 65329

K MC PHEE
95 HERMITAGE RD
WEST RYDE NSW 2114

Certificate Details

Certificate no.	PL2016/-2223	Fee	\$53.00
Date issued	16 February 2016	Urgency fee	
Receipt no.	0000051319		

Property Information

Property ID	304470	Land ID	354470
Legal description	LOT 205 DP 1129773		
Address	23 SCHJ01ELD5 ROAD SCHJ01ELD5 NSW 2162		
County	CUMBERLAND	Parish	GIDLEY

PLANNING CERTIFICATE (149 Part 2)

Blacktown City Council prepared this Planning Certificate under Section 149 of the *Environmental Planning and Assessment Act 1979*. The form and content of the Certificate is consistent with Schedule 4 of the *Environmental Planning and Assessment Regulation 2000*.

Disclaimer

Blacktown City Council gives notice and points out to all users of the information supplied herein, that the information herein has been compiled by Council from sources outside of Council's control. While the information herein is provided with all due care and in good faith, it is provided on the basis that Council will not accept any responsibility for any will not be liable for its contents or for any consequence arising from its use, and every user of such information is advised to make all necessary enquiries from the appropriate organisations, institutions and the like.

Blacktown City Council also gives notice to all users of the information supplied herein, wherever any particular enquiry herein remains unanswered or has not been elaborated upon, such silence should not be interpreted as meaning or implying a further negative or a positive response as the case may be.

Section 149(2)

The following information is provided under Section 149(2) of the *Environmental Planning and Assessment Act 1979*. The information relates to the subject land at the date of this Certificate.

1. Names of relevant planning instruments and development control plans**1.1 Environmental Planning Instrument**

As at the date of this certificate the above mentioned land is not affected by Blacktown Local Environmental Plan 2015.

The land is affected by the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*.

1.2 Proposed Local Environmental Plans

Not applicable.

1.3 State Environmental Planning Policies

Attachment 1 contains a list of State Environmental Planning Policies that may apply to the carrying out of development on the subject land.

1.4 Proposed State Environmental Planning Policies

Council is not aware of any proposed State Environmental Planning Policy that is or has been the subject of community consultation or an public exhibition under the Act, applying to the subject land.

1.5 Development control plans

As at the date of this certificate the above mentioned land is affected by the NSW Government's *Blacktown City Council Growth Centre Precincts Development Control Plan 2014*.

Blacktown Development Control Plan 2015 generally does not apply to land that a Council Plan applies to, except where specifically referred to in the *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* or the *Growth Centre Precincts Development Control Plan 2014*.

2. Zoning and land use under relevant environmental planning instruments

The following information will assist in determining how the subject land may be developed. It is recommended that you read this section in conjunction with a full copy of any relevant environmental planning instrument as there may be additional provisions that affect how the land may be developed.

2.1 Zoning

Under State Environmental Planning Policy (Sydney Region Growth Centres) 2006, the land is zoned

Zone R3 Medium Density Residential

Below is an extract from the principal Environmental Planning Instrument, outlining the types of development that may or may not be carried out in the above zone.

2 Permitted without consent

home occupations

3 Permitted with consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Child care centres; Community facilities; Dual occupancies; Dwelling houses; Group homes; Manor homes; Mobile dwelling housing; Neighbourhood shops; Places of public worship; Residential flat buildings; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Shop top housing; Studio dwellings; Any other development not specified in item 2 or 4

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Amusement centres; Boat repair facilities; Boat sheds; Business premises; Caravan parks; Caravans; Charter and tourism boating facilities; Correctional centres; Crematoria; Depots; Electricity generating works; Entertainment facilities; Extractive industries; Freight transport facilities; Function centres; Hospitals; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industries; Information and recreation facilities; Marinas; Mortuaries; Office premises; Passenger transport facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Restriction facilities; Retail premises; Rural supplies; Rural workers' dwellings; Service stations; Sex services premises; Signage; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depot; Vehicle body repair workshops; Vehicle repair stations; Vehicle sales or hire premises; Waste management facilities; Waste or resource management facilities; Wholesale supplies.

2.2 Minimum land dimensions for the erection of a dwelling house

Not applicable

2.3 Critical habitat

The land does not include or comprise a critical habitat.

Notes: Critical habitat registers are kept by the National Parks and Wildlife Service under the *Threatened Species Conservation Act 1995* and the Department of Fisheries under the *Fisheries Management Act 1994*.

2.4 Conservation areas

The land is not within a conservation area.

2.5 Environmental Heritage

The land does not contain an item of environmental heritage under the protection of State Environmental Planning Policy (Sydney Region Growth Centres) 2006

3. Complying development

Complying development may or may not be carried out on the subject land under an Environmental Planning Policy. Council does not have sufficient information to determine the extent to which a specific complying development may or may not be carried out.

4. Coastal protection

The subject land is not affected by the operation of Sections 38 or 39 of the *Coastal Protection Act, 1979*.

5. Mine subsidence

The subject land has not been proclaimed to be a mine subsidence district within the meaning of Section 15 of the *Mine Subsidence Compensation Act 1961*.

6. Road widening and road realignment

The subject lane is not affected by road widening or road realignment

7. Council and other public authority policies on hazard risk restrictions

7.1 Contaminated lands policy

Council has adopted a policy on contaminated land which may restrict development on the subject land.

The land contamination policy applies when zoning or land use changes are proposed on land which has previously been used for certain purposes or has the potential to be affected by such purposes undertaken on nearby lands.

Council's records may not be sufficient to determine all previous uses on the land, or determine activities that may have taken place on the land.

Council's policy on contaminated land should be considered in the context of relevant State legislation and guidelines.

7.2 Other policies on hazard risk restrictions

Council has not adopted any other policies to restrict the development of the subject land by reason of the likelihood of landslip, bushfire, tidal inundation, subsidence or the occurrence of acid sulphate soils.

Note: Although Council has not adopted a specific policy to restrict development bushfire prone land, it is bound by state-wide bushfire legislation that may restrict development on the subject land. *Additional information* relating to bushfire prone land is provided at point 11 below.

7a. Flood related development controls information

There are currently no mainstream or backwater flood-related development controls adopted by Council that apply to the land subject to this Certificate.

8. Land reserved for acquisition

State Environmental Planning Policy (Sydney Region Growth Centres) 2006 makes provision for land included on the Land Reservation Acquisition Map to be acquired by a public authority.

9. Contributions plans

Council currently levies contributions under Section 94 of the *Environmental Planning & Assessment Act 1979* for facilities and services. The further development of the subject land may incur such contributions.

Contributions Plan No. 20 - Riverstone and Alex Avenue Precincts applies to the subject land.

9a. Biodiversity certified land

The land is biodiversity certified land as defined by Part 7A.4 of the *Threatened Species Conservation Act 1995*.

10. Biobanking agreements

The land is not subject to any biobanking agreement under Part 7A of the *Threatened Species Conservation Act 1995*.

11. Bushfire prone land

The Rural Fires and Environmental Assessment Amendment Act 2002, which came into force on 1 August 2002, introduced development provisions for bush fire prone land as shown on a Bush Fire Prone Land Map. "Bush fire prone land" is land that has been designated by the Commissioner of the NSW Rural Fire Service as being bush fire prone due

to characteristics of vegetation and topography. The land the subject of this certificate has been identified on Council's Bush Fire Prone and Map as being:

Bushfire - 100m buffer

On land that is bush fire prone, certain development may require further consideration under Section 79DA or Section 91 of the *Environmental Planning & Assessment Act 1979* and under Section 1003 of the *Rural Fires Act 1997*.

12. Property vegetation plans

The subject land is not affected by a property vegetation plan under the *Native Vegetation Act 2003*. The Blacktown local government area is excluded from the operation of the *Native Vegetation Act 2003* (under Schedule 2 Part 3 of that Act)

13. Orders under *Trees (Disputes Between Neighbours) Act 2006*

No. Council has not been notified of any order made under the *Trees (Disputes Between Neighbours) Act 2006* in relation to the subject land.

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- (e) The land to which this certificate relates is not the subject of a site audit statement provided to the Council.

APPENDIX H

GROUNDWATER BORE RECORDS



All Groundwater

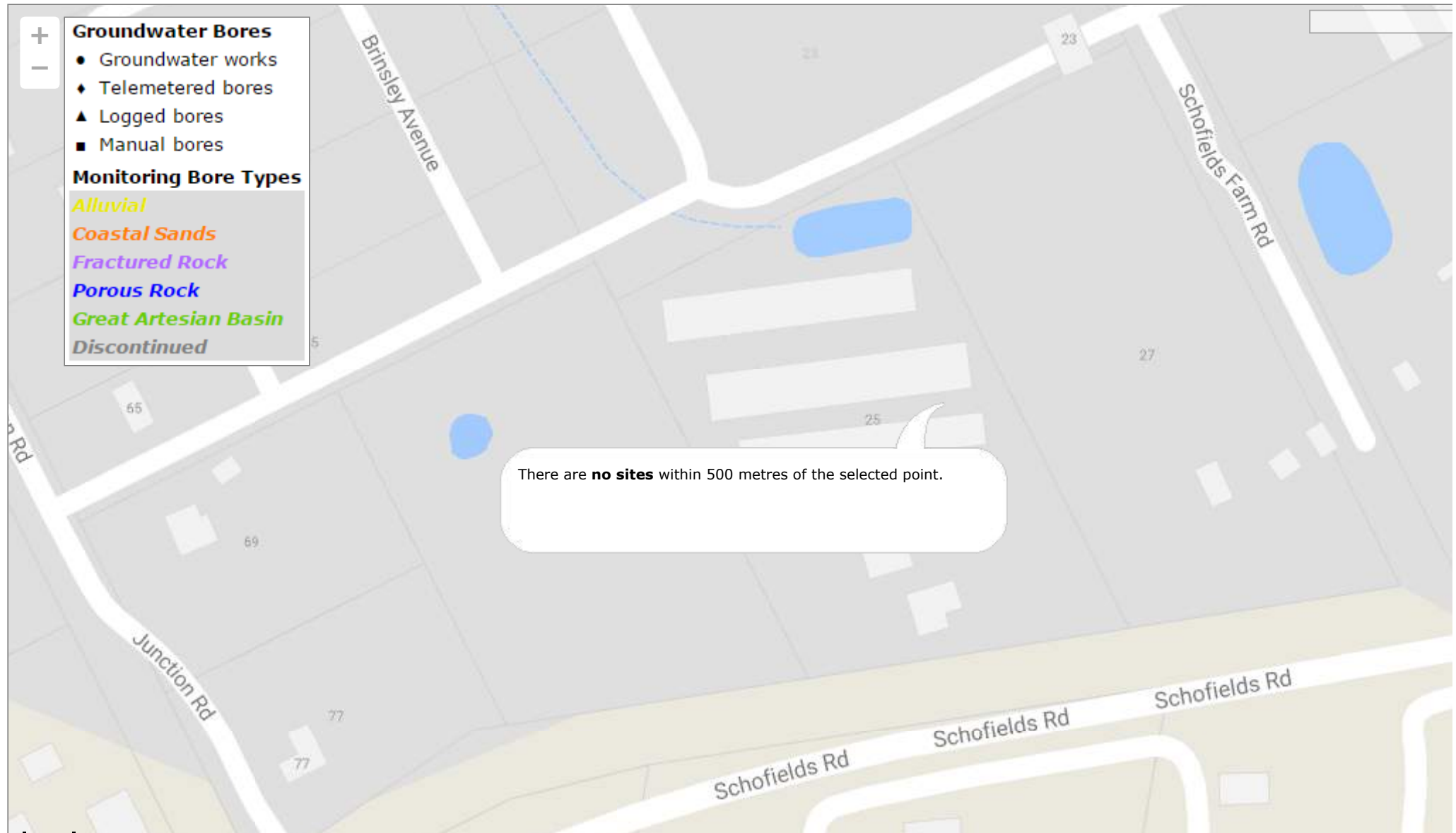
All Groundwater Map

[bookmark this page](#)

All data times are Eastern Standard Time

Map

Info



All Groundwater

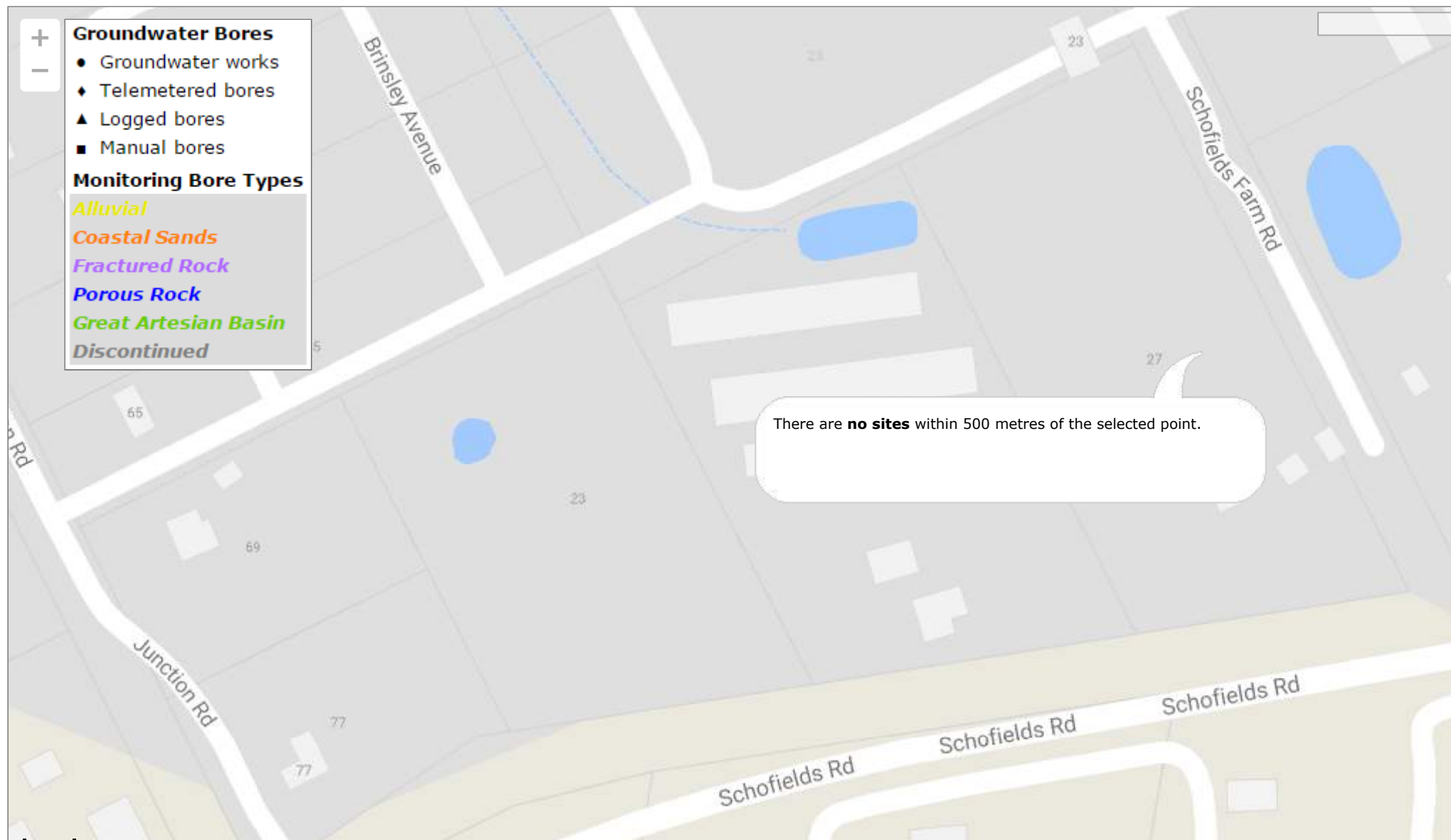
All Groundwater Map

[bookmark this page](#)

All data times are Eastern Standard Time

Map

Info



All Groundwater

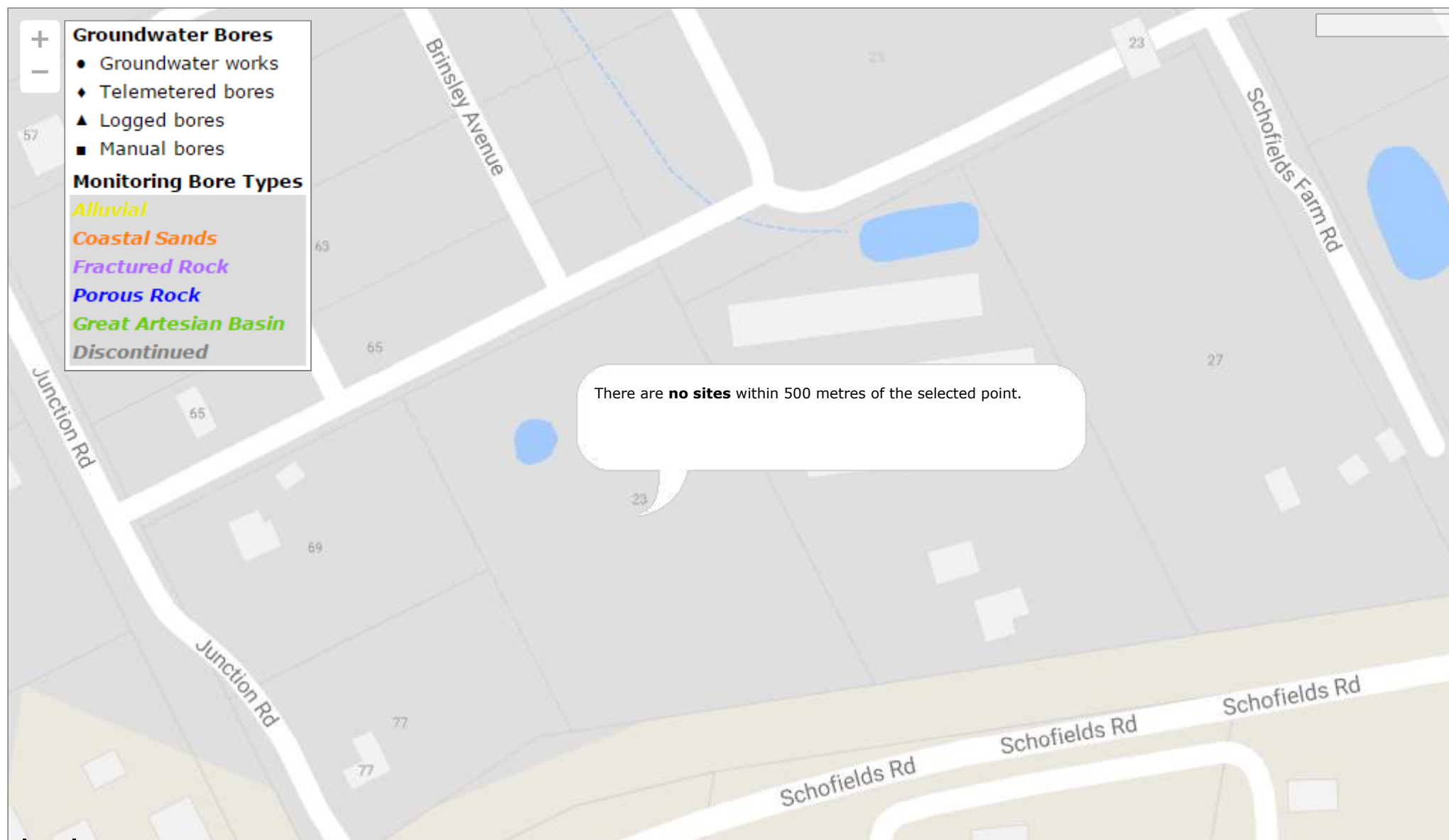
All Groundwater Map

[bookmark this page](#)

All data times are Eastern Standard Time

Map

Info



APPENDIX I

LOCAL METEOROLOGY





Australian Government
Bureau of Meteorology

Monthly rainfall

The Monthly rainfall is the total of all available Daily rainfall for the month. Observations of Daily rainfall are nominally made at 9 am local clock time and record the total for the previous 24 hours. Rainfall includes all forms of precipitation that reach the ground, such as rain, drizzle, hail and snow.

[About monthly rainfall](#)

Station: Box Hill (Mccall Gardens)

Number: 67104

Opened: 1990

Now: Open

Lat: 33.65° S

Lon: 150.89° E

Elevation: 27_m

Key: Units are millimetres. 12.3 = Not quality controlled.

[Period for calculating statistics:](#) ☒ All years ☐ 1961-1990

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1990							45.6	169.6	83.2	36.8	27.6	22.4	
1991	53.4	44.0	13.2	23.4	32.2	178.2	56.4	5.2	9.2	3.6	48.4	157.0	624.2
1992	84.6	312.6	66.4	60.8	18.2	41.2	7.0	11.8	13.6	23.2	129.2	205.1	973.7
1993	50.2	54.6	150.6	32.0	10.8	24.2	63.4	33.4	36.8	41.0	68.8	34.2	600.0
1994	23.2	108.6	87.0	52.2	6.0	58.6	19.6	8.8	12.8	15.0	47.0	57.6	496.4
1995	129.2	53.6	159.0	21.4	125.2	24.2	0.8	0.0	97.4				
1998				53.2	209.2	74.0	59.4	283.4	24.4	27.0	91.8	33.2	
1999	152.4	137.4	11.6	109.6	20.4	27.2		44.4	61.4	143.0	61.0	95.0	
2000												55.0	
2001	104.0	153.0	108.0	0.0	50.0	1.0	38.0	20.0	11.0	27.0	33.0	24.0	569.0
2002	58.0	189.0	81.0	22.0	35.0	18.0	8.0	12.0	11.0	0.0	20.0	58.0	512.0
2003	19.0	68.0	54.0	47.0	122.0	14.0	28.0	23.0	3.0				
2004	24.0	81.0	36.0	10.0	10.0	2.0	24.0	19.0	20.0	180.0	52.0	58.0	516.0
2005	0.0	66.0	45.0	16.0	45.0	51.0	16.0	3.0	46.0		153.0	27.0	
2006	85.0	101.0	17.0	8.0	9.0	58.0	35.0	27.0	124.0	4.0	27.0	37.0	532.0
2007	57.0	119.0	100.0	54.0	19.0	269.0	27.0	76.0	15.0	13.0	131.0	111.0	991.0
2008	87.0	132.0	55.0	69.0	1.0	77.0	18.0	27.0	46.0	64.0	73.0	73.0	722.0
2009	15.0	109.0	62.0	122.0	65.0	39.0	21.0	2.0	6.0	91.0	12.0	60.0	604.0
2010	18.0	245.0	57.0	11.0	53.0	79.0	42.0	17.0	28.0	52.0	104.0	88.0	794.0

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2011	51.0	18.0	136.0	73.0	65.0	66.0	63.0	68.0	72.0	32.0	27.0	68.0	739.0
2012	130.0	147.0	180.0	181.0	21.0	83.0	20.0	2.0	26.0	16.0	38.0	36.0	880.0
2013	115.0	116.0	77.0	59.0	41.0	83.0	8.0	8.0	17.0	6.0	210.0	30.0	770.0
2014	12.0	68.0	201.0	28.0	6.0	24.0	12.0	148.0	19.0	47.0	30.0	199.0	794.0
2015	119.0	56.0	37.0	354.0	62.0	66.0	34.0	29.0	17.0	16.0	106.0	90.0	986.0
2016	280.0	8.0	12.0			37.0	58.0	32.0	46.0	14.0	26.0	59.0	
2017	49.0		266.0	31.0	14.0	133.0	1.0	20.0					

1990 ▼ Go View a year of daily data

Summary statistics for all years

Statistic	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	74.6	108.5	87.5	62.5	45.2	63.6	29.4	43.6	35.2	40.6	68.9	72.9	712.0
Lowest	0.0	8.0	11.6	0.0	1.0	1.0	0.8	0.0	3.0	0.0	12.0	22.4	496.4
5th %ile	12.3	19.3	12.1	8.2	6.0	3.8	1.9	2.0	6.5	3.6	20.3	24.3	508.9
10th %ile	15.6	45.0	14.0	10.2	6.6	15.2	7.3	2.4	9.7	4.0	26.1	27.6	514.4
Median	57.0	104.8	66.4	47.0	32.2	54.5	25.5	20.0	22.2	27.0	50.2	58.0	722.0
90th %ile	129.8	185.4	175.8	119.5	110.6	118.0	59.0	119.2	79.8	91.0	130.8	147.8	978.6
95th %ile	150.2	242.2	198.9	175.1	124.9	171.4	62.5	165.3	95.3	143.0	151.9	194.8	987.0
Highest	280.0	312.6	266.0	354.0	209.2	269.0	63.4	283.4	124.0	180.0	210.0	205.1	991.0

Data within the table which are in italics represent observations which have not been fully quality controlled, a process which may take a number of months to complete. While these data may be correct, you should exercise caution in their use.

Gaps occur in the table where there are missing valid daily observations within the month. This is frequently associated with the observer being unavailable (where observations are undertaken manually), a failure in the observing equipment, or when an event has produced suspect data.

Product Code: IDCJAC0001 reference: 32339633

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LIABILITY

While every effort is made to supply the best data available this may not be possible in all cases. We do not give any warranty, nor accept any liability in relation to the information given, except that liability (if any), that is required by law.

APPENDIX J

REGULATORY CRITERIA





Table 1A (1) Health-based Investigation Levels (mg/kg)

	Residential A	Residential B	Recreational C	Commercial / Industrial D
Metals & Inorganics				
Arsenic (total)	100	500	300	3,000
Beryllium	60	90	90	500
Boron	4,500	40,000	20,000	300,000
Cadmium	20	150	90	900
Chromium (VI)	100	500	300	3,600
Cobalt	100	600	300	4,000
Copper	6,000	30,000	17,000	240,000
Lead	300	1,200	600	1,500
Manganese	3,800	14,000	19,000	60,000
Mercury (inorganic)	40	120	80	730
Methyl mercury	10	30	13	180
Nickel	400	1,200	1,200	6,000
Selenium	200	1,400	700	10,000
Zinc	7,400	60,000	30,000	400,000
Cyanide (free)	250	300	240	1,500
Polycyclic Aromatic Hydrocarbons				
Carcinogenic PAHs (as BaP TEQ)	3	4	3	40
Total PAHs	300	400	300	4,000
Phenols				
Phenols	3,000	45,000	40,000	240,000
Pentachlorophenol	100	130	120	660
Cresols	400	4,700	4,000	25,000
Organochlorine Pesticides				
DDT+DDD+DDE	240	600	400	3,600
Aldrin & Dieldrin	6	10	10	45
Chlordane	50	90	70	530
Endosulfan	270	400	340	2,000
Endrin	10	20	20	100
Heptachlor	6	10	10	50
HCB	10	15	10	80
Methoxychlor	300	500	400	2,500
Mirex	10	20	20	100
Toxaphene	20	30	30	160
Herbicides				
2,4,5-T	600	900	800	5,000
2,4-D	900	1,600	1,300	9,000
MCPA	600	900	800	5,000
MCPB	600	900	800	5,000
Mecoprop	600	900	800	5,000
Picloram	4,500	6,600	5,700	35,000
Other Pesticides				
Atrazine	320	470	400	2,500
Chlorpyrifos	160	340	250	2,000
Bifenthrin	600	840	730	4,500
Other Organics				
PCBs	1	1	1	7
PBDE Flame Retardants (Br1-Br9)	1	2	2	10

Table 1A(3) Soil HSLs for vapour intrusion (mg/kg)

	HSL A & HSL B Low – high density residential	HSL C recreational / open space	HSL D Commercial / Industrial	Soil saturation concentration (Cast)
CHEMICAL	0 m to <1 m 1 m to <2 m 2 m to <4m 4 m+	0 m to <1 m 1 m to <2 m 2 m to <4m 4 m+	0 m to <1 m 1 m to <2 m 2 m to <4m 4 m+	
SAND				
Toluene	160 220 310 540	NL NL NL NL	NL NL NL NL	560
Ethylbenzene	55 NL NL NL	NL NL NL NL	NL NL NL NL	64
Xylenes	40 60 95 170	NL NL NL NL	230 NL NL NL	300
Naphthalene	3 NL NL NL	NL NL NL NL	NL NL NL NL	9
Benzene	0.5 0.5 0.5 0.5	NL NL NL NL	3 3 3 3	360
F1	45 70 110 200	NL NL NL NL	260 370 630 NL	950
F2	110 240 440 NL	NL NL NL NL	NL NL NL NL	560
SILT				
Toluene	390 NL NL NL	NL NL NL NL	NL NL NL NL	640
Ethylbenzene	NL NL NL NL	NL NL NL NL	NL NL NL NL	69
Xylenes	95 210 NL NL	NL NL NL NL	NL NL NL NL	330
Naphthalene	4 NL NL NL	NL NL NL NL	NL NL NL NL	10
Benzene	0.6 0.7 1 2	NL NL NL NL	4 4 6 10	440
F1	40 65 100 190	NL NL NL NL	250 360 590 NL	910
F2	230 NL NL NL	NL NL NL NL	NL NL NL NL	570
CLAY				
Toluene	480 NL NL NL	NL NL NL NL	NL NL NL NL	630
Ethylbenzene	NL NL NL NL	NL NL NL NL	NL NL NL NL	68
Xylenes	110 310 NL NL	NL NL NL NL	NL NL NL NL	330
Naphthalene	5 NL NL NL	NL NL NL NL	NL NL NL NL	10
Benzene	0.7 1 2 3	NL NL NL NL	4 6 9 20	430
F1	50 90 150 290	NL NL NL NL	310 480 NL NL	850
F2	280 NL NL NL	NL NL NL NL	NL NL NL NL	560

Table 1B(1) Soil-specific added contaminant limits for aged zinc in soil

Zn added contaminant limits (ACL, mg added contaminant/kg)						
Areas of ecological significance						
pH^a	CEC^b (cmol/kg)					
	5	10	20	30	40	60
4.0	15	20	20	20	20	20
4.5	20	25	25	25	25	25
5.0	30	40	40	40	40	40
5.5	40	60	60	60	60	60
6.0	50	90	90	90	90	90
6.5	50	90	130	130	130	130
7.0	50	90	130	190	190	190
7.5	50	90	130	210	260	280
Urban residential/public open space¹						
pH^a	CEC^b (cmol/kg)					
	5	10	20	30	40	60
4.0	70	85	85	85	85	85
4.5	100	120	120	120	120	120
5.0	130	180	180	180	180	180
5.5	180	270	270	270	270	270
6.0	230	400	400	400	400	400
6.5	230	400	590	590	590	590
7.0	230	400	700	880	880	880
7.5	230	400	700	960	1200	1300
Commercial/Industrial						
pH^a	CEC^b (cmol/kg)					
	5	10	20	30	40	60
4.0	110	130	130	130	130	130
4.5	150	190	190	190	190	190
5.0	210	290	290	290	290	290
5.5	280	420	420	420	420	420
6.0	360	620	620	620	620	620
6.5	360	620	920	920	920	920
7.0	360	620	1100	1400	1400	1400
7.5	360	620	1100	1500	1900	2000

1: Urban residential/public open space is broadly equivalent to the HIL A, HIL B and HIL C land use scenarios in Table 1A(1) Footnote 1 and as described in Schedule B7.

2: Aged values apply to contamination present in soil for at least two years. For fresh contamination refer to Schedule B5c.

3: The EIL is calculated from summing the ACL and the ABC.

^a: pH measured using the CaCl₂ method (Rayment & Higginson 1992).

^b: CEC measured using the silver thiourea method (Chabra et al. 1972).

Table 1B(2): Soil-specific added contaminant limits for aged copper in soil

Cu added contaminant limits (ACL, mg added contaminant/kg)					
Areas of ecological significance					
CEC (cmol/kg)^a based					
5	10	20	30	40	60
30	65	70	70	75	80
pH^b based					
4.5	5.5	6	6.5	7.5	8
20	45	65	90	190	270
Urban residential/public open space ¹					
CEC (cmol/kg)^a based					
5	10	20	30	40	60
95	190	210	220	220	230
pH^b based					
4.5	5.5	6	6.5	7.5	8
60	130	190	280	560	800
Commercial/industrial					
CEC (cmol/kg)^a based					
5	10	20	30	40	60
140	280	300	320	330	340
pH^b based					
4.5	5.5	6	6.5	7.5	8
85	190	280	400	830	1200

1. Urban residential/public open space is broadly equivalent to the HIL A, HIL B and HIL C land use scenarios in Table 1A(1) Footnote 1 and as described in Schedule B7.
 2. The lower of the CEC or the pH-based ACLs for the land use and soil conditions is the ACL to be used.
 3. Aged values apply to contamination present in soil for at least two years. For fresh contamination refer to Schedule B5c.
 4. The EIL is calculated from summing the ACL and the ABC.
- a = CEC measured using the silver thiourea method (Chabra et al. 1972)
- b = pH measured using the CaCl₂ method (Rayment & Higginson 1992)

Table 1B(3): Soil-specific added contaminant limits for aged chromium III and nickel in soil

CHEMICAL	Clay content (%clay)	Added contaminant limits (mg added contaminant/kg) for various land uses		
		Areas of ecological significance	Urban residential and public open space	Commercial and industrial
Chromium III	1	60	190	310
	2.5	80	250	420
	5	100	320	530
	≥10	130	400	660
Nickel	CEC ^a (cmol _c /kg)	Areas of ecological significance	Urban residential and public open space	Commercial and industrial
	5	5	30	55
	10	30	170	290
	20	45	270	460
	30	60	350	600
	40	70	420	730
	60	95	560	960

Notes:

1. Urban residential/public open space is broadly equivalent to the HIL A, HIL B and HIL C land use scenarios in Table 1A(1) Footnote 1 and as described in Schedule B7.
 2. Aged values apply to contamination present in soil for at least two years. For fresh contamination refer to Schedule B5c.
 3. The EIL is calculated from summing the ACL and the ABC.
- a = CEC measured using the silver thiourea method (Chabra et al. 1972)

Table 1B(4): Generic added contaminant limits for lead in soils irrespective of their physicochemical properties

Pb added contaminant limit (ACL, mg added contaminant/kg) for various land uses			
CHEMICAL	Area of ecological significance	Urban residential and public open space	Commercial and industrial
LEAD	470	1100	1800

Notes:

1. Urban residential/public open space is broadly equivalent to the HIL A, HIL B and HIL C land use scenarios in Table 1A(1) Footnote 1 and as described in Schedule B7.
2. Aged values are applicable to lead contamination present in soil for at least two years. For fresh contamination refer to Schedule B5c.
3. The EIL is calculated from summing the ACL and the ABC.

Table 1B(5) Generic EILs for aged As, fresh DDT and fresh naphthalene in soils irrespective of their physicochemical properties

Ecological Investigation Levels (mg total contaminant/kg)			
CHEMICAL	Areas of ecological significance	Urban residential and public open space ¹	Commercial and industrial
Arsenic ²	40	100	160
DDT ³	3	480	640
Naphthalene ³	10	170	370

Notes:

1. Urban residential/public open space is broadly equivalent to the HIL-A, HIL-B and HIL-C land use scenarios in Table 1A(1) Footnote 1 and as described in Schedule B7.
2. Aged values are applicable to arsenic contamination present in soil for at least two years. For fresh contamination refer to Schedule B5c.
3. Insufficient data was available to calculate aged values for DDT and naphthalene, consequently the values for fresh contamination should be used.
4. Insufficient data was available to calculate ACLs for As, DDT and naphthalene. The EIL should be taken directly from Table 1B(5).

Table 1B(6): ESLs for TPH fractions F1 – F4, BTEX and benzo(a)pyrene in soil

CHEMICAL	Soil texture	ESLs (mg/kg dry soil)		
		Areas of ecological significance	Urban residential and public open space	Commercial and industrial
F1 C6-C10	Coarse/	125*	180*	215*
F2 >C10-C16	Fine	25*	120*	170*
F3 >C16-C34	Coarse	-	300	1700
	Fine	-	1300	2500
F4 >C34-C40	Coarse	-	2800	3300
	Fine	-	5600	6600
Benzene	Coarse	10	50	75
	Fine	10	65	95
Toluene	Coarse	10	85	135
	Fine	65	105	135
Ethylbenzene	Coarse	1.5	70	165
	Fine	40	125	185
Xylenes	Coarse	10	105	180
	Fine	1.6	45	95
Benzo(a)pyrene	Coarse	0.7	0.7	1.4
	Fine	0.7	0.7	1.4

Notes:

ESLs are of low reliability except where indicated by * which indicates that the ESL is of moderate reliability.

‘-’ indicates that insufficient data was available to derive a value.

To obtain F1, subtract the sum of BTEX concentrations from C6-C10 fraction and subtract naphthalene from >C10-C16 to obtain F2.

Table 1 B(7): Management Limits for TPH fractions F1 - F4 in soil

TPH fraction	Soil texture	Management Limits ¹ (mg/kg dry soil)	
		Residential, parkland and public open space	Commercial and industrial
F1² C6- C10	Coarse	700	700
	Fine	800	800
F2² >C10-C16	Coarse	1000	1000
	Fine	1000	1000
F3 >C16-C34	Coarse	2500	3500
	Fine	3500	5000
F4 >C34-C40	Coarse	10 000	10 000
	Fine	10 000	10 000

Table 7: Health screening levels for asbestos contamination in soil

Form of asbestos	Health Screening Level (w/w)			
	Residential A ¹	Residential B ²	Recreational C ³	Commercial/ Industrial D ⁴
Bonded ACM	0.01%	0.04%	0.02%	0.05%
FA and AF (friable asbestos)		0.001%		
All forms of asbestos		No visible asbestos for surface soil		

Notes:

1. Residential A with garden/accessible soil also includes children’s day care centres, preschools and primary schools.
2. Residential B with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.
3. Recreational C includes public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and unpaved footpaths.
4. Commercial/industrial D includes premises such as shops, offices, factories and industrial sites.
5. The screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures (refer Section 4.10). This screening level is not applicable to free fibres.

APPENDIX K

BOREHOLE LOGS





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BOREHOLE NUMBER BH1

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH1 terminated at 0.5m



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BOREHOLE NUMBER BH10

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DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH10 terminated at 0.5m



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DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH11 terminated at 0.5m



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DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CI	CLAY, medium plasticity, light brow/orange		D		

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH12 terminated at 0.5m



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DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

Borehole BH13 terminated at 0.5m



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DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CI	CLAY, medium plasticity, brown/orange		D		

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH14 terminated at 0.5m



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DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CI	CLAY, medium plasticity, light brown/orange		D		

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Borehole BH15 terminated at 0.5m



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DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

Borehole BH16 terminated at 0.5m



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DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CI	CLAY, medium plasticity, light brown/orange		D		



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BOREHOLE NUMBER BH18

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DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

Borehole BH18 terminated at 0.5m



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DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CI	CLAY, medium plasticity, light brown/orange		D		



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BOREHOLE NUMBER BH2

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DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CL	CLAY, low plasticity, light brown/orange		D		

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Borehole BH2 terminated at 0.5m



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BOREHOLE NUMBER BH20

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DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

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Borehole BH20 terminated at 0.5m



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DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							
			1.0				EIL			No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			1.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH21 terminated at 1.5m



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BOREHOLE NUMBER BH22

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DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CI	CLAY, medium plasticity, light brown/orange		D		



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BOREHOLE NUMBER BH23

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DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CI	CLAY, medium plasticity, light brown/orange		D		



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BOREHOLE NUMBER BH24

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DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR _____ SLOPE -90° BEARING ---
EQUIPMENT Hand Auger HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
HA						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH24 terminated at 0.5m



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BOREHOLE NUMBER BH25

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DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Asphalt/Gravell		D		
						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		

0.5

Borehole BH25 terminated at 0.5m



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BOREHOLE NUMBER BH26

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

Borehole BH26 terminated at 0.5m



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BOREHOLE NUMBER BH27

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH27 terminated at 0.5m



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BOREHOLE NUMBER BH28

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

Borehole BH28 terminated at 0.5m

CLIENT Schofields One Unit Trust

PROJECT NAME Detailed Site Investigation

PROJECT NUMBER ES7021/2

PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17

COMPLETED 12/9/17

R.L. SURFACE

DATUM

DRILLING CONTRACTOR IVAN DRILLING Pty Ltd

SLOPE -90°

BEARING ---

EQUIPMENT Truck Mounted Drill Rig

HOLE LOCATION

HOLE SIZE 100mm

LOGGED BY SP

CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CL	CLAY, low plasticity, light brown/orange		D		
			1.0				EIL			No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			1.5							

Borehole BH29 terminated at 1.5m



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BOREHOLE NUMBER BH3

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH3 terminated at 0.5m



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BOREHOLE NUMBER BH30

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CI	CLAY, medium plasticity, light brown/orange		D		

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH30 terminated at 0.5m



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BOREHOLE NUMBER BH31

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CI	CLAY, medium plasticity, light brown/orange		D		

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH31 terminated at 0.5m



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BOREHOLE NUMBER BH32

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CI	CLAY, medium plasticity, light brown/orange		D		



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BOREHOLE NUMBER BH33

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH33 terminated at 0.5m



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BOREHOLE NUMBER BH34

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange				
			0.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH34 terminated at 0.5m



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BOREHOLE NUMBER BH35

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH35 terminated at 0.5m



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BOREHOLE NUMBER BH36

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CI	CLAY, medium plasticity, lightbrown/orange		D		
			0.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH36 terminated at 0.5m



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BOREHOLE NUMBER BH37

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY Mk

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CI	CLAY, medium plasticity, light brown/orange		D		

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH37 terminated at 0.5m



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BOREHOLE NUMBER BH38

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							
			1.0				EIL			No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH38 terminated at 1m



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BOREHOLE NUMBER BH39

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH39 terminated at 0.5m



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BOREHOLE NUMBER BH4

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH4 terminated at 0.5m



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BOREHOLE NUMBER BH5

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CI	CLAY, medium plasticity, light brown/orange		D		



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BOREHOLE NUMBER BH6

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CI	CLAY, medium plasticity, light brown/orange		D		



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BOREHOLE NUMBER BH7

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH7 terminated at 0.5m



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BOREHOLE NUMBER BH8

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CL	CLAY, low plasticity, light brown/orange		D		

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH8 terminated at 0.5m



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BOREHOLE NUMBER BH9

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole BH9 terminated at 0.5m



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BOREHOLE NUMBER S1

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Clayey/silty sand, low plasticity, brown to dark grey, mix with gravel	D3/SS3	D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5							
			1.0							No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low lasticity, light brown/orange		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			1.5							

Borehole S1 terminated at 1.5m



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BOREHOLE NUMBER S10

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

Borehole S10 terminated at 0.5m



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BOREHOLE NUMBER S11

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CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole S11 terminated at 0.5m



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BOREHOLE NUMBER S12

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

Borehole S12 terminated at 0.5m



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Telephone: 1300 137 038

BOREHOLE NUMBER S13

PAGE 1 OF 3

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange	D4/SS4	D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0



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BOREHOLE NUMBER S13

PAGE 2 OF 3

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT					CL	CLAY, low plasticity, light brown/orange (<i>continued</i>)		D		



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BOREHOLE NUMBER S13

PAGE 3 OF 3

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT			0.5		CL	CLAY, low plasticity, light brown/orange (continued)		D		
						Borehole S13 terminated at 0.5m				



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BOREHOLE NUMBER S14

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

Borehole S14 terminated at 0.5m



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BOREHOLE NUMBER S15

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5							

Borehole S15 terminated at 0.5m



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BOREHOLE NUMBER S16

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

Borehole S16 terminated at 0.5m



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Telephone: 1300 137 038

BOREHOLE NUMBER S17

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

Borehole S17 terminated at 0.5m



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BOREHOLE NUMBER S18

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

Borehole S18 terminated at 0.5m



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BOREHOLE NUMBER S19

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

Borehole S19 terminated at 0.5m



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BOREHOLE NUMBER S2

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Clayey/silty sand, low plasticity, brown to dark grey, mix with gravel		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CI	CLAY, medium plasticity, light brown/orange		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			1.0							No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			1.5							

Borehole S2 terminated at 1.5m



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BOREHOLE NUMBER S20

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 11/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CI	CLAY, medium plasticity, light brown/orange		D		
			0.5							

Borehole S20 terminated at 0.5m



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BOREHOLE NUMBER S21

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 11/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		
			0.5							

BOREHOLE / TEST PIT ES7021-2 SCHOFIELDS.GPJ GINT STD AUSTRALIA.GDT 17/10/4

Borehole S21 terminated at 0.5m



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BOREHOLE NUMBER S3

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Clayey/silty sand, low plasticity, brown to dark grey, mix with gravel		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CI	CLAY, medium plasticity, light brown/orange		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			1.0							No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			1.5							

Borehole S3 terminated at 1.5m



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BOREHOLE NUMBER S4

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5		CL	CLAY, low plasticity, light brown/orange		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			1.0		CI	CLAY, medium plasticity, light brown/orange		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			1.5							

Borehole S4 terminated at 1.5m



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BOREHOLE NUMBER S5

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Clayey/silty sand, low plasticity, brown to dark grey, mix with gravel		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5							
			1.0		CL	CLAY, low plasticity, light brown/orange		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			1.5							No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0

Borehole S5 terminated at 1.5m



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BOREHOLE NUMBER S6

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT			0.5			Clayey/silty sand, low plasticity, brown to dark grey, mix with gravel		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			1.0		CL	CLAY, low plasticity, light brown/orange		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			1.5							

Borehole S6 terminated at 1.5m



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BOREHOLE NUMBER S7

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5							
			1.0							No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0

Borehole S7 terminated at 1m



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BOREHOLE NUMBER S8

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5							
			1.0							No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0

Borehole S8 terminated at 1m



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BOREHOLE NUMBER S9

PAGE 1 OF 1

CLIENT Schofields One Unit Trust PROJECT NAME Detailed Site Investigation
PROJECT NUMBER ES7021/2 PROJECT LOCATION 23-27 Schofields Road, Schofields

DATE STARTED 12/9/17 COMPLETED 12/9/17 R.L. SURFACE _____ DATUM _____
DRILLING CONTRACTOR IVAN DRILLING Pty Ltd SLOPE -90° BEARING ---
EQUIPMENT Truck Mounted Drill Rig HOLE LOCATION _____
HOLE SIZE 100mm LOGGED BY SP CHECKED BY MK

NOTES

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Moisture	Cons./Dens.	Additional Observations
ADT						Topsoil		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
					CL	CLAY, low plasticity, light brown/orange		D		No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0
			0.5							
			1.0							No fibro-cement fragments observed, No hydrocarbons odour noted, No staining, PID=0

Borehole S9 terminated at 1m

APPENDIX L

FIELD RECORD FORMS/ CALIBRATION CERTIFICATES





Aargus

Site Assessment Daily Worksheet Record

Project Name: DSI				Project No: E5702112	
Client Name: Schafelds vrs Schafelds one Unit Trust				Fieldwork Date: 11.9.17	
Site Address: 23-27 Schafelds rd, Schafelds					
Site Contact:			Phone:		
Aargus Field Staff: SP			Phone:		
Site Safety Induction Required? Yes			(No) (circle) Date of Induction:		
Meteorological Data:					
Weather		Rainfall (mm)	Wind Direction	Wind Speed	Station: Temp °C Humidity
Sunny		—	—	—	—
Site Observations:					
Stormwater Controls			Traffic Controls		Whole Site / Part Site (circle) Silt Fencing
Plant & Equipment Onsite			Exclusion Zones		PPE Required Shoe, vest, hat
Odours Present			Odour Suppression		Staining Present No
USTs / ASTs present			Hotspots present		Stockpiles present No
Site Observations					
Location & Comments					
No. 27, is vacant land covered with grass and trees in some areas very long grasses					
a vacant house located in the south east corner					
old sheds in front of the house and gate					
a slope is from north to the centre and from south to the centre of the land.					
No. 25, a vacant residential house located in the south corner the house is tiled roof, concrete wall,					
a small swimming pool observed in front of the house.					
gravel flat next to the					
another the fibro shed located inside house with tile roof					
a previous metal shed structure observed next to gravel flat / concrete covered that					



Aargus

Site Assessment Daily Worksheet Record

Project Name: DSS			Project No: ES702112				
Client Name: Schofield one unit tract			Fieldwork Date: 12.2.17				
Site Address: 23-27 Schofield's rd, Schofield							
Site Contact:			Phone:				
Aargus Field Staff:			Phone:				
Site Safety Induction Required? Yes ☒ No ☐ (circle)			Date of Induction:				
Meteorological Data:							
Weather		Rainfall (mm)	Wind Direction	Wind Speed	Station:	Temp °C	Humidity
sunny		—	—	—	—	—	—
Site Observations:					Whole Site / Part Site (circle)		
Stormwater Controls		Traffic Controls			Silt Fencing		
Plant & Equipment Onsite		Exclusion Zones			PPE Required		
19/soil jars		—			shovel, vest, hat		
Odours Present		Odour Suppression			Staining Present		
No		No			No		
USTs / ASTs present		Hotspots present			Stockpiles present		
No		No			No		
Site Observations					Location & Comments		
					No. 23 is an open area and vacant		
					a grassed covered		
					a man maple drum located in the western portion		
					this building observed in the east along		



Argus
CORPORATION

Argus Pty Ltd PID Certification Report

Minitrac 2000 PID

This PID has been performance checked/calibrated as follows:

☒	Calibrate 0.0ppm	Reading <u>0.0</u> ppm
☒	Calibrate 1ppm isobutylene	Reading <u>1000</u> ppm
☒	Creep	
☒	Filter check	
☒	Lamp check	

Date: 11.6.2.17

Checked by: S.P.

Signature: [Signature]

Please check that the following items are contained within the PID Equipment Register

- ☒ PID carry case
- ☒ Minitrac 2000 PID meter
- ☒ Charger and charger
- ☒ Fresh air filter
- ☐ Calibration tube
- ☒ Sample Probe
- ☒ Water Filter Tray
- ☐ Computer cable connector
- ☐ CD software and USB memory.
- ☐ Regulator for small cylinders

Serial Number: 82148



Argus
Canada

Argus Pty Ltd PID Certification Report

Minitrac 2000 PID

This PID has been performance checked/calibrated as follows:

- | | |
|---|--------------------------|
| ☒ Calibrate 0.0ppm | Reading <u>0.0</u> ppm |
| ☒ Calibrate ppm isobutylene | Reading <u>100.0</u> ppm |
| ☒ Changed | |
| ☒ Filter check | |
| ☒ Temp check | |

Date 12 09 17

Checked by: SP

Signature: [Signature]

Please check that the following items are contained within the PID Equipment Register

- ☒ PID carry case
- ☒ Model Minitrac 2000 PID meter
- ☒ Charger and adapter
- ☒ Fresh air filter
- ☒ Calibration tube
- ☒ Sample Probe
- ☒ Water Filter Tap
- ☐ Computer cable connector
- ☐ 2 CD software and USB memory
- ☐ Regulator for seal cylinder

Serial Number 67143

Soil Sampling



Aargus

Sample No.	Depth (m)	Fill or Natural	Material Description	PID Reading (ppm)	Hazardous Gas Comments
BH1	0-0.1			0-0	
BH2	0-0.1			0-0	
BH3	0-0.1			0-0	
BH4	0-0.1			0-0	
BH5	0-0.1			0-0	
BH6	0-0.1			0-0	
BH7	0-0.1			0-0	
BH8	0-0.1			0-0	
BH9	0-0.1			0-0	
BH10	0-0.1			0-0	
BH11	0-0.1			0-0	
BH12	0-0.1			0-0	
BH13	0-0.1			0-0	
BH14	0-0.1			0-0	
BH15	0-0.0			0-0	
BH16	0-0.1			0-0	
BH17	0-0.1			0-0	
BH18	0-0.1			0-0	
BH19	0-0.1			0-0	
BH20	0-0.1			0-0	
BH21	0-0.1			0-0.0	
BH22	0-0.0			0-0	
BH23	0-0.1			0-0	
BH24	0-0.1			0-0	
BH25	0-0.0			0-0	
BH26	0-0.1			0-0	

Soil Sampling



Aargus

Sample No.	Depth (m)	Fill or Natural	Material Description	PID Reading (ppm)	Hazardous Gas Comments
BH27	0-0.1			0-0	
BH28	0-0.1			0-0	
BH29	0-0.1			0-0	
BH30	0-0.1			0-0	
BH31	0-0.1			0-0	
BH32	0-0.1			0-0, 0	
BH33	0-0.1			0-0	
BH34	0-0.1			0-0	
BH35	0-0.1			0-0	
BH36	0-0.1			0-0	
BH37	0-0.1			0-0	
BH38	0-0.1			0-0	
BH39	0-0.1			0-0	
51	0-0.1			0-0	
51	0.3-1.0			0-0	
51	1.4-1.5			0-0	
52	0-0.1			0-0	
52	0.5-0.6			0-0	
52	0.3-1.0			0-0	
53	0-0.1			0-0	
53	0.3-1.0			0-0	
53	1.2-1.3			0-0	
54	0-0.1			0-0	
54	0.2-0.3			0-0	
54	0.3-1.0			0-0	
55	0-0.1			0-0	

Soil Sampling



Aargus

Sample No.	Depth (m)	Fill or Natural	Material Description	PID Reading (ppm)	Hazardous Gas Comments
55	0-2.10			0-0	
55	1.1-1.2			0-0	
56	0-0.1			0-0	
56	0-2.10			0-0	
56	1.0-1.1			0-0	
57	0-0.1			0-0	
57	0.2-0.3			0-0	
57	0.2-1.0			0-0	
58	0-0.1			0-0	
58	0-2.03			0-0	
58	0.2-1.0			0-0	
59	0-0.1			0-0	
59	0.2-0.3			0-0	
59	0.2-1.0			0-0	
510	0-0.1			0-0	
511	0-0.1			0-0	
512	0-0.1			0-0	
513	0-0.1			0-0	
514	0-0.1			0-0	
515	0-0.1			0-0	
516	0-0.1			0-0	
517	0-0.1			0-0	
518	0-0.1			0-0	
519	0-0.1			0-0	
520	0-0.1			0-0	
521	0-0.1			0-0	

APPENDIX M

LABORATORY TECHNICAL INFORMATION



Recommended Holding Times and Preservations for Soil and Air



APPLICABLE LOCATIONS

The bottles, preservation and holding times following are for the ALS Environmental operations excluding the ALS Water Resources Group (WRG). The ALS operations covered by this document include;

Adelaide Unit 2, 1 Burma Road Pooraka, Adelaide, SA 5095 P +6- 8-8162-5130 ALSEnviro.Adelaide@alsglobal.com	Melbourne 2-4 Westall Road Springvale VIC 3171 P +61-3-8549-9600 ALSEnviro.Melbourne@alsglobal.com	Roma Lot 4, 73 Beaumont Drive Roma QLD 4455 P +61-7-4622-8978 ALSEnviro.Roma@alsglobal.com
Brisbane 2 Byth Street (Corner Byth and Shand St) Stafford QLD 4053 P +61-7-3243-7222 ALSEnviro.Brisbane@alsglobal.com	Mudgee 29 Sydney Road Mudgee NSW 2850 P +61-2-6372-6735 ALSEnviro.Mudgee@alsglobal.com	Sydney 277-289 Woodpark Road Smithfield NSW 2164 P +61-2-8784-8555 ALSEnviro.Sydney@alsglobal.com
Darwin 4/16 Charlton Court Woolner, NT 0820 P +61-488-073-271 ALSEnviro.Darwin@alsglobal.com	Newcastle 5 Rosegum Road Warabrook NSW 2304 P +61-2-4968-9433 ALSEnviro.Newcastle@alsglobal.com	Townsville 14-15 Desma Court Bohle, QLD 4818 P +61-7-4796-0600 ALSEnviro.Townsville@alsglobal.com
Gladstone 46 Callemondah Drive Clinton Gladstone, QLD 4680 P +61-7-4971-5600 ALSEnviro.Gladstone@alsglobal.com	Nowra 4/13 Geary Place North Nowra NSW 2541 P +61-2-4423-2063 ALSEnviro.Nowra@alsglobal.com	Wollongong 99 Kenny Street Wollongong NSW 2500 P +61-2-4225-3125 ALSEnviro.Wollongong@alsglobal.com
Mackay 78 Harbour Road Mackay, QLD 4740 P +61-7-4944-0177 ALSEnviro.Mackay@alsglobal.com	Perth 10 Hod Way Malaga WA 6090 P +61-8-9209-7655 ALSEnviro.Perth@alsglobal.com	

SOIL AND SEDIMENT SAMPLE CHILLING AND SUBMISSION

Most soils should be chilled to <4°C or <6°C (guideline dependent) and transported to the laboratory within 24 hours. Sediments may also benefit from being frozen. ALS recommends placing samples on ice immediately upon sampling for best practice chilling with either repacking into another esky or draining of free water and replacement of ice just prior to dispatch. Chilling overnight in a fridge may also benefit. The post-chilling addition of ice bricks is also recommended where samples are air freighted or dispatched long distance and where couriers will not freight ice.

Please note that where possible samples should be submitted to the laboratory with at least half the recommended holding time remaining and it is preferable to avoid submitting holding time critical tests and full VOC suites late on Fridays without prior arrangement.

GENERAL NOTES

The following soil testing services are centralized in specialist laboratory locations. These tests require additional separate jars or bags to optimize service delivery and holding time compliance;

- Dioxins, Total S, TOC, TBT (Brisbane),
- PFOS/PFOA/AFFs, PBDEs, Explosives, Herbicides, Pesticides and Ultra trace Organics (Sydney).
- Sizings, Asbestos and Foreign Materials Testing (Newcastle);
- TRH Speciation (Perth and Melbourne),
- ASS/AMD (Perth and Brisbane).

KEY			
G	Glass	G(T)	Glass Jar with Teflon Lined Lid
(ZH)	Zero Headspace required	PB	Plastic (Polyethylene) Bag
HVAS	High Volume Air Sampler Paper	PTFE	Polytetrafluoroethylene Filter
PUF	Polyurethane Filter	P	Plastic Container

SOIL SAMPLES						
Parameter		ALS Preferred Container	Preservation	Holding Time	Reference	
INORGANICS, METALS, RADIONUCLIDES, ACID SULFATE SOILS AND PHYSICAL PARAMETERS						
General Anions and Cations: Chloride, Bromide, Fluoride, Sulfate, CEC & exchangeable Cations		PB, P or G	Chill, preferably to <6°C	28 days ⁽⁴⁾	NEPM 2013	
Asbestos		PB (double bagged)	Nil	Indefinite	AS4964-2004	
Cyanide		P or G	Chill, Store in dark	14 days ⁽⁴⁾	NEPM 2013	
Electrical conductivity		PB, P or G	Chill, preferably to <6°C	7 days ⁽⁴⁾	NEPM 2013	
Gross alpha, Gross beta		PB, P or G	Nil	180 days	ISO9696, ISO9697, ASTM D7283-06.	
Hexavalent Chromium (Alkali extract)		P or G	Chill, Store in dark	28 days (plus 7 for extract)	NEPM 2013	
Metals - General		PB, P or G	Nil	6 months	NEPM 2013	
Mercury		P or G	Chill, Store in dark	28 days	NEPM 2013	
Methyl Mercury	Option 1	G(T)	Chill, Store in dark	40 days	Horvat et al, 1993	
	Option 2	G(T)	Freeze, Store in dark	8 months	Horvat et al, 1993	
Moisture Content		PB, P or G	Chill, preferably to <6°C	14 days	NEPM 2013	
Organic Carbon / TOC	Option 1	G	Chill, to <6°C store in dark	28 days	NEPM 2013	
	Option 2	G	Freeze for sediments	6 months	NAGD 2009	
pH		PB, P or G	Chill, preferably to <6°C	7 days	NEPM 2013	
Radium 226, 228		PB or G	Nil	180 days	ISO10703, ASTM D7283-06.	
SPOCAS, TOS, Chromium Suite	Option 1	PB (exclude air)	Freeze	Indefinite	AS4969.1-2008	
	Option 2		Chill, preferably to <6°C	24 hours		
	Option 3		Dry at 80°C	Indefinite		
Sizings and Foreign Material Tests		PB or G	Nil for sediments	Indefinite	NAGD 2009	
Sulfur - total		PB or G	Chill, preferably to <6°C	7 days (6 months once prepared)	NEPM 2013 plus in house	
Sulfide		PB or G	Chill, preferably to <6°C	28 days (if Total S hold' time met)	NEPM 2013 plus in house	
ORGANICS - SEMIVOLATILE COMPOUNDS (SVOCs)						
General less persistent Semi-Volatile Organic chemicals including: • Carbamate Pesticides • Explosive residues • OC, OP Pesticides & PCBs • Phenoxy acid Herbicides • General Herbicides • TRH/TPH (C₁₀-C₁₈), • PAHs and Phenols • Phthalate Esters • Pyrethroids (Synthetic) • Semi Volatile Chlorinated Compound • Tributyl Tin (TBT)		G(T)	Place immediately in the esky and chill to <6°C using ice. Avoid exposure to light	14 days (plus holding of extracts typically for up to 40 days)	NEPM 2013	
		Dioxins & Furans & PCBs		G(T)	1 year in dark, freeze to -10 ⁰ C	USEPA 1613
		PBDEs		G(T)	1 year in dark, freeze to -10 ⁰ C	USEPA 1614
		PFOS & PFOA/ 6:2-Fts / AFFFs		G(T)	6 months	In house - POPs
Tributyl Tin, OCPs, OPPs, Phenols, PAHs and PCBs		G(T)	Freeze within 12 hours of sampling for sediments	56 days (plus 40 days for extracts)	NAGD 2009	
ORGANICS - VOLATILE COMPOUNDS (VOCs)						
VOCs <i>except</i> vinyl chloride, styrene and/or 2-chloroethyl vinyl ether		G(T)	Rapidly sample, minimize headspace and Chill to <6°C. Avoid exposure to light	14 days	NEPM 2013	
Vinyl chloride and styrene		G(T)		7 days (Previously 14 days under NEPM 1999)	NEPM 2013	
AMBIENT AIR, SOIL GAS AND OCCUPATIONAL HYGIENE						
ORGANICS - VOLATILE AND SEMIVOLATILE COMPOUNDS						
Parameter		Media	Preservation	Holding Time	Reference	
VOCs in whole air samples		Silonite Canister	Nil	30 days	USEPA TO15r	
VOCs on Sorbents		Charcoal Tubes/ Passive Badge	Nil	30 Days	NIOSH 1500/1501/1003	
Semi-Volatile Organics including: PAHs		XAD-2 Resin	Protect from light. Store in the dark submit as soon as possible	7-14 Days	USEPA TO4A/TO10A/TO13A NIOSH 5515/5517	
Chlorinated Benzenes		PTFE/GFF/MCE Filters		7 Days	NIOSH 5515/5517	
Chlorinated Phenols		PUF		7 Days	USEPA TO4A/TO13A	
		HVAS		7 Days	USEPA TO4A/TO13A	

NOTES

1. Samples for ZHE TCLP or ASLP require a separate additional jar.
2. TCLP and other leaching procedures need to be conducted within the solid sample holding time of the analyte of interest.
3. When a moisture determination is used for dry weight basis reporting, no holding time applies when performed on the same day as the chemical analytes of interest.
4. Holding times for extracted parameters (e.g. Chloride, Bromide, EC, Sulfate, Sulfide & Cyanide) are until extraction. Extract solution holding times also apply.



APPLICABLE LOCATIONS

The bottles, preservation and holding times following are for the ALS Environmental operations excluding the ALS Water Resources Group Victoria and ACT operations (WRG). The ALS operations covered by this document include;

Adelaide Unit 2, 1 Burma Road Pooraka, Adelaide, SA 5095 Phone: 61-8-8162 5130 Email: ALSEnviro.Adelaide@alsglobal.com	Melbourne 2 - 4 Westall Road Springvale VIC 3171 Phone: 61-3-8549 9600 Email: ALSEnviro.Melbourne@alsglobal.com	Roma Lot 4, 73 Beaumont Drive Roma QLD 4455 Phone: 61-7-4622 8978 Email: ALSEnviro.Roma@alsglobal.com
Brisbane 2 Byth Street (Corner Byth and Shand St) Stafford QLD 4053 Phone: 61-7-3243 7222 Email: ALSEnviro.Brisbane@alsglobal.com	Mudgee 29 Sydney Road Mudgee NSW 2850 Phone: 61-2-6372 6735 Email: ALSEnviro.Mudgee@alsglobal.com	Sydney 277-289 Woodpark Road Smithfield NSW 2164 Phone: 61-2-8784 8555 Email: ALSEnviro.Sydney@alsglobal.com
Darwin 4/16 Charlton Court Woolner, NT 0820 Phone: 61-488 073 271 Email: ALSEnviro.Darwin@alsglobal.com	Newcastle 5 Rosegum Close Warabrook NSW 2304 Phone: 61-2-4968 9433 Email: ALSEnviro.Newcastle@alsglobal.com	Townsville 14-15 Desma Court Bohle, QLD 4818 Phone: 61-7-4796 0600 Email: ALSEnviro.Townsville@alsglobal.com
Gladstone 48 Callemondah Drive Clinton Gladstone, QLD 4680 Phone: 61-7-4971 5600 Email: ALSEnviro.Gladstone@alsglobal.com	Nowra 4/13 Geary Place North Nowra NSW 2541 Phone: 61-2-4423 2063 Email: ALSEnviro.Nowra@alsglobal.com	Wollongong 99 Kenny Street Wollongong NSW 2500 Phone : 61-2-4225 3125 Email: ALSEnviro.Wollongong@alsglobal.com
Mackay 78 Harbour Road Mackay, QLD 4740 Phone: 61-7-4944 0177 Email: ALSEnviro.Mackay@alsglobal.com	Perth 10 Hod Way Malaga WA 6090 Phone: 61-8-9209 7655 Email: ALSEnviro.Perth@alsglobal.com	

SAMPLE PRESERVATION, CHILLING AND SUBMISSION

Care must be taken not to rinse out or spill preservatives during sampling for OH&S reasons and to avoid cross contaminating other bottles (e.g. Nitric acid used for metals can contaminate nitrate analysis). Field filtration is mandatory or recommended for many tests and other tests must have exposure to air minimized to avoid analyte losses. Samples should generally be chilled to <4°C or <6°C (guideline dependent) and transported to the laboratory within 24 hours. ALS recommends placing samples in ice immediately upon sampling for best practice chilling with either repacking into another esky or draining of free water and replacement of ice just prior to dispatch. Chilling overnight in a fridge may also benefit. The post-chilling addition of ice bricks is also recommended where samples are air freighted or dispatched long distance and where couriers will not freight ice. Samples taken from chlorinated water sources require the addition of sodium thiosulfate for microbiological, volatile organics and semi volatile organics. Please advise ALS accordingly to facilitate supply of appropriate containers. Please note that where possible samples should be submitted to the laboratory with at least half the recommended holding time remaining and it is preferable to avoid submitting holding time critical tests late on Fridays without prior arrangement.

ALS RECOMMENDED HOLDING TIMES AND PRESERVATIONS FOR WATER

Parameter		Container	Preservation	Holding Time	Reference
GENERAL INORGANICS (METALS, NUTRIENTS, CATIONS, ANIONS, PHYSICAL TESTS)					
Acidity / Alkalinity		P	Chill	14 days	APHA Table 1060:I
Ammonia Nitrogen	Option 1	P	H ₂ SO ₄ to pH<2, Chill	28 days	APHA Table 1060:I
	Option 2	P	Chill	1 day	APHA Table 1060:I
Anions General: Chloride, Sulfate, Fluoride, Bromide		P	Chill	28 days	APHA Table 1060:I
BOD		P	Chill	2 days	APHA Table 1060:I
Cations & Hardness: (Calcium, Magnesium, Sodium, Potassium)	Option 1	P	HNO ₃ to pH<2, Chill	28 days (All)	AS/NZS 5667.1:1998
	Option 2	P	Nil, Chill	7 days (Ca, Mg, Hardness) 28 days (Na, K)	AS/NZS 5667.1:1998
Carbon Total Organic (TOC)		G	H ₂ SO ₄ to pH<2, Chill	28 days	APHA Table 1060:I
Carbon Dissolved Organic (DOC)		G	H ₂ SO ₄ to pH<2, Field filter ⁽²⁾ , Chill	28 days	APHA Table 1060:I
Chlorophyll a		P - Opaque	Chill, Store in dark	2 days	APHA Table 1060:I
			(filter, store filtrate frozen in foil)	28 days	
Chromium VI		P	NaOH, Chill	28 days	USEPA 1669
COD		P	H ₂ SO ₄ to pH<2, Chill	28 days	APHA Table 1060:I
Colour		P	Chill	2 days	APHA Table 1060:I
Conductivity (EC)		P	Chill	28 days	APHA Table 1060:I
Cyanide		P - Opaque	NaOH to pH>12, Chill ⁽¹⁾	14 days	APHA 1060:I
Ferrous (Fe ²⁺)		P (A)	HCl to pH<2. (ZH), Field filter ⁽²⁾ , Chill	7 days	ISO 5667-3:2003
Formaldehyde		P	Chill	2 days	ASTM D6303-98
Mercury	Option 1	P (A)	HNO ₃ to pH<2, Chill ⁽²⁾	28 days	APHA Table 1060:I
	Option 2	P (A)	Nil - Lab Acidify in <14 days, Chill ⁽²⁾	28 days	USEPA 200.8
Metals General	Option 1	P (A)	HNO ₃ to pH<2, Chill ⁽²⁾	6 months	APHA Table 1060:I
	Option 2	P (A)	Nil - Lab Acidify in <14 days, Chill ⁽²⁾	6 months	USEPA 200.8
Nitrate Nitrogen		P	Chill	2 days	APHA Table 1060:I
Nitrite Nitrogen		P	Chill	2 days	APHA Table 1060:I
Nitrogen - Oxidised Nitrogen (NOx)		P	H ₂ SO ₄ to pH<2, Chill	28 days	APHA Table 1060:I/
			Chill	2 days	AS/NZS 5667.1:1998
Nitrogen and Phosphorous - Total (Persulfate Method)		P	Nil, Chill	1 day	AS/ NZS 5667.1:1998
Nitrogen - Total		P	H ₂ SO ₄ to pH<2, Chill	28 days	APHA Table 1060:I
Oil & Grease		G	NaHSO ₄ or H ₂ SO ₄ to pH<2,Chill	28 days	APHA Table 1060:I
Perchlorate		P	Filter, Chill, Store in dark	28 days	USEPA 6850
pH		P	Nil	6 hours	AS/NZS 5667.1:1998
Phenols - Total		P, G	H ₂ SO ₄ to pH<2, Chill	28 days	APHA Table 1060:I
Phosphorus - Reactive		P	Nil, Chill	2 days	APHA Table 1060:I
Phosphorus - Total		P	H ₂ SO ₄ to pH<2, Chill	28 days	AS/NZS 5667.1:1998
Radionuclides incl' Gross alpha, Gross beta & Radium 226, 228		P, G	Lab Acidify in <5 days, Chill or HNO ₃ to pH<2, Chill	6 months	APHA 7010B
Solids (TS, TSS, TDS)		P	Chill	7 days	APHA Table 1060:I
Surfactants (NIS, MBAS)		G	Chill	2 days	AS/NZS 5667.1:1998
			Chill, submit in 2 days, preserve in Lab	4 days (MBAS) 28 days (NIS)	
Silica		P	Chill	28 days	APHA Table 1060:I
Sulfide		P	Zn Acetate/NaOH, Chill	7 days	AS/NZS 5667.1:1998
Sulfite		P	EDTA/Zn Acetate, Chill	2 days	AS/NZS 5667.1:1998
Speciated Arsenic and Selenium		P (A)	HCl to pH<2, Chill, (Zero Headspace)	28 days	USEPA1632-2001
Thiocyanate		P	HNO ₃ to pH<2, Chill	6 months	APHA 4500CN M
TKN (Total Kjeldahl Nitrogen)		P	H ₂ SO ₄ to pH<2, Chill	28 days	APHA Table 1060:I
Turbidity		P	Store in dark, Chill	2 days	APHA Table 1060:I
ALGAE AND MICROBIOLOGICAL TESTS					
Algae Analysis	Option 1	P	Lugols at 1% v/v ratio	6 months	Hotzel and Croome 1999
	Option 2	P	Nil	48 hours	Hotzel and Croome 1999
General Microbiological Tests (e.g. Faecal coliforms, E-coli, HPC etc)		P (sterile)	Na ₂ S ₂ O ₃ ,(if chlorinated)/ Chill	1 day	APHA 9060B

NOTES

⁽¹⁾ When samples are suspected of containing Sulfide, a Sulfide Pre-treatment bottle (containing Lead Acetate) should be used to remove Sulfide prior to decanting into the 'Cyanide' bottle.

⁽²⁾ Dissolved Metals, Ferrous Iron and DOC should be field filtered using a 0.45µm filter prior to placing in the container.

KEY

G	Glass	Amber (T)	Amber Glass Bottle with Teflon Lined Lid
P (A)	Plastic (verified metal free)	P	Plastic (Polyethylene)
(TS)	40mL Vial with Teflon Lined Septum	(ZH)	Zero Headspace required

ALS RECOMMENDED HOLDING TIMES AND PRESERVATIONS FOR WATER

ORGANICS - SEMIVOLATILE COMPOUNDS (SVOCs)

Parameter	Container	Preservation	Holding Time	Reference
Acrylamide	Amber (T)	Chill	7 days	USEPA SW846 8316 1998
Alkyl phenol Ethoxylates	Amber (T)	Chill	2 days	AS/NZS 5667.1:1998
		Chill, submit in 2 days, preserve in Lab	7 days	In house
Carbamates	Amber (T)	Chill	7 days ⁽³⁾	USEPA 632
Chlorinated Hydrocarbons (SV)	Amber (T)	Chill	7 days ⁽³⁾	USEPA SW846 2007
Dioxins	Amber (T)	Chill	1 year	USEPA 1613.B
Explosives	Amber (T)	Chill	7 days ⁽³⁾	USEPA SW846 2007
Glyphosate	Amber (T)	Chill	14 days ⁽³⁾	USEPA 547
Glycols	Vial (TS)	Chill	7 days ⁽³⁾	USEPA SW846 2007
Herbicides (Phenoxy Acid)	Amber (T)	Chill	7 days ⁽³⁾	USEPA SW846 2007
N-Nitrosodimethylamine (NDMA)	Amber (T)	Chill	7 days ⁽³⁾	USEPA 607
Organochlorine Pesticides & PCBs	Amber (T)	Chill	7 days ⁽³⁾	USEPA SW846 2007
Organophosphorus Pesticides	Amber (T)	Chill	7 days ⁽³⁾	USEPA SW846 2007
Paraquat/Diquat	P	Chill	7 days ⁽³⁾	USEPA SW846 2007
Petroleum Hydrocarbons (C ₁₀ -C ₄₀)	Amber (T)	Chill	7 days ⁽³⁾	USEPA SW846 2007
Phenols and Phthalate Esters	Amber (T)	Chill	7 days ⁽³⁾	USEPA SW846 2007
PFOS & PFOA/ 6:2-FTS and AFFFs	P (PTFE free)	Chill	6 months	In house - POPs
Polyaromatic Hydrocarbons (PAHs)	Amber (T)	Chill	7 days ⁽³⁾	USEPA SW846 2007
PPCPs	Amber (T)	Nil	7 days ⁽³⁾	AGWR 2008, USEPA 1694
Synthetic Pyrethroids	Amber (T)	Chill	7 days ⁽³⁾	USEPA SW846-8270D
Tributyl Tin (TBT)	Amber (T)	Chill	7 days ⁽³⁾	USEPA SW846 2007

ORGANICS - VOLATILE COMPOUNDS (VOCs) / DISSOLVED GASES

Parameter	Container	Preservation	Holding Time	Reference
BTEXN plus TRH/TPH Hydrocarbons (C ₆ -C ₁₀)	Vial (TS)	H ₂ SO ₄ or NaHSO ₄ to pH<2, Chill, (ZH)	14 days	USEPA SW846 2007
C ₁ -C ₄ Gases (including Methane)	Vial (TS)	H ₂ SO ₄ or NaHSO ₄ to pH<2, Chill, (ZH)	14 days	USEPA SW846 2007/ NATATTEN.WPD 2002
Chloroacetic Acids	Vial (TS)	NH ₄ Cl, Chill, (ZH)	28 days	USEPA 552.1
Acrylonitrile, 1,4-Dioxane, Pyridine	Vial (TS)	H ₂ SO ₄ or NaHSO ₄ to pH<2, Chill, (ZH)	14 days	USEPA 603, 1671 & 524.2, USEPA SW846 2007
Acrolein	Vial (TS)	Chill, (ZH)	3 days	USEPA 603
		Chill, submit in 3 days, preserve in Lab	14 days	
Halo Acetic Acids	Vial (TS)	NH ₄ Cl, Chill, (ZH)	28 days	USEPA 552.1
MIB/Geosmin	Vial (TS)	Chill, (ZH)	3 days	APHA 6040
		Chill, submit in 3 days, preserve in Lab	7 days	
VOCs including: Halogenated Aliphatics, Aromatics, Monocyclic Aromatics (MAHs), Trihalomethanes (THMs) and Alcohols	Vial (TS)	H ₂ SO ₄ or NaHSO ₄ to pH<2, Chill, (ZH)	14 days	USEPA SW846 2007

KEY

G	Glass	Amber (T)	Amber Glass Bottle with Teflon Lined Lid
P (A)	Plastic (verified metal free)	P	Plastic (Polyethylene)
(TS)	40mL Vial with Teflon Lined Septum	(ZH)	Zero Headspace required

NOTES

⁽³⁾ Samples can also be extracted within 7 days and the resulting extracts analysed within 40 days.

APPENDIX N

LABORATORY CERTIFICATES



ASET 57288/62468/1-27

AARGUS PTY LTD

446 Parramatta Road
PETERSHAM NSW 2049

P.O. Box 358 Tel: 1300 137 038
DURUM/DYNE NSW 1470 Fax: 1300 136 036

Laboratory Test Request / Chain of Custody Record

Email to: cynthia@aargus.net cerack@aargus.net mark.kelly@aargus.net angie@aargus.net allen@aargus.net

TO: ASET - Australian Safe Environment & Technology Pty Ltd, Sydney Suite 710/90 George Street HORNSBY NSW 2077		Sampling Date: 11 & 12.09.2017		Job No: ES/0212	
PC: 02 9987 2183		FAX: 02 9987 2131		Sampled By: SP	
ATTN: Samples Receipt		EMAIL: aset@xppand.net.au		Project: OSI	
		Project Manager: MK		Location: Schofield	

Sampling details			Sample type	Results required by: (Standard Turnaround)										KEEP SAMPLE?
Location	Depth (m)	Date	Soil Samples	Asbestos Nulw	Absence / Presence									
BH1	0.0-0.1	11.09.2017	DSP	✓										YES
BH19	0.0-0.1	11.09.2017	DSP	✓										YES
BH24	0.0-0.1	12.09.2017	DSP	✓										YES
BH25	0.0-0.2	12.09.2017	DSP	✓										YES
S1	0.0-0.1	12.09.2017	DSP	✓										YES
S1	0.0-1.0	12.09.2017	DSP	✓										YES
S2	0.0-0.1	12.09.2017	DSP	✓										YES
S2	0.0-1.0	12.09.2017	DSP	✓										YES
S2	0.0-0.1	12.09.2017	DSP	✓										YES
S4	0.0-0.1	12.09.2017	DSP	✓										YES
S6	0.0-0.1	12.09.2017	DSP	✓										YES
S5	0.0-1.0	12.09.2017	DSP	✓										YES
S6	0.0-0.1	12.09.2017	DSP	✓										YES
S6	0.0-1.0	12.09.2017	DSP	✓										YES
S7	0.0-0.1	12.09.2017	DSP	✓										YES
S8	0.0-0.1	12.09.2017	DSP	✓										YES
S9	0.0-0.1	12.09.2017	DSP	✓										YES
S13	0.0-0.1	12.09.2017	DSP	✓										YES
S13 fragment		12.09.2017	DSP	✓										YES
S15	0.0-0.1	12.09.2017	DSP	✓										YES
S15 fragment		12.09.2017	DSP	✓										YES
S18	0.0-0.1	11.09.2017	DSP	✓										YES
S18 fragment		11.09.2017	DSP	✓										YES
S19	0.0-0.1	11.09.2017	DSP	✓										YES
S20	0.0-0.1	11.09.2017	DSP	✓										YES
S20 fragment		11.09.2017	DSP	✓										YES
S21	0.0-0.1	11.09.2017	DSP	✓										YES

Relinquished by		Received by	
Name	Signature	Name	Signature
Sarah	SP		
	13.09.2017		

Legend:					
WG	Water sample glass bottle	USG	Undisturbed soil sample (glass jar)	USP	Disturbed soil sample (small plastic bag)
WP	Water sample plastic bottle	DSG	Disturbed soil sample (glass jar)	✓	Test required
GV	Glass vial	OTH	Other	ACAN	As sample container

11 SEP 2017

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446 Fitzsimmons Road
MELBURN VIC 3049

446 Fitzsimmons Road
MELBURN VIC 3049

Financ: sanluc@carpus.net; dereck@carpus.net; man-kale@carpus.net; arnwe@carpus.net; Aler@carpus.net

Financ: sanluc@saarcus.net; dereck@saarcus.net; man-kale@saarcus.net; arnwe@saarcus.net; Aler@saarcus.net

of 1.1

TO:	ASET - Australian Safer Environment & Technology Pty Ltd, Sydney Suite 710/90 George Street HORNBSBY, NSW 2077		PO Box 1844 HORNBSBY WESTFIELD NSW 1835		Sampling Date:	11 & 12 Jan 2017	Job No	ES-021-2	01
PH:	02 9987 2183	FAX:	02 9987 2151		Sampled By:	SP	Project:	DSI	ASE7559269/63749/1
ATTN:	Samples Received	EMAIL:	aset@openend.net.au		Project Manager:	MK	Location:	Schofield	

[illegible]

Legend

WC	Water sample: glass bottle
WP	Water sample: plastic bottle
GV	Grazing vessel

USG	Undisturbed soil sample (glass jar)
DSG	Disturbed soil sample (glass jar)
OTH	Other

DSP	Disturbed soil sample (small plastic bag)
✓	Test required
ACAN	Air sample: canister

◆ ぬれず'だま



AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref: ASET59288/ 62468 / 1 - 27
Your ref: ES7021/2 - DSI - Schofield
NATA Accreditation No: 14484



Accredited for compliance with ISO/IEC 17025.

18 September 2017

Aargus Pty Ltd.
446 Parramatta Road
Petersham NSW 2049

Attn: Mr Con Kariotoglou

Dear Con

Asbestos Identification

This report presents the results of twenty-seven samples, forwarded by Aargus Pty Ltd on 14 September 2017, for analysis for asbestos.

1.Introduction: Twenty-seven 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**).

Soil samples only The report also provides approximate weights and percentages, categories of asbestos forms appearing in the sample, such as **AF**(Asbestos Fines), **FA**(Friable Asbestos) and **ACM** (Asbestos Containing Material), also satisfying the requirements of the WA/ NEPM Guidelines)

3. Results : **Sample No. 1. ASET59288 / 62468 / 1. BH9 - 0.0-0.1.**
Approx dimensions 10.0 cm x 10.0 cm x 6.0 cm
Approximate total dry weight of soil = 689.0g
The sample consisted of a mixture of clayish soil, stones, sandstones, plant matter and fragments of plaster.
No asbestos detected.

Sample No. 2. ASET59288 / 62468 / 2. BH19 - 0.0-0.1.
Approx dimensions 10.0 cm x 10.0 cm x 5.2 cm
Approximate total dry weight of soil = 587.0g
The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, cement, brick and coal like material.
No asbestos detected.

Sample No. 3. ASET59288 / 62468 / 3. BH24 - 0.0-0.1.
Approx dimensions 12.0 cm x 12.0 cm x 5.0 cm
Approximate total dry weight of soil = 802.0g
The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, brick and corroded metal.
No asbestos detected.

SUITE 710 / 90 GEORGE STREET, HORNSBY NSW 2077 – P.O. BOX 1644 HORNSBY WESTFIELD NSW 1635
PHONE: (02) 99872183 FAX: (02)99872151 EMAIL:info@ausset.com.au WEBSITE: www.Ausset.com.au

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ASBESTOS DETECTION & IDENTIFICATION • REPAIR & CALIBRATION OF SCIENTIFIC EQUIPMENT • AIRBORNE FIBRE & SILICA MONITORING



Sample No. 4. ASET59288 / 62468 / 4. BH25 - 0.1-0.2.

Approx dimensions 12.5 cm x 12.0 cm x 5.0 cm

Approximate total dry weight of soil = 796.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, corroded metal and bitumen.

No asbestos detected.

Sample No. 5. ASET59288 / 62468 / 5. S1 - 0.0-0.1.

Approx dimensions 10.0 cm x 10.0 cm x 5.4 cm

Approximate total dry weight of soil = 607.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, coal like material, corroded metal and bitumen.

No asbestos detected.

^ΩSample No. 6. ASET59288 / 62468 / 6. S1 - 0.9-1.0.

Approx dimensions 7.0 cm x 7.0 cm x 5.0 cm

Approximate total dry weight of soil = 276.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, coal like material, corroded metal and bitumen.

No asbestos detected.

Sample No. 7. ASET59288 / 62468 / 7. S2 - 0.0-0.1.

Approx dimensions 12.0 cm x 11.0 cm x 5.0 cm

Approximate total dry weight of soil = 753.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, cement, glass, coal like material, corroded metal and bitumen.

No asbestos detected.

^ΩSample No. 8. ASET59288 / 62468 / 8. S2 - 0.9-1.0.

Approx dimensions 8.0 cm x 8.0 cm x 5.1 cm

Approximate total dry weight of soil = 373.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, brick, coal like material, corroded metal and bitumen.

No asbestos detected.

Sample No. 9. ASET59288 / 62468 / 9. S3 - 0.0-0.1.

Approx dimensions 10.0 cm x 10.0 cm x 6.0 cm

Approximate total dry weight of soil = 650.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, cement, coal like material, corroded metal and bitumen.

No asbestos detected.

Sample No. 10. ASET59288 / 62468 / 10. S4 - 0.0-0.1.

Approx dimensions 10.0 cm x 10.0 cm x 6.2 cm

Approximate total dry weight of soil = 690.0g

The sample consisted of a mixture of clayish soil, stones, sandstones, plant matter and fragments of plaster.

No asbestos detected.

Sample No. 11. ASET59288 / 62468 / 11. S5 - 0.0-0.1.

Approx dimensions 12.0 cm x 12.0 cm x 5.0 cm

Approximate total dry weight of soil = 772.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, cement, brick, coal like material, corroded metal and bitumen.

No asbestos detected.



Sample No. 12. ASET59288 / 62468 / 12. S5 - 0.9-1.0.

Approx dimensions 7.0 cm x 7.0 cm x 5.0 cm

Approximate total dry weight of soil = 285.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, cement, brick, corroded metal and bitumen.

No asbestos detected.

Sample No. 13. ASET59288 / 62468 / 13. S6 - 0.0-0.1.

Approx dimensions 10.0 cm x 10.0 cm x 5.3 cm

The sample consisted of a mixture of clayish soil, stones, fibres[^], plant matter, fragments of plaster, cement, brick, coal like material, corroded metal and bitumen.

Crocidolite[^] (Approximate weight= 0.001g) asbestos detected.

Approximate total weight of asbestos = 0.001g

Approximate total dry weight of soil = 593.0g

Approximate %w/w = 0.0002%

Sample No. 14. ASET59288 / 62468 / 14. S6 - 0.9-1.0.

Approx dimensions 8.0 cm x 8.0 cm x 5.0 cm

Approximate total dry weight of soil = 344.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, coal like material, corroded metal and cement.

No asbestos detected.

Sample No. 15. ASET59288 / 62468 / 15. S7 - 0.0-0.1.

Approx dimensions 12.0 cm x 12.0 cm x 4.9 cm

Approximate total dry weight of soil = 762.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, cement, brick, corroded metal and coal like material.

No asbestos detected.

Sample No. 16. ASET59288 / 62468 / 16. S8 - 0.0-0.1.

Approx dimensions 10.0 cm x 10.0 cm x 6.0 cm

Approximate total dry weight of soil = 660.0g

The sample consisted of a mixture of clayish soil, stones, plant matter and fragments of bitumen.

No asbestos detected.

Sample No. 17. ASET59288 / 62468 / 17. S9 - 0.0-0.1.

Approx dimensions 12.0 cm x 12.0 cm x 4.8 cm

Approximate total dry weight of soil = 744.0g

The sample consisted of a mixture of clayish soil, stones and plant matter.

No asbestos detected.

Sample No. 18. ASET59288 / 62468 / 18. S13 - 0.0-0.1.

Approx dimensions 12.5 cm x 12.0 cm x 5.1 cm

Approximate total dry weight of soil = 836.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster, cement, brick, bitumen and glass.

No asbestos detected.

Sample No. 19. ASET59288 / 62468 / 19. S13 Fragment.

Approx dimensions 2.5 cm x 1.5 cm x 0.45 cm

Approximate total dry weight of ACM = 16.3g

The sample consisted of a fragment of a fibre cement material.

Chrysotile asbestos, Amosite asbestos and Crocidolite asbestos detected.



Sample No. 20. ASET59288 / 62468 / 20. S15 - 0.0-0.1.

Approx dimensions 10.0 cm x 10.0 cm x 5.5 cm

The sample consisted of a mixture of soil, stones, fibres[^], plant matter, fragments of plaster, cement, fibre cement[^], brick, bitumen, corroded metal and pieces of glass.

Chrysotile[^] (Estimated approximate weight= 4.46g) asbestos, Amosite[^] (Estimated approximate weight= 1.39g) asbestos and Crocidolite[^] (Estimated approximate weight= 3.03g) asbestos detected.

Estimated approximate total weight of asbestos = 8.88g

Estimated approximate total weight of asbestos (AF/loose fibres) = 1.79g

Estimated approximate asbestos in AF (ACM<7mm) = 2.68g

Estimated approximate asbestos in ACM (>7mm) = 4.41g

Approximate total weight of AF (ACM <7mm) = 15.96g

Approximate total weight of ACM (>7mm) = 26.4g

Approximate total dry weight of soil = 614.0g

Estimated approximate% w/ (for AF)[^] = 0.73%

Estimated approximate %w/w (for ACM)* = 0.72%

Sample No. 21. ASET59288 / 62468 / 21. S15 Fragment.

Approx dimensions 7.0 cm x 4.0 cm x 0.4 cm

Approximate total dry weight of ACM = 16.3g

The sample consisted of a fragment of a fibre cement material.

Chrysotile asbestos, Amosite asbestos and Crocidolite asbestos detected.

Sample No. 22. ASET59288 / 62468 / 22. S18 - 0.0-0.1.

Approx dimensions 13.0 cm x 12.0 cm x 5.0 cm

Approximate total dry weight of soil = 881.0g

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, cement, brick, paint flakes, corroded metal and pieces of glass.

No asbestos detected.

Sample No. 23. ASET59288 / 62468 / 23. S18 Fragment.

Approx dimensions 5.0 cm x 4.0 cm x 0.4 cm

Approximate total dry weight of ACM = 15.1g

The sample consisted of a fragment of a fibre cement material.

Chrysotile asbestos and Amosite asbestos detected.

Sample No. 24. ASET59288 / 62468 / 24. S19 - 0.0-0.1.

Approx dimensions 12.0 cm x 12.0 cm x 5.3 cm

Approximate total dry weight of soil = 848.0g

The sample consisted of a mixture of soil, stones, plant matter, fragments of plaster, cement and paint flakes.

No asbestos detected.

Sample No. 25. ASET59288 / 62468 / 25. S20 - 0.0-0.1.

Approx dimensions 12.5 cm x 12.5 cm x 5.0 cm

Approximate total dry weight of soil = 856.0g

The sample consisted of a mixture of clayish soil, stones, plant matter, fragments of plaster and paint flakes.

No asbestos detected.

Sample No. 26. ASET59288 / 62468 / 26. S20 Fragment.

Approx dimensions 6.0 cm x 4.0 cm x 0.5 cm

Approximate total dry weight of ACM = 19.9g

The sample consisted of a fragment of a fibre cement material.

Chrysotile asbestos, Amosite asbestos and Crocidolite asbestos detected.



Sample No. 27. ASET59288 / 62468 / 27. S21 - 0.0-0.1.

Approx dimensions 10.0 cm x 10.0 cm x 5.5 cm

Approximate total dry weight of soil = 616.0g

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)
Environmental Scientist/Approved Identifier
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.

For soil samples:

This report is consistent with the analytical procedures and reporting recommendations in the Western Australia Guidelines for the Assessment Remediation and Management of Asbestos contaminated sites in Western Australia and it also satisfies the requirements of the current NEPM Guidelines. NATA Accreditation does not cover the performance of this service (NATA ISO/IEC17025 AUG 2014).

Disclaimers;

The approx; weights given above can be used only as a guide. They do not represent absolute weights of each kind of asbestos, as it is impossible to extract all loose fibres from soil and other asbestos containing building material samples using this method. However above figures may be used as closest approximations to the exact values in each case. Estimation and/ or reporting of asbestos fibre weights in asbestos containing materials and soil is out of the Scope of the NATA Accreditation. NATA Accreditation only covers the qualitative part of the results reported. This weight disclaimer also covers weight / weight percentages given.

ACM - Asbestos Containing Material - Products or materials that contain asbestos in an inert bound matrix such as cement or resin. Here taken to be sound material, even as fragments and not fitting through a 7mm X 7 mm sieve.

AF -Includes asbestos free fibres, small fibre bundles and also ACM fragments that pass through a 7mm X 7 mm sieve.

FA -Friable asbestos material such as severely weathered ACM, and asbestos in the form of loose fibrous material such as insulation products.

^ denotes loose fibres of relevant asbestos types detected in soil/dust and fragments of ACM smaller than 7mm diameter.

*** denotes asbestos detected in ACM in bonded form.**

denotes FA.

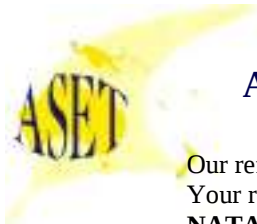


Estimation of asbestos weights involves the use of following assumptions;

Volume of each kind of Asbestos present in broken edges have been visually estimated and it has been assumed that volumes remain similar throughout the binding matrix and those volumes are only approximate and not exact. Material densities have been assumed to be similar to commonly found similar materials and may not be exact.

^ΩSample volume criteria of 500 mL have not been satisfied.

All samples indicating “No asbestos detected” are assumed to be less than 0.001 % unless the actual approximate weight is given.



AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref : ASET59969/ 63149 / 1 - 3
Your ref : ES7021/2 – DSI, Schofields\
NATA Accreditation No: 14484

16 October 2017

Aargus Pty Ltd.
446 Parramatta Road
Petersham NSW 2049



Accredited for compliance with ISO/IEC 17025.

Attn: Mr Con Kariotoglou

Dear Con

Asbestos Identification

This report presents the results of three samples, forwarded by Aargus Pty Ltd. on 14 September 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).

The report also provides approximate weights and percentages, categories of asbestos forms appearing in the sample, such as **AF**(Asbestos Fines), **FA**(Friable Asbestos and **ACM** (Asbestos Containing Material), also satisfying the requirements of the WA/ NEPM Guidelines)

3. Results : **Sample No. 1. ASET59969 / 63149 / 1. D2.**
Approx dimensions 10.0 cm x 10.0 cm x 6.5 cm
The sample consisted of a mixture of clayish soil, stones, sandstone, plant matter, fibres^, fragments of a fibre cement*^ and corroded metal.
Chrysotile^* (Approximate weight= 1.73g) asbestos, Amosite^* (Approximate Weight = 0.18g) asbestos and Crocidolite^* (Approximate weight= 0.37g) asbestos detected.
Approximate total weight of asbestos (AF/ Loose fibres) = 0.06g
Estimated total weight of asbestos in ACM = 2.012g
Estimated total weight of asbestos in Form of AF = 0.208g
Approximate total weight of ACM (>7mm) = 15.50g
Approximate total weight of AF (ACM <7mm) = 1.6g
Approximate total weight of soil sample = 650.0g
Approximate w/w % (for Loose fibres & AF) = 0.0412%
Estimated Approximate w/w % (for ACM) = 0.3095%

Sample No. 2. ASET59969 / 63149 / 2. D3.
Approx dimensions 10.0 cm x 10.0 cm x 6.5 cm
Approx total dry weight of soil = 667.0g
The sample consisted of a mixture of clayish soil, stones, sandstone and plant matter.
No asbestos detected.

SUITE 710 / 90 GEORGE STREET, HORNSBY NSW 2077 – P.O. BOX 1644 HORNSBY WESTFIELD NSW 1635
PHONE: (02) 99872183 FAX: (02)99872151 EMAIL:info@ausset.com.au WEBSITE: www.Ausset.com.au

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Sample No. 3. ASET59969 / 63149 / 3. D4.

Approx dimensions 10.0 cm x 10.0 cm x 8.5 cm

Approx total dry weight of soil = 874.0g

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.

This report is consistent with the analytical procedures and reporting recommendations in the Western Australia Guidelines for the Assessment Remediation and Management of Asbestos contaminated sites in Western Australia and it also satisfies the requirements of the current NEPM Guidelines. NATA Accreditation does not cover the performance of this service (NATA ISO/IEC17025 AUG 2014).

Disclaimers;

The approx; weights given above can be used only as a guide. They do not represent absolute weights of each kind of asbestos, as it is impossible to extract all loose fibres from soil and other asbestos containing building material samples using this method. However above figures may be used as closest approximations to the exact values in each case. Estimation and/ or reporting of asbestos fibre weights in asbestos containing materials and soil is out of the Scope of the NATA Accreditation. NATA Accreditation only covers the qualitative part of the results reported. This weight disclaimer also covers weight / weight percentages given.

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.

Estimation of asbestos weights involves the use of following assumptions;

Volume of each kind of Asbestos present in broken edges have been visually estimated and its been assumed that volumes remain similar throughout the binding matrix and those volumes are only approximate and not exact. Material densities have been assumed to be similar to commonly found similar materials and may not be exact.

ACM - Asbestos Containing Material - Products or materials that contain asbestos in an inert bound matrix such as cement or resin. Here taken to be sound material, even as fragments and not fitting through a 7mm X 7 mm sieve.

AF -Includes asbestos free fibres, small fibre bundles and also ACM fragments that pass through a 7mm X 7 mm sieve.



FA -Friable asbestos material such as severely weathered ACM, and asbestos in the form of loose fibrous material such as insulation products.

^ denotes loose fibres of relevant asbestos types detected in soil/dust and fragments of ACM smaller than 7mm diameter.

***** denotes asbestos detected in ACM in bonded form.

denotes FA.

All samples indicating "No asbestos detected" are assumed to be less than 0.001 % unless the actual approximate weight is given.



Environmental

CERTIFICATE OF ANALYSIS

Work Order : **EM1712592**
Client : **AARGUS PTY LTD**
Contact : **MR MARK KELLY**
Address : **PO BOX 398**
DRUMMOYNE NSW, AUSTRALIA 2047
Telephone : **1300137038**
Project : **ES7021/2**
Order number : **----**
C-O-C number : **----**
Sampler : **SP**
Site : **Schofiled**
Quote number : **SY/258/14 V2**
No. of samples received : **4**
No. of samples analysed : **4**

Page : 1 of 7
Laboratory : Environmental Division Melbourne
Contact :
Address : 4 Westall Rd Springvale VIC Australia 3171
Telephone : +61-3-8549 9600
Date Samples Received : 14-Sep-2017 10:10
Date Analysis Commenced : 14-Sep-2017
Issue Date : 21-Sep-2017 16:59



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Emily Daos	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC



General Comments

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

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

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

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

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

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

- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.
Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)
The Friable Asbestos weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos
Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.
All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR.
Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SS1	SS2	SS3	SS4	----
Client sampling date / time					11-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	----
Compound	CAS Number	LOR	Unit		EM1712592-001	EM1712592-002	EM1712592-003	EM1712592-004	-----
					Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		26.5	10.4	10.0	7.1	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		No	Yes	No	No*	----
Asbestos Type	1332-21-4	-	--		-	Ch + Am + Cr	-	Ch + Cr	----
Sample weight (dry)	----	0.01	g		682	690	708	773	----
APPROVED IDENTIFIER:	----	-	--		E.DAOS	E.DAOS	E.DAOS	E.DAOS	----
EA200N: Asbestos Quantification (non-NATA)									
Free Fibres	----	5	Fibres		No	No	No	No	----
Friable Asbestos	1332-21-4	0.0004	g		<0.0004	2.03	<0.0004	0.0004	----
Friable Asbestos (as Asbestos in Soil)	1332-21-4	0.001	% (w/w)		<0.001	0.294	<0.001	<0.001	----
Asbestos Containing Material	1332-21-4	0.1	g		<0.1	66.1	<0.1	<0.1	----
Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)		<0.01	1.44	<0.01	<0.01	----
Weight Used for % Calculation	----	0.0001	kg		0.682	0.690	0.708	0.773	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		9	11	7	8	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg		9	16	9	96	----
Copper	7440-50-8	5	mg/kg		15	28	21	32	----
Lead	7439-92-1	5	mg/kg		13	16	11	14	----
Nickel	7440-02-0	2	mg/kg		10	19	7	39	----
Zinc	7440-66-6	5	mg/kg		63	56	47	70	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	----	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	----	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	----	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	----	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	----	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	<0.05	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				SS1	SS2	SS3	SS4	----
Client sampling date / time				11-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	----
Compound	CAS Number	LOR	Unit	EM1712592-001	EM1712592-002	EM1712592-003	EM1712592-004	-----
				Result	Result	Result	Result	----

EP068A: Organochlorine Pesticides (OC) - Continued

Aldrin	309-00-2	0.05	mg/kg	<0.05	----	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	<0.05	----	----
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	----	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	<0.05	----	----
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	----	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	<0.05	----	----
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	----	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	----	<0.05	----	----

EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----
Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SS1	SS2	SS3	SS4	----
Client sampling date / time				11-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	----	
Compound	CAS Number	LOR	Unit	EM1712592-001	EM1712592-002	EM1712592-003	EM1712592-004	-----	
				Result	Result	Result	Result	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	0.6	0.6	0.6	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	1.2	1.2	1.2	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	----	<10	<10	<10	----	
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	<50	----	
C15 - C28 Fraction	----	100	mg/kg	----	200	<100	<100	----	
C29 - C36 Fraction	----	100	mg/kg	----	130	<100	130	----	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	330	<50	130	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	<10	<10	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	<10	<10	----	
>C10 - C16 Fraction	----	50	mg/kg	----	<50	<50	<50	----	
>C16 - C34 Fraction	----	100	mg/kg	----	280	<100	150	----	
>C34 - C40 Fraction	----	100	mg/kg	----	100	<100	140	----	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	380	<50	290	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	<50	<50	----	
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	----	<0.2	<0.2	<0.2	----	
Toluene	108-88-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	<0.2	<0.2	----	
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Naphthalene	91-20-3	1	mg/kg	----	<1	<1	<1	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	93.5	----	----	
EP068S: Organochlorine Pesticide Surrogate									



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SS1	SS2	SS3	SS4	----
Client sampling date / time					11-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	----
Compound	CAS Number	LOR	Unit		EM1712592-001	EM1712592-002	EM1712592-003	EM1712592-004	-----
					Result	Result	Result	Result	----
EP068S: Organochlorine Pesticide Surrogate - Continued									
Dibromo-DDE	21655-73-2	0.05	%		108	----	115	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		99.2	----	106	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	88.6	107	114	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	81.4	100	105	----
2,4,6-Tribromophenol	118-79-6	0.5	%		----	95.0	96.9	90.1	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	111	116	120	----
Anthracene-d10	1719-06-8	0.5	%		----	114	121	103	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	130	112	130	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		----	75.2	78.0	78.6	----
Toluene-D8	2037-26-5	0.2	%		----	83.7	91.9	93.9	----
4-Bromofluorobenzene	460-00-4	0.2	%		----	93.4	98.6	99.9	----

Analytical Results

Descriptive Results

Sub-Matrix: SOIL		
Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	SS1 - 11-Sep-2017 00:00	Brown red clay like soil.
EA200: Description	SS2 - 12-Sep-2017 00:00	Brown rocky soil with multiple asbestos containing material fragments approx 16 x 20 x 5mm and multiple asbestos fines approx 7 x 5 x 3mm and 3 x 2 x 1mm.
EA200: Description	SS3 - 12-Sep-2017 00:00	Brown soil with organic matter.
EA200: Description	SS4 - 12-Sep-2017 00:00	Brown rocky soil with two asbestos fibre bundles approx 4 x 1 x 0.5mm.



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	36	140
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2,4,6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124



Environmental

QUALITY CONTROL REPORT

Work Order	: EM1712592	Page	: 1 of 9
Client	: AARGUS PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MARK KELLY	Contact	:
Address	: PO BOX 398 DRUMMOYNE NSW, AUSTRALIA 2047	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: 1300137038	Telephone	: +61-3-8549 9600
Project	: ES7021/2	Date Samples Received	: 14-Sep-2017
Order number	: ----	Date Analysis Commenced	: 14-Sep-2017
C-O-C number	: ----	Issue Date	: 21-Sep-2017
Sampler	: SP		
Site	: Schofield		
Quote number	: SY/258/14 V2		
No. of samples received	: 4		
No. of samples analysed	: 4		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	Position	Accreditation Category
Emily Daos	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Eric Chau	Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC



General Comments

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

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

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

Key :
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1114840)									
EM1712592-001	SS1	EA055: Moisture Content	----	1	%	26.5	25.0	5.87	0% - 20%
EM1712600-011	Anonymous	EA055: Moisture Content	----	1	%	14.6	10.6	31.7	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1115566)									
EM1712493-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	22	29	29.4	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	10	12	19.8	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	24	45	60.2	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	14	19	27.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	10	13	26.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	27	33	20.9	No Limit
EM1712592-002	SS2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	16	18	14.6	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	19	22	15.9	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	11	11	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	28	36	27.7	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	16	17	6.95	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	56	63	12.0	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1115567)									
EM1712493-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EM1712592-002	SS2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1115608)									
EM1712592-003	SS3	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1115607)									
EM1712600-011	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1115607) - continued									
EM1712600-011	Anonymous	EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EM1712592-003	SS3	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1115607) - continued									
EM1712592-003	SS3	EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1115604)									
EM1712592-003	SS3	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1114428)									
EM1712592-002	SS2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1712600-019	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1115606)									
EM1712600-011	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1712592-003	SS3	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1114428)									
EM1712592-002	SS2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1712600-019	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1115606)									
EM1712600-011	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit

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Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1115606) - continued									
EM1712592-003	SS3	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 1114428)									
EM1712592-002	SS2	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EM1712600-019	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit		

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
	Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) LowHigh	
Result				
<5	21.7 mg/kg	92.2	79	113
<1	4.64 mg/kg	86.0	85	109
<2	43.9 mg/kg	91.4	83	109
<5	32 mg/kg	90.6	78	108
<5	40 mg/kg	85.6	78	106
<2	55 mg/kg	89.1	82	111
<5	60.8 mg/kg	95.0	82	111
<0.1	2.57 mg/kg	96.6	77	104
<0.1	1 mg/kg	88.1	55	135
<0.05	0.5 mg/kg	89.3	45	131
<0.05	0.5 mg/kg	87.1	45	125
<0.05	0.5 mg/kg	90.2	46	134
<0.05	0.5 mg/kg	88.8	49	133
<0.05	0.5 mg/kg	83.9	52	128
<0.05	0.5 mg/kg	83.2	48	128
<0.05	0.5 mg/kg	89.3	52	128
<0.05	0.5 mg/kg	88.5	52	130
<0.05	0.5 mg/kg	89.9	51	131
<0.05	0.5 mg/kg	89.7	57	135
<0.05	0.5 mg/kg	89.3	51	131
<0.05	0.5 mg/kg	88.1	51	131
<0.05	0.5 mg/kg	89.9	51	131
<0.05	0.5 mg/kg	80.6	41	131
<0.05	0.5 mg/kg	89.3	52	132
<0.05	0.5 mg/kg	91.8	50	134
<0.05	0.5 mg/kg	106	49	130
<0.05	0.5 mg/kg	103	50	132
<0.2	0.5 mg/kg	95.7	38	140
<0.05	0.5 mg/kg	106	64	132
<0.2	0.5 mg/kg	93.4	41	141



Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1115604) - continued								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	3 mg/kg	115	80	121
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	3 mg/kg	117	70	130
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	3 mg/kg	105	80	120
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	3 mg/kg	103	70	124
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	3 mg/kg	116	80	122
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	111	80	126
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	3 mg/kg	112	70	128
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	3 mg/kg	110	80	125
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	3 mg/kg	117	70	130
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	3 mg/kg	114	80	126
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	3 mg/kg	117	70	124
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	3 mg/kg	110	75	125
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	3 mg/kg	105	65	125
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	3 mg/kg	118	65	128
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	3 mg/kg	117	65	126
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	3 mg/kg	116	65	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1114428)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	118	70	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1115606)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	102	65	131
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	104	70	126
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	97.0	70	122
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1114428)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	124	68	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1115606)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	103	68	130
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	102	72	116
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	94.2	38	132
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 1114428)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	116	74	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	121	77	125
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	122	73	125
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	128	77	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	125	81	128



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP080: BTEXN (QCLot: 1114428) - continued								
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	90.4	66	130

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1115566)							
EM1712493-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	# Not Determined	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	96.9	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	88.5	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	88.7	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	# Not Determined	76	124
		EG005T: Nickel	7440-02-0	50 mg/kg	84.1	78	120
		EG005T: Zinc	7440-66-6	50 mg/kg	# Not Determined	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1115567)							
EM1712493-002	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	95.9	76	116
EP068A: Organochlorine Pesticides (OC) (QCLot: 1115607)							
EM1712592-001	SS1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	83.3	22	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	68.4	18	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	105	23	136
		EP068: Dieldrin	60-57-1	0.5 mg/kg	96.5	42	136
		EP068: Endrin	72-20-8	0.5 mg/kg	69.6	23	146
		EP068: 4,4`-DDT	50-29-3	0.5 mg/kg	34.0	20	133
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1115604)							
EM1712493-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	87.5	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	113	52	148
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1114428)							
EM1712592-003	SS3	EP080: C6 - C9 Fraction	----	28 mg/kg	95.9	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1115606)							
EM1712493-002	Anonymous	EP071: C10 - C14 Fraction	----	806 mg/kg	97.0	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	98.3	70	124

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Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1115606) - continued							
EM1712493-002	Anonymous	EP071: C29 - C36 Fraction	----	1584 mg/kg	93.2	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1114428)							
EM1712592-003	SS3	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	101	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1115606)							
EM1712493-002	Anonymous	EP071: >C10 - C16 Fraction	----	1160 mg/kg	97.7	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	96.8	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	97.5	44	126
EP080: BTEXN (QCLot: 1114428)							
EM1712592-003	SS3	EP080: Benzene	71-43-2	2 mg/kg	102	50	136
		EP080: Toluene	108-88-3	2 mg/kg	108	56	139

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EM1712592	Page	: 1 of 7
Client	: AARGUS PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MARK KELLY	Telephone	: +61-3-8549 9600
Project	: ES7021/2	Date Samples Received	: 14-Sep-2017
Site	: Schofield	Issue Date	: 21-Sep-2017
Sampler	: SP	No. of samples received	: 4
Order number	: ----	No. of samples analysed	: 4

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- Matrix Spike outliers exist - please see following pages for full details.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- **NO** Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG005T: Total Metals by ICP-AES	EM1712493--002	Anonymous	Arsenic	7440-38-2	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG005T: Total Metals by ICP-AES	EM1712493--002	Anonymous	Lead	7439-92-1	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG005T: Total Metals by ICP-AES	EM1712493--002	Anonymous	Zinc	7440-66-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Matrix Spikes (MS)					
Polychlorinated Biphenyls (PCB)	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) SS1	11-Sep-2017	----	----	----	14-Sep-2017	25-Sep-2017	✔
Soil Glass Jar - Unpreserved (EA055) SS2, SS3, SS4	12-Sep-2017	----	----	----	14-Sep-2017	26-Sep-2017	✔
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag: Separate bag received (EA200) SS1	11-Sep-2017	----	----	----	14-Sep-2017	10-Mar-2018	✔
Snap Lock Bag: Separate bag received (EA200) SS2, SS3, SS4	12-Sep-2017	----	----	----	14-Sep-2017	11-Mar-2018	✔



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA200N: Asbestos Quantification (non-NATA)								
Snap Lock Bag: Separate bag received (EA200N) SS1		11-Sep-2017	----	----	----	14-Sep-2017	10-Mar-2018	✓
Snap Lock Bag: Separate bag received (EA200N) SS2, SS4	SS3,	12-Sep-2017	----	----	----	14-Sep-2017	11-Mar-2018	✓
EG005T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) SS1		11-Sep-2017	15-Sep-2017	10-Mar-2018	✓	15-Sep-2017	10-Mar-2018	✓
Soil Glass Jar - Unpreserved (EG005T) SS2, SS4	SS3,	12-Sep-2017	15-Sep-2017	11-Mar-2018	✓	15-Sep-2017	11-Mar-2018	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) SS1		11-Sep-2017	15-Sep-2017	09-Oct-2017	✓	15-Sep-2017	09-Oct-2017	✓
Soil Glass Jar - Unpreserved (EG035T) SS2, SS4	SS3,	12-Sep-2017	15-Sep-2017	10-Oct-2017	✓	15-Sep-2017	10-Oct-2017	✓
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066) SS3		12-Sep-2017	15-Sep-2017	26-Sep-2017	✓	15-Sep-2017	25-Oct-2017	✓
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068) SS1		11-Sep-2017	15-Sep-2017	25-Sep-2017	✓	15-Sep-2017	25-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP068) SS3		12-Sep-2017	15-Sep-2017	26-Sep-2017	✓	15-Sep-2017	25-Oct-2017	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) SS2, SS4	SS3,	12-Sep-2017	15-Sep-2017	26-Sep-2017	✓	15-Sep-2017	25-Oct-2017	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) SS2, SS4	SS3,	12-Sep-2017	14-Sep-2017	26-Sep-2017	✓	15-Sep-2017	26-Sep-2017	✓
Soil Glass Jar - Unpreserved (EP071) SS2, SS4	SS3,	12-Sep-2017	15-Sep-2017	26-Sep-2017	✓	15-Sep-2017	25-Oct-2017	✓

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 Work Order : EM1712592
 Client : AARGUS PTY LTD
 Project : ES7021/2



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) SS2, SS4	SS3, 12-Sep-2017	14-Sep-2017	26-Sep-2017	✓	15-Sep-2017	26-Sep-2017	✓
Soil Glass Jar - Unpreserved (EP071) SS2, SS4	SS3, 12-Sep-2017	15-Sep-2017	26-Sep-2017	✓	15-Sep-2017	25-Oct-2017	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) SS2, SS4	SS3, 12-Sep-2017	14-Sep-2017	26-Sep-2017	✓	15-Sep-2017	26-Sep-2017	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification	
Analytical Methods	Method	QC	Regular	Actual	Expected		Evaluation
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	0.00	5.00	✗	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	EA200N	SOIL	Asbestos Classification and Quantitation per NEPM 2013 with Confirmation of Identification by AS 4964 - 2004 Gravimetric determination of Asbestos Containing Material, Friable Asbestos and sample weight and calculation of percentage concentrations per NEPM protocols. Friable Asbestos is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)

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Preparation Methods	Method	Matrix	Method Descriptions
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

**SAMPLE RECEIPT NOTIFICATION (SRN)****Work Order : EM1712592**

Client	: AARGUS PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR MARK KELLY	Contact	:
Address	: PO BOX 398	Address	: 4 Westall Rd Springvale VIC Australia
	DRUMMOYNE NSW, AUSTRALIA 2047		3171
E-mail	: mark.kelly@aargus.net	E-mail	:
Telephone	: 1300137038	Telephone	: +61-3-8549 9600
Facsimile	: 1300136038	Facsimile	: +61-3-8549 9601
Project	: ES7021/2	Page	: 1 of 3
Order number	: ----	Quote number	: ES2014AARGUS0129 (SY/258/14 V2)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: Schofiled		
Sampler	: SP		

Dates

Date Samples Received	: 14-Sep-2017 10:10	Issue Date	: 14-Sep-2017
Client Requested Due Date	: 21-Sep-2017	Scheduled Reporting Date	: 21-Sep-2017

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 6.4°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 4 / 4

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Please direct any queries related to sample condition / numbering / breakages to Client Services.**
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.
- **Analytical work for this work order will be conducted at ALS Springvale.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: SOIL

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA055-103 Moisture Content	SOIL - EA200N Asbestos in Soils - (<1kg samples ONLY)	SOIL - EP068A (solids) Organochlorine Pesticides by GC/MS	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-11 OC/PCB	SOIL - S-26 8 metals/TRH/BTEXN/PAH
EM1712592-001	11-Sep-2017 00:00	SS1	✓	✓	✓	✓		
EM1712592-002	12-Sep-2017 00:00	SS2	✓	✓				✓
EM1712592-003	12-Sep-2017 00:00	SS3	✓	✓			✓	✓
EM1712592-004	12-Sep-2017 00:00	SS4	✓	✓				✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



Requested Deliverables

ALL REPORTS (CYNTHIA)

- *AU Certificate of Analysis - NATA (COA)	Email	cynthia@aargus.net
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	cynthia@aargus.net
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	cynthia@aargus.net
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	cynthia@aargus.net
- A4 - AU Tax Invoice (INV)	Email	cynthia@aargus.net
- Chain of Custody (CoC) (COC)	Email	cynthia@aargus.net
- EDI Format - ENMRG (ENMRG)	Email	cynthia@aargus.net
- EDI Format - ESDAT (ESDAT)	Email	cynthia@aargus.net
- EDI Format - XTab (XTAB)	Email	cynthia@aargus.net

ANIKA

- *AU Certificate of Analysis - NATA (COA)	Email	anika@aargus.net
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	anika@aargus.net
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	anika@aargus.net
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	anika@aargus.net
- A4 - AU Tax Invoice (INV)	Email	anika@aargus.net
- Chain of Custody (CoC) (COC)	Email	anika@aargus.net
- EDI Format - ENMRG (ENMRG)	Email	anika@aargus.net
- EDI Format - ESDAT (ESDAT)	Email	anika@aargus.net
- EDI Format - XTab (XTAB)	Email	anika@aargus.net

DEREK

- *AU Certificate of Analysis - NATA (COA)	Email	dereck@aargus.net
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	dereck@aargus.net
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	dereck@aargus.net
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	dereck@aargus.net
- A4 - AU Tax Invoice (INV)	Email	dereck@aargus.net
- Chain of Custody (CoC) (COC)	Email	dereck@aargus.net
- EDI Format - ENMRG (ENMRG)	Email	dereck@aargus.net
- EDI Format - ESDAT (ESDAT)	Email	dereck@aargus.net
- EDI Format - XTab (XTAB)	Email	dereck@aargus.net

MARK KELLY

- *AU Certificate of Analysis - NATA (COA)	Email	mark.kelly@aargus.net
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mark.kelly@aargus.net
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mark.kelly@aargus.net
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mark.kelly@aargus.net
- A4 - AU Tax Invoice (INV)	Email	mark.kelly@aargus.net
- Chain of Custody (CoC) (COC)	Email	mark.kelly@aargus.net
- EDI Format - ENMRG (ENMRG)	Email	mark.kelly@aargus.net
- EDI Format - ESDAT (ESDAT)	Email	mark.kelly@aargus.net
- EDI Format - XTab (XTAB)	Email	mark.kelly@aargus.net

SETAREH

- *AU Certificate of Analysis - NATA (COA)	Email	setareh@aargus.net
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	setareh@aargus.net
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	setareh@aargus.net
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	setareh@aargus.net
- Chain of Custody (CoC) (COC)	Email	setareh@aargus.net
- EDI Format - ENMRG (ENMRG)	Email	setareh@aargus.net
- EDI Format - ESDAT (ESDAT)	Email	setareh@aargus.net
- EDI Format - XTab (XTAB)	Email	setareh@aargus.net



Reference: 10178449-0001

AARGUS PTY LTD

446 Paramatta Road
PETERSHAM NSW 2049
P.O. Box 286 Tel: 1300 137 038
DRUMMOYNE NSW 1580 Fax: 1300 136 036

Laboratory Test Request / Chain of Custody Record

Email reports: reports@argus.net.au, mark.kelly@argus.net.au, enterprises@argus.net.au
Email notices: notice@argus.net.au, mark.kelly@argus.net.au, enterprises@argus.net.au

TO: ALS (Australia) Laboratory Services Environmental		Sampling Date: 11 & 12/09/2017		Job No: FS-02172	1 of 1	
PH: 03 8549 9600		FAX: 03 8549 9604		Sampled By: SP	Project: SP	
ATTN: Samples Receipt				Project Manager: MK	Location: Schinella	

Sampling details		Sample type		Results required by: STANDARD TAT Quotation Number (if applicable): SY258/14 Y2										
Location	Depth (m)	Date	Soil	Water (Filtered Ltr)	A -	Macals (As, Cd, Cr, Cu, Hg, Pb, Ni, Zn)	TPH	BTEX	PAH	DC	PCB	Asbestos (pm10%)	Analysis Surveys	KEEP SAMPLE
SS1	-	11/09/2017	USG			✓				✓		✓	S2	YES
SS2	-	12/09/2017	USG			✓	✓	✓	✓	✓		✓	E2a	YES
SS3	-	12/09/2017	USG			✓	✓	✓	✓	✓	✓	✓	S8	YES
SS4	-	12/09/2017	USG			✓	✓	✓	✓	✓		✓	S26	YES

Name: <u>Margie Zhou</u>		Relinquished by: <u>Signatures</u>		Name: <u> </u>		Received by: <u> </u>	
Signature: <u> </u>		Signature: <u> </u>		Signature: <u> </u>		Signature: <u> </u>	
Date: <u>13/09/2017</u>		Date: <u> </u>		Date: <u> </u>		Date: <u> </u>	

Legend:	USG	Undisturbed soil sample (glass jar)	DEP	Disturbed soil sample (small plastic bag)
W/C	Water sample, glass bottle	DCB	Disturbed soil sample (glass jar)	FEI
W/P	Water sample, plastic bottle	Q1...	Other	ACM
SW	Groundwater			AS

Margie Zhou (AK) 14/9/2017



Environmental

CERTIFICATE OF ANALYSIS

Work Order : **ES1723018**
Client : **AARGUS PTY LTD**
Contact : **MR MARK KELLY**
Address : **PO BOX 398**
DRUMMOYNE NSW, AUSTRALIA 2047
Telephone : **1300137038**
Project : **ES7021/2 DSI**
Order number : **----**
C-O-C number : **----**
Sampler : **SP**
Site : **SCHOFIELD**
Quote number : **SY/258/14 V2**
No. of samples received : **95**
No. of samples analysed : **79**

Page : 1 of 47
Laboratory : Environmental Division Sydney
Contact : Customer Services ES
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 13-Sep-2017 15:50
Date Analysis Commenced : 15-Sep-2017
Issue Date : 20-Sep-2017 18:25



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

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

Signatories	Position	Accreditation Category
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Dian Dao		Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Nanthini Coilparampi	Laboratory Manager - Inorganics	Sydney Inorganics, Smithfield, NSW
Rassem Ayoubi	Senior Organic Chemist	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW



General Comments

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

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

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

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

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

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

LOR = Limit of reporting

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

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- EP071: Results of samples D2 and D4 have been confirmed by re-extraction and re-analysis.
- EG035T: Poor matrix spike recovery was obtained for Mercury on sample ES1723018-#073 due to sample heterogeneity. Results have been confirmed by re-extraction and reanalysis.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEX only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H⁺ + Al³⁺).



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH1 0.0-0.1	BH2 0.0-0.1	BH3 0.0-0.1	BH4 0.0-0.1	BH5 0.0-0.1
Client sampling date / time				11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-001	ES1723018-002	ES1723018-003	ES1723018-004	ES1723018-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	9.5	12.0	7.9	11.1	17.0
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	5	<5	6	9	6
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	9	8	7	13	9
Copper	7440-50-8	5	mg/kg	12	12	20	15	15
Lead	7439-92-1	5	mg/kg	15	12	10	22	18
Nickel	7440-02-0	2	mg/kg	6	6	6	13	9
Zinc	7440-66-6	5	mg/kg	30	26	35	42	46
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH1 0.0-0.1	BH2 0.0-0.1	BH3 0.0-0.1	BH4 0.0-0.1	BH5 0.0-0.1
Client sampling date / time				11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-001	ES1723018-002	ES1723018-003	ES1723018-004	ES1723018-005
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	108	84.0	115	109	123
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	70.8	79.7	70.4	67.1	70.9



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH6 0.0-0.1	BH7 0.0-0.1	BH8 0.0-0.1	BH9 0.0-0.1	BH10 0.0-0.1
Client sampling date / time				11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-006	ES1723018-007	ES1723018-008	ES1723018-009	ES1723018-010
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	17.3	11.2	12.1	12.4	15.4
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	6	6	9	9	6
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	7	9	11	9	9
Copper	7440-50-8	5	mg/kg	28	18	19	16	20
Lead	7439-92-1	5	mg/kg	13	18	13	17	18
Nickel	7440-02-0	2	mg/kg	5	8	8	11	8
Zinc	7440-66-6	5	mg/kg	26	57	48	64	42
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH6 0.0-0.1	BH7 0.0-0.1	BH8 0.0-0.1	BH9 0.0-0.1	BH10 0.0-0.1
Client sampling date / time				11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-006	ES1723018-007	ES1723018-008	ES1723018-009	ES1723018-010
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	126	90.8	126	110	118
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	71.0	65.6	68.7	64.6	62.7



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH11 0.0-0.1	BH12 0.0-0.1	BH13 0.0-0.1	BH14 0.0-0.1	BH15 0.0-0.1
Client sampling date / time				11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-011	ES1723018-012	ES1723018-013	ES1723018-014	ES1723018-015
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	11.8	15.0	8.8	12.7	15.4
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	9	8	12
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	7	11	6	12	12
Copper	7440-50-8	5	mg/kg	12	12	15	18	18
Lead	7439-92-1	5	mg/kg	11	13	9	23	22
Nickel	7440-02-0	2	mg/kg	5	5	12	10	8
Zinc	7440-66-6	5	mg/kg	28	21	103	32	32
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH11 0.0-0.1	BH12 0.0-0.1	BH13 0.0-0.1	BH14 0.0-0.1	BH15 0.0-0.1
Client sampling date / time				11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-011	ES1723018-012	ES1723018-013	ES1723018-014	ES1723018-015
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	122	122	92.5	120	131
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	62.3	80.7	66.5	63.2	81.0



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH16 0.0-0.1	BH17 0.0-0.1	BH18 0.0-0.1	BH19 0.0-0.1	BH20 0.0-0.1
Client sampling date / time				11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-016	ES1723018-017	ES1723018-018	ES1723018-019	ES1723018-020
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	12.9	17.2	11.5	13.3	13.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	6	11	6	11	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	10	9	15	16	11
Copper	7440-50-8	5	mg/kg	14	14	16	16	15
Lead	7439-92-1	5	mg/kg	20	9	21	23	13
Nickel	7440-02-0	2	mg/kg	8	2	11	9	6
Zinc	7440-66-6	5	mg/kg	29	19	119	51	42
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH16 0.0-0.1	BH17 0.0-0.1	BH18 0.0-0.1	BH19 0.0-0.1	BH20 0.0-0.1
Client sampling date / time				11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-016	ES1723018-017	ES1723018-018	ES1723018-019	ES1723018-020
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	83.4	75.9	99.3	126	115
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	75.5	68.3	68.1	71.4	75.4



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH21 0.0-0.1	BH21 0.9-1.0	BH22 0.0-0.1	BH23 0.0-0.1	BH24 0.0-0.1
Client sampling date / time				11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-021	ES1723018-022	ES1723018-023	ES1723018-024	ES1723018-025
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	5.4	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	10.4	8.3	19.1	14.8	3.0
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	3.9	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	3.8	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	1.2	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	0.4	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	9.3	----	----	----
Exchangeable Sodium Percent	----	0.1	%	----	3.8	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	6	14	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	8	4	14	10	6
Copper	7440-50-8	5	mg/kg	19	14	26	20	7
Lead	7439-92-1	5	mg/kg	21	16	19	18	12
Nickel	7440-02-0	2	mg/kg	20	5	14	8	5
Zinc	7440-66-6	5	mg/kg	182	72	60	35	26
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH21 0.0-0.1	BH21 0.9-1.0	BH22 0.0-0.1	BH23 0.0-0.1	BH24 0.0-0.1
Client sampling date / time				11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-021	ES1723018-022	ES1723018-023	ES1723018-024	ES1723018-025
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
4.4'-DDE	72-55-9	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
4.4'-DDD	72-54-8	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
4.4'-DDT	50-29-3	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	<0.05	----	<0.05	<0.05	<0.05
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	115	----	91.7	114	84.2
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	99.4	----	70.9	99.0	68.0



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH25 0.1-0.2	BH26 0.0-0.1	BH27 0.0-0.1	BH28 0.0-0.1	BH29 0.0-0.1
Client sampling date / time				11-Sep-2017 00:00	11-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-026	ES1723018-027	ES1723018-028	ES1723018-029	ES1723018-030
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	5.5	12.2	15.3	14.7	13.0
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	24	24	26	9
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	6	12	10	9	4
Copper	7440-50-8	5	mg/kg	31	26	26	24	28
Lead	7439-92-1	5	mg/kg	11	21	13	11	10
Nickel	7440-02-0	2	mg/kg	6	5	4	3	2
Zinc	7440-66-6	5	mg/kg	34	27	30	20	22
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	<0.05	<0.05	<0.05



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH25 0.1-0.2	BH26 0.0-0.1	BH27 0.0-0.1	BH28 0.0-0.1	BH29 0.0-0.1
Client sampling date / time				11-Sep-2017 00:00	11-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-026	ES1723018-027	ES1723018-028	ES1723018-029	ES1723018-030
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Methoxychlor	72-43-5	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg	110	<100	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	110	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH25 0.1-0.2	BH26 0.0-0.1	BH27 0.0-0.1	BH28 0.0-0.1	BH29 0.0-0.1
Client sampling date / time				11-Sep-2017 00:00	11-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-026	ES1723018-027	ES1723018-028	ES1723018-029	ES1723018-030
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	140	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	140	<50	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	----	79.9	109	88.5
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	----	66.0	80.5	75.0
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	82.7	80.0	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	73.6	73.9	----	----	----
2,4,6-Tribromophenol	118-79-6	0.5	%	72.8	79.4	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	92.3	88.0	----	----	----
Anthracene-d10	1719-06-8	0.5	%	100	102	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	92.3	94.4	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.2	%	97.5	88.2	----	----	----
Toluene-D8	2037-26-5	0.2	%	96.1	95.6	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	111	97.1	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID		BH29 1.0-1.1	BH30 0.0-0.1	D1	BH31 0.0-0.1	BH32 0.0-0.1	
Client sampling date / time				12-Sep-2017 00:00		12-Sep-2017 00:00		11-Sep-2017 00:00		12-Sep-2017 00:00	
Compound	CAS Number	LOR	Unit	ES1723018-031		ES1723018-032		ES1723018-033		ES1723018-038	
				Result		Result		Result		Result	
EA002 : pH (Soils)											
pH Value	----	0.1	pH Unit	6.6		----		----		----	
EA055: Moisture Content (Dried @ 105-110°C)											
Moisture Content	----	1.0	%	9.2		18.3		10.6		10.4	
ED007: Exchangeable Cations											
Exchangeable Calcium	----	0.1	meq/100g	0.6		----		----		----	
Exchangeable Magnesium	----	0.1	meq/100g	4.2		----		----		----	
Exchangeable Potassium	----	0.1	meq/100g	0.7		----		----		----	
Exchangeable Sodium	----	0.1	meq/100g	2.2		----		----		----	
Cation Exchange Capacity	----	0.1	meq/100g	7.9		----		----		----	
Exchangeable Sodium Percent	----	0.1	%	28.9		----		----		----	
EG005T: Total Metals by ICP-AES											
Arsenic	7440-38-2	5	mg/kg	<5		24		8		9	
Cadmium	7440-43-9	1	mg/kg	<1		<1		<1		<1	
Chromium	7440-47-3	2	mg/kg	3		11		10		12	
Copper	7440-50-8	5	mg/kg	28		21		15		16	
Lead	7439-92-1	5	mg/kg	13		14		17		25	
Nickel	7440-02-0	2	mg/kg	4		4		11		8	
Zinc	7440-66-6	5	mg/kg	61		28		60		78	
EG035T: Total Recoverable Mercury by FIMS											
Mercury	7439-97-6	0.1	mg/kg	<0.1		<0.1		<0.1		<0.1	
EP068A: Organochlorine Pesticides (OC)											
alpha-BHC	319-84-6	0.05	mg/kg	----		<0.05		<0.05		----	
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----		<0.05		<0.05		----	
beta-BHC	319-85-7	0.05	mg/kg	----		<0.05		<0.05		----	
gamma-BHC	58-89-9	0.05	mg/kg	----		<0.05		<0.05		----	
delta-BHC	319-86-8	0.05	mg/kg	----		<0.05		<0.05		----	
Heptachlor	76-44-8	0.05	mg/kg	----		<0.05		<0.05		----	
Aldrin	309-00-2	0.05	mg/kg	----		<0.05		<0.05		----	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----		<0.05		<0.05		----	
^ Total Chlordane (sum)	----	0.05	mg/kg	----		<0.05		<0.05		----	
trans-Chlordane	5103-74-2	0.05	mg/kg	----		<0.05		<0.05		----	
alpha-Endosulfan	959-98-8	0.05	mg/kg	----		<0.05		<0.05		----	
cis-Chlordane	5103-71-9	0.05	mg/kg	----		<0.05		<0.05		----	
Dieldrin	60-57-1	0.05	mg/kg	----		<0.05		<0.05		----	



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH29 1.0-1.1	BH30 0.0-0.1	D1	BH31 0.0-0.1	BH32 0.0-0.1
Client sampling date / time				12-Sep-2017 00:00	12-Sep-2017 00:00	11-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-031	ES1723018-032	ES1723018-033	ES1723018-038	ES1723018-039
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
4.4'-DDE	72-55-9	0.05	mg/kg	----	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	----	<0.05	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	<0.05	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	<0.05	<0.05	----	----
4.4'-DDD	72-54-8	0.05	mg/kg	----	<0.05	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	<0.05	<0.05	----	----
4.4'-DDT	50-29-3	0.2	mg/kg	----	<0.2	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	----	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg	----	<0.2	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	<0.05	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	----	<0.05	<0.05	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	92.0	110	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	64.2	99.1	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH33 0.0-0.1	BH34 0.0-0.1	BH35 0.0-0.1	BH36 0.0-0.1	BH37 0.0-0.1
Client sampling date / time				12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-040	ES1723018-041	ES1723018-042	ES1723018-043	ES1723018-044
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	7.5	12.8	8.8	14.6	10.8
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	12	10	18	<5	8
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	7	10	7	8	7
Copper	7440-50-8	5	mg/kg	14	24	28	12	15
Lead	7439-92-1	5	mg/kg	12	16	16	13	15
Nickel	7440-02-0	2	mg/kg	6	3	6	5	6
Zinc	7440-66-6	5	mg/kg	42	19	43	21	28
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH38 0.0-0.1	BH38 0.9-1.0	BH39 0.0-0.1	TRIP SPIKE2	TRIP BLANK2
Client sampling date / time				12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-045	ES1723018-046	ES1723018-047	ES1723018-049	ES1723018-050
				Result	Result	Result	Result	Result
EA002 : pH (Soils)								
pH Value	----	0.1	pH Unit	----	6.9	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	7.4	7.5	12.5	----	----
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	0.5	----	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	5.4	----	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	0.6	----	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	2.4	----	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	8.9	----	----	----
Exchangeable Sodium Percent	----	0.1	%	----	27.4	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	32	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	3	3	9	----	----
Copper	7440-50-8	5	mg/kg	18	29	31	----	----
Lead	7439-92-1	5	mg/kg	8	13	18	----	----
Nickel	7440-02-0	2	mg/kg	4	16	6	----	----
Zinc	7440-66-6	5	mg/kg	40	73	34	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	----	----	15	<10
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	----	----	19	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	----	----	<10	<10
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	----	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	----	----	----	4.4	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	----	0.9	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	----	4.7	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	----	2.2	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	----	----	12.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	----	----	6.9	<0.5



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BH38 0.0-0.1	BH38 0.9-1.0	BH39 0.0-0.1	TRIP SPIKE2	TRIP BLANK2
Client sampling date / time				12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-045	ES1723018-046	ES1723018-047	ES1723018-049	ES1723018-050
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Naphthalene	91-20-3	1	mg/kg	----	----	----	<1	<1
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	----	88.9	92.6
Toluene-D8	2037-26-5	0.2	%	----	----	----	81.9	84.4
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	----	77.2	102



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				TSC2	S1 0.0-0.1	S1 0.9-1.0	S2 0.0-0.1	S2 0.5-0.6
Client sampling date / time				12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-051	ES1723018-052	ES1723018-053	ES1723018-055	ES1723018-056
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	----	10.1	9.2	6.1	13.5
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	7	6	5	11
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	----	9	9	8	7
Copper	7440-50-8	5	mg/kg	----	21	23	33	35
Lead	7439-92-1	5	mg/kg	----	12	12	18	22
Nickel	7440-02-0	2	mg/kg	----	8	8	21	20
Zinc	7440-66-6	5	mg/kg	----	54	54	114	84
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	----	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	----	<0.05	----
gamma-BHC	58-89-9	0.05	mg/kg	----	<0.05	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	----	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg	----	<0.05	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	----	<0.05	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	<0.05	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.05	----	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.05	----	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.05	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg	----	<0.05	----	<0.05	----
4,4'-DDE	72-55-9	0.05	mg/kg	----	<0.05	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg	----	<0.05	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	<0.05	----	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	<0.05	----	<0.05	----
4,4'-DDD	72-54-8	0.05	mg/kg	----	<0.05	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	<0.05	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	<0.05	----	<0.05	----

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TSC2	S1 0.0-0.1	S1 0.9-1.0	S2 0.0-0.1	S2 0.5-0.6
Client sampling date / time				12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-051	ES1723018-052	ES1723018-053	ES1723018-055	ES1723018-056	
				Result	Result	Result	Result	Result	
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDT	50-29-3	0.2	mg/kg	----	<0.2	----	<0.2	----	
Endrin ketone	53494-70-5	0.05	mg/kg	----	<0.05	----	<0.05	----	
Methoxychlor	72-43-5	0.2	mg/kg	----	<0.2	----	<0.2	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	<0.05	----	<0.05	----	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5	0.05	mg/kg	----	<0.05	----	<0.05	----	
	0-2								
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Benzo(b+j)fluoranthene	205-99-2	205-82-3	0.5	mg/kg	----	<0.5	<0.5	----	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	<0.5	<0.5	----	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	0.6	0.6	0.6	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	1.2	1.2	1.2	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	24	<10	<10	<10	----	
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	<50	----	
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	<100	----	
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	<100	----	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	<50	<50	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TSC2	S1 0.0-0.1	S1 0.9-1.0	S2 0.0-0.1	S2 0.5-0.6
Client sampling date / time					12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit		ES1723018-051	ES1723018-052	ES1723018-053	ES1723018-055	ES1723018-056
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	10	mg/kg		29	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		13	<10	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg		----	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg		----	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		----	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	<50	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		6.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		1.0	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		5.8	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		2.6	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		15.9	<0.2	<0.2	<0.2	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		8.4	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	98.1	----	112	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	118	----	122	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	123	----	125	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	75.3	76.6	79.8	----
2-Chlorophenol-D4	93951-73-6	0.5	%		----	70.2	74.2	76.4	----
2,4,6-Tribromophenol	118-79-6	0.5	%		----	78.4	79.4	70.9	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	74.8	82.1	88.4	----
Anthracene-d10	1719-06-8	0.5	%		----	101	104	105	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	93.0	94.7	96.4	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		100	96.2	108	100	----



Analytical Results

Sub-Matrix: **SOIL**
 (Matrix: **SOIL**)

Client sample ID

				TSC2	S1 0.0-0.1	S1 0.9-1.0	S2 0.0-0.1	S2 0.5-0.6
Client sampling date / time				12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-051	ES1723018-052	ES1723018-053	ES1723018-055	ES1723018-056
				Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued								
Toluene-D8	2037-26-5	0.2	%	92.8	95.6	116	107	----
4-Bromofluorobenzene	460-00-4	0.2	%	111	94.2	115	105	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				S3 0.0-0.1	S3 0.9-1.0	S4 0.0-0.1	S4 0.2-0.3	S5 0.0-0.1
Client sampling date / time				12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-058	ES1723018-059	ES1723018-061	ES1723018-062	ES1723018-064
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	11.3	11.5	7.6	5.7	7.8
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	14	11	11	11	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	6	7	8	11	13
Copper	7440-50-8	5	mg/kg	31	31	15	21	22
Lead	7439-92-1	5	mg/kg	24	15	16	20	23
Nickel	7440-02-0	2	mg/kg	16	15	9	14	14
Zinc	7440-66-6	5	mg/kg	84	70	41	62	55
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	<0.05	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	<0.05	----	<0.05

Sub-Matrix: **SOIL** Client sample ID
 (Matrix: **SOIL**)

EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				S3 0.0-0.1	S3 0.9-1.0	S4 0.0-0.1	S4 0.2-0.3	S5 0.0-0.1
Client sampling date / time				12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-058	ES1723018-059	ES1723018-061	ES1723018-062	ES1723018-064
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	----	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	----	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	----	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	----	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	----	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	----	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	----	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	<1
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	120	----	----	----	104
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	125	----	103	----	120
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	103	----	108	----	111
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	78.1	78.6	----	----	77.7
2-Chlorophenol-D4	93951-73-6	0.5	%	68.2	77.2	----	----	68.5
2,4,6-Tribromophenol	118-79-6	0.5	%	68.4	67.7	----	----	68.0
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	83.0	85.5	----	----	83.9
Anthracene-d10	1719-06-8	0.5	%	102	104	----	----	101
4-Terphenyl-d14	1718-51-0	0.5	%	93.2	96.4	----	----	92.5
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.2	%	87.1	77.6	----	----	99.2

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 Work Order : ES1723018
 Client : AARGUS PTY LTD
 Project : ES7021/2 DSI



Analytical Results

Sub-Matrix: **SOIL**
 (Matrix: **SOIL**)

Client sample ID

				S3 0.0-0.1	S3 0.9-1.0	S4 0.0-0.1	S4 0.2-0.3	S5 0.0-0.1
Client sampling date / time				12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-058	ES1723018-059	ES1723018-061	ES1723018-062	ES1723018-064
				Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued								
Toluene-D8	2037-26-5	0.2	%	93.6	79.1	----	----	102
4-Bromofluorobenzene	460-00-4	0.2	%	90.8	84.8	----	----	111



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				S5 0.9-1.0	S6 0.0-0.1	S6 0.9-1.0	S7 0.0-0.1	S7 0.2-0.3
Client sampling date / time				12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-065	ES1723018-067	ES1723018-068	ES1723018-070	ES1723018-071
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	10.1	5.2	7.6	11.0	6.7
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	10	6	7	9	7
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	7	18	8	5	6
Copper	7440-50-8	5	mg/kg	19	67	22	18	33
Lead	7439-92-1	5	mg/kg	15	30	13	10	13
Nickel	7440-02-0	2	mg/kg	6	21	7	8	12
Zinc	7440-66-6	5	mg/kg	60	101	35	115	107
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	----	<0.05	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	----	<0.05	----
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	----	<0.05	----
gamma-BHC	58-89-9	0.05	mg/kg	----	<0.05	----	<0.05	----
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	----	<0.05	----
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	----	<0.05	----
Aldrin	309-00-2	0.05	mg/kg	----	<0.05	----	<0.05	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	----	<0.05	----
^ Total Chlordane (sum)	----	0.05	mg/kg	----	<0.05	----	<0.05	----
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.05	----	<0.05	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.05	----	<0.05	----
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.05	----	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg	----	<0.05	----	<0.05	----
4,4'-DDE	72-55-9	0.05	mg/kg	----	<0.05	----	<0.05	----
Endrin	72-20-8	0.05	mg/kg	----	<0.05	----	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	<0.05	----	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	<0.05	----	<0.05	----
4,4'-DDD	72-54-8	0.05	mg/kg	----	<0.05	----	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	<0.05	----	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	<0.05	----	<0.05	----

Sub-Matrix: **SOIL** Client sample ID
 (Matrix: **SOIL**)

EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				S5 0.9-1.0	S6 0.0-0.1	S6 0.9-1.0	S7 0.0-0.1	S7 0.2-0.3
Client sampling date / time				12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-065	ES1723018-067	ES1723018-068	ES1723018-070	ES1723018-071
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	0.1	%	----	103	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	119	----	91.9	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	85.4	----	86.9	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	75.0	73.2	97.9	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	74.0	71.8	92.1	----	----
2,4,6-Tribromophenol	118-79-6	0.5	%	74.7	74.1	83.7	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	84.4	72.4	105	----	----
Anthracene-d10	1719-06-8	0.5	%	103	101	126	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	94.1	91.9	120	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.2	%	90.8	109	96.8	----	----

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 Work Order : ES1723018
 Client : AARGUS PTY LTD
 Project : ES7021/2 DSI



Analytical Results

Sub-Matrix: **SOIL**
 (Matrix: **SOIL**)

Client sample ID

				S5 0.9-1.0	S6 0.0-0.1	S6 0.9-1.0	S7 0.0-0.1	S7 0.2-0.3
Client sampling date / time				12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-065	ES1723018-067	ES1723018-068	ES1723018-070	ES1723018-071
				Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued								
Toluene-D8	2037-26-5	0.2	%	92.8	104	91.9	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	105	97.6	96.4	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				S8 0.0-0.1	S8 0.2-0.3	S9 0.0-0.1	S10 0.0-0.1	S11 0.0-0.1
Client sampling date / time				12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-073	ES1723018-074	ES1723018-076	ES1723018-079	ES1723018-080
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	10.0	11.1	8.6	9.6	15.0
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	11	9	18	10	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	2	<2	6	9	7
Copper	7440-50-8	5	mg/kg	22	19	35	10	17
Lead	7439-92-1	5	mg/kg	11	10	13	13	12
Nickel	7440-02-0	2	mg/kg	2	<2	18	7	6
Zinc	7440-66-6	5	mg/kg	20	19	73	26	87
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	<0.05	----	----
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	----	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	<0.05	----	----
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	----	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	<0.05	----	----
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	----	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	<0.05	----	----



Analytical Results

Sub-Matrix: **SOIL**
 (Matrix: **SOIL**)

Client sample ID

				S8 0.0-0.1	S8 0.2-0.3	S9 0.0-0.1	S10 0.0-0.1	S11 0.0-0.1
Client sampling date / time				12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-073	ES1723018-074	ES1723018-076	ES1723018-079	ES1723018-080
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	<0.05	----	<0.05	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	82.7	----	98.8	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	62.4	----	83.8	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				S12 0.0-0.1	S13 0.0-0.1	S14 0.0-0.1	S15 0.0-0.1	S16 0.0-0.1
Client sampling date / time				12-Sep-2017 00:00	11-Sep-2017 00:00	12-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-081	ES1723018-082	ES1723018-084	ES1723018-085	ES1723018-087
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	13.2	10.7	19.0	9.3	7.5
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	10	9	30	8	7
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	5	86	14	22	7
Copper	7440-50-8	5	mg/kg	27	35	20	38	21
Lead	7439-92-1	5	mg/kg	10	15	21	26	20
Nickel	7440-02-0	2	mg/kg	4	41	6	30	7
Zinc	7440-66-6	5	mg/kg	37	75	34	80	96
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Benzo(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	0.6	----	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	1.2	----	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	<10	<10



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				S12 0.0-0.1	S13 0.0-0.1	S14 0.0-0.1	S15 0.0-0.1	S16 0.0-0.1
Client sampling date / time				12-Sep-2017 00:00	11-Sep-2017 00:00	12-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-081	ES1723018-082	ES1723018-084	ES1723018-085	ES1723018-087
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg	----	110	----	150	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	110	----	150	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	----	<50	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	100	----	150	<100
>C34 - C40 Fraction	----	100	mg/kg	----	140	----	140	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	240	----	290	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	----	<0.5	----	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	----	<1	----	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	76.1	----	81.8	79.3
2-Chlorophenol-D4	93951-73-6	0.5	%	----	74.4	----	75.6	73.2
2,4,6-Tribromophenol	118-79-6	0.5	%	----	58.8	----	78.5	63.8
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	83.8	----	86.8	88.1
Anthracene-d10	1719-06-8	0.5	%	----	101	----	102	104
4-Terphenyl-d14	1718-51-0	0.5	%	----	92.0	----	95.2	95.7
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	94.8	----	96.5	99.6
Toluene-D8	2037-26-5	0.2	%	----	94.0	----	87.5	87.8



Analytical Results

Sub-Matrix: **SOIL**
 (Matrix: **SOIL**)

Client sample ID

				S12 0.0-0.1	S13 0.0-0.1	S14 0.0-0.1	S15 0.0-0.1	S16 0.0-0.1
Client sampling date / time				12-Sep-2017 00:00	11-Sep-2017 00:00	12-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-081	ES1723018-082	ES1723018-084	ES1723018-085	ES1723018-087
				Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued								
4-Bromofluorobenzene	460-00-4	0.2	%	----	89.2	----	84.8	84.2



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				S18 0.0-0.1	S19 0.0-0.1	S20 0.0-0.1	S21 0.0-0.1	D2
Client sampling date / time				11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-089	ES1723018-090	ES1723018-091	ES1723018-092	ES1723018-093
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	12.3	9.8	10.4	15.0	10.2
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	7	6	10	11
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	10	15	12	13	23
Copper	7440-50-8	5	mg/kg	15	16	18	18	37
Lead	7439-92-1	5	mg/kg	15	29	21	18	24
Nickel	7440-02-0	2	mg/kg	5	11	9	6	29
Zinc	7440-66-6	5	mg/kg	45	120	61	46	83
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				S18 0.0-0.1	S19 0.0-0.1	S20 0.0-0.1	S21 0.0-0.1	D2
Client sampling date / time				11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-089	ES1723018-090	ES1723018-091	ES1723018-092	ES1723018-093
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	----	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	----	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	<100	170
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	----	<50	170
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	<10	<10



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				S18 0.0-0.1	S19 0.0-0.1	S20 0.0-0.1	S21 0.0-0.1	D2
Client sampling date / time				11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	11-Sep-2017 00:00	12-Sep-2017 00:00
Compound	CAS Number	LOR	Unit	ES1723018-089	ES1723018-090	ES1723018-091	ES1723018-092	ES1723018-093
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	----	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	<100	160
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	<100	190
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	----	<50	350
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	----	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	----	<0.2	<0.2
^ Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	<0.5	----	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	<1	<1
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	106	94.7	129	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	85.7	75.9	108	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	79.3	81.5	----	79.3	74.3
2-Chlorophenol-D4	93951-73-6	0.5	%	77.3	76.7	----	71.8	70.7
2,4,6-Tribromophenol	118-79-6	0.5	%	63.4	70.7	----	70.2	75.8
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	82.8	89.7	----	85.0	81.8
Anthracene-d10	1719-06-8	0.5	%	103	103	----	101	102
4-Terphenyl-d14	1718-51-0	0.5	%	95.6	97.1	----	95.2	96.7
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.2	%	91.1	91.8	----	112	89.8
Toluene-D8	2037-26-5	0.2	%	81.7	81.2	----	102	74.1
4-Bromofluorobenzene	460-00-4	0.2	%	78.5	79.4	----	94.4	75.2



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	D3	D4	----	----	----
Client sampling date / time					12-Sep-2017 00:00	12-Sep-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1723018-094	ES1723018-095	-----	-----	-----
				Result	Result		----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		10.3	7.4	----	----	----
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		6	8	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	----	----	----
Chromium	7440-47-3	2	mg/kg		10	138	----	----	----
Copper	7440-50-8	5	mg/kg		23	33	----	----	----
Lead	7439-92-1	5	mg/kg		12	15	----	----	----
Nickel	7440-02-0	2	mg/kg		9	31	----	----	----
Zinc	7440-66-6	5	mg/kg		64	79	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	----	----	----
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg		<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	----	----	----	----
4,4'-DDE	72-55-9	0.05	mg/kg		<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	----	----	----	----
4,4'-DDD	72-54-8	0.05	mg/kg		<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	----	----	----	----

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	D3	D4	----	----	----
Client sampling date / time				12-Sep-2017 00:00	12-Sep-2017 00:00	----	----	----	
Compound	CAS Number	LOR	Unit	ES1723018-094	ES1723018-095	-----	-----	-----	
				Result	Result	----	----	----	
EP068A: Organochlorine Pesticides (OC) - Continued									
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	----	
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	----	
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	----	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	----	
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	----	
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	----	
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	----	
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	----	----	
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	----	
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	----	----	
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	----	----	
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	----	
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	----	----	----	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	----	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	----	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	----	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----	
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	----	----	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	----	----	----	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	----	----	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	----	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----	
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----	
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	----	
C29 - C36 Fraction	----	100	mg/kg	<100	110	----	----	----	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	110	----	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	D3	D4	----	----	----
Client sampling date / time					12-Sep-2017 00:00	12-Sep-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1723018-094	ES1723018-095	-----	-----	-----
					Result	Result	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	140	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	240	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	----	----
^ Total Xylenes	1330-20-7	0.5	mg/kg		<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		120	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		83.6	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		99.5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		76.3	73.0	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		69.8	71.5	----	----	----
2,4,6-Tribromophenol	118-79-6	0.5	%		71.6	71.1	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		68.5	79.8	----	----	----
Anthracene-d10	1719-06-8	0.5	%		82.0	104	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		76.2	97.5	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		98.3	95.7	----	----	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	D3	D4	----	----	----
Client sampling date / time					12-Sep-2017 00:00	12-Sep-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1723018-094	ES1723018-095	-----	-----	-----
					Result	Result	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	0.2	%		91.0	85.4	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		84.4	86.2	----	----	----



Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Client sample ID

				R1	R2	----	----	----
Client sampling date / time				11-Sep-2017 00:00	12-Sep-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES1723018-034	ES1723018-048	-----	-----	-----
				Result	Result	----	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	----	<1.0	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	----	<1.0	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	----	<1.0	----	----	----
Fluorene	86-73-7	1.0	µg/L	----	<1.0	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	----	<1.0	----	----	----
Anthracene	120-12-7	1.0	µg/L	----	<1.0	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	----	<1.0	----	----	----
Pyrene	129-00-0	1.0	µg/L	----	<1.0	----	----	----
Benzo(a)anthracene	56-55-3	1.0	µg/L	----	<1.0	----	----	----
Chrysene	218-01-9	1.0	µg/L	----	<1.0	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	----	<1.0	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	<1.0	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	<1.0	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	----	<1.0	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	----	<1.0	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	<0.5	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	----	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	R1	R2	----	----	----
Client sampling date / time					11-Sep-2017 00:00	12-Sep-2017 00:00	----	----	----
Compound	CAS Number	LOR	Unit		ES1723018-034	ES1723018-048	-----	-----	-----
					Result	Result	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ Total Xylenes	1330-20-7	2	µg/L		<2	<2	----	----	----
^ Sum of BTEX	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		----	24.4	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		----	59.3	----	----	----
2,4,6-Tribromophenol	118-79-6	1.0	%		----	63.0	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		----	86.7	----	----	----
Anthracene-d10	1719-06-8	1.0	%		----	95.5	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		----	81.2	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%		114	122	----	----	----
Toluene-D8	2037-26-5	2	%		105	114	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		103	110	----	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128



Environmental

QUALITY CONTROL REPORT

Work Order : ES1723018

Page : 1 of 20

Client : AARGUS PTY LTD

Contact : MR MARK KELLY

**Address : PO BOX 398
DRUMMOYNE NSW, AUSTRALIA 2047**

Telephone : 1300137038

Project : ES7021/2 DSI

Order number : ----

C-O-C number : ----

Sampler : SP

Site : SCHOFIELD

Quote number : SY/258/14 V2

No. of samples received : 95

No. of samples analysed : 79

Laboratory : Environmental Division Sydney

Contact : Customer Services ES

Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : +61-2-8784 8555

Date Samples Received : 13-Sep-2017

Date Analysis Commenced : 15-Sep-2017

Issue Date : 20-Sep-2017



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	Position	Accreditation Category
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Dian Dao		Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Nanthini Coilparampi	Laboratory Manager - Inorganics	Sydney Inorganics, Smithfield, NSW
Rassem Ayoubi	Senior Organic Chemist	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW



General Comments

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

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

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

Key :
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA002 : pH (Soils) (QC Lot: 1119050)									
ES1723032-007	Anonymous	EA002: pH Value	----	0.1	pH Unit	5.8	5.8	0.00	0% - 20%
EA002 : pH (Soils) (QC Lot: 1119586)									
ES1723150-009	Anonymous	EA002: pH Value	----	0.1	pH Unit	7.6	7.7	0.00	0% - 20%
EB1718840-001	Anonymous	EA002: pH Value	----	0.1	pH Unit	8.8	8.8	0.00	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1116973)									
ES1723018-003	BH3 0.0-0.1	EA055: Moisture Content	----	1	%	7.9	9.1	14.8	No Limit
ES1723018-014	BH14 0.0-0.1	EA055: Moisture Content	----	1	%	12.7	13.6	6.84	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1116974)									
ES1723018-023	BH22 0.0-0.1	EA055: Moisture Content	----	1	%	19.1	17.3	9.62	0% - 50%
ES1723018-038	BH31 0.0-0.1	EA055: Moisture Content	----	1	%	10.4	10.3	0.00	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1116975)									
ES1723018-047	BH39 0.0-0.1	EA055: Moisture Content	----	1	%	12.5	12.0	3.37	0% - 50%
ES1723018-067	S6 0.0-0.1	EA055: Moisture Content	----	1	%	5.2	5.5	5.75	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1116976)									
ES1723018-081	S12 0.0-0.1	EA055: Moisture Content	----	1	%	13.2	13.4	1.86	0% - 50%
ES1723018-095	D4	EA055: Moisture Content	----	1	%	7.4	8.2	10.5	No Limit
ED007: Exchangeable Cations (QC Lot: 1124808)									
ES1723010-001	Anonymous	ED007: Exchangeable Sodium Percent	----	0.1	%	0.5	0.5	0.00	No Limit
		ED007: Exchangeable Calcium	----	0.1	meq/100g	37.0	37.0	0.00	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	6.6	6.6	0.00	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	1.5	1.4	7.01	0% - 50%
		ED007: Exchangeable Sodium	----	0.1	meq/100g	0.2	0.2	0.00	No Limit
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	45.4	45.1	0.517	0% - 20%

Page : 3 of 20
 Work Order : ES1723018
 Client : AARGUS PTY LTD
 Project : ES7021/2 DSI



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 1119201)									
ES1723018-001	BH1 0.0-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	10	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	7	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	5	5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	13	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	15	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	30	35	17.3	No Limit
ES1723018-011	BH11 0.0-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	7	7	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	5	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	12	12	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	10	10.2	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	28	29	4.55	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1119203)									
ES1723018-021	BH21 0.0-0.1	EG005T: Nickel	7440-02-0	2	mg/kg	20	19	6.88	0% - 50%
ES1723018-021	BH21 0.0-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	8	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	19	18	6.23	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	21	14	42.8	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	182	175	3.96	0% - 20%
ES1723018-031	BH29 1.0-1.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	3	4	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	7	39.9	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	28	28	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	13	13	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	61	92	40.0	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1119207)									
ES1723011-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	11	8	35.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	<5	31.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	27	22	20.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	27	31	15.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	95	115	18.8	0% - 20%
ES1723018-058	S3 0.0-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	6	6	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	16	19	13.1	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG005T: Total Metals by ICP-AES (QC Lot: 1119207) - continued									
ES1723018-058	S3 0.0-0.1	EG005T: Arsenic	7440-38-2	5	mg/kg	14	11	25.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	31	35	13.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	24	19	26.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	84	80	4.30	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1119209)									
ES1723018-073	S8 0.0-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	2	<2	0.00	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	<2	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	11	10	13.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	22	22	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	10	13.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	20	19	0.00	No Limit
ES1723018-089	S18 0.0-0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	10	11	10.7	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	6	22.5	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	15	16	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	15	16	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	45	44	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1119202)									
ES1723018-001	BH1 0.0-0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1723018-011	BH11 0.0-0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1119204)									
ES1723018-021	BH21 0.0-0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1723018-031	BH29 1.0-1.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1119208)									
ES1723011-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1723018-058	S3 0.0-0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1119210)									
ES1723018-073	S8 0.0-0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1723018-089	S18 0.0-0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 1115751)									
ES1723018-052	S1 0.0-0.1	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1114782)									
ES1723018-001	BH1 0.0-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1114782) - continued									
ES1723018-001	BH1 0.0-0.1	EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES1723018-011	BH11 0.0-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068A: Organochlorine Pesticides (OC) (QC Lot: 1115743)							
ES1723018-021	BH21 0.0-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1115743) - continued									
ES1723018-021	BH21 0.0-0.1	EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES1723018-070	S7 0.0-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 1115750)									
ES1723018-052	S1 0.0-0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4,4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1115748)									
ES1723018-068	S6 0.9-1.0	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1115748) - continued									
ES1723018-068	S6 0.9-1.0	EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1723018-052	S1 0.0-0.1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1114724)									
ES1723014-041	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1723018-052	S1 0.0-0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1114731)									
ES1723018-085	S15 0.0-0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1723045-003	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1115749)									
ES1723018-068	S6 0.9-1.0	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1723018-052	S1 0.0-0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1114724)									
ES1723014-041	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1723018-052	S1 0.0-0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1114731)									
ES1723018-085	S15 0.0-0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1723045-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1115749)									
ES1723018-068	S6 0.9-1.0	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1723018-052	S1 0.0-0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 1114724)									
ES1723014-041	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1723018-052	S1 0.0-0.1	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
EP080: BTEXN (QC Lot: 1114731)									
ES1723018-085	S15 0.0-0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
ES1723045-003	Anonymous	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit



Sub-Matrix: **WATER**

Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 1115406)									
ES1722923-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.00	No Limit
ES1723040-005	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.004	0.004	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.008	0.007	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1116253)									
ES1722992-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES1723040-006	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1119143)									
EB1718855-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES1722907-008	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	70	70	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1119143)									
EB1718855-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES1722907-008	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	70	60	0.00	No Limit
EP080: BTEXN (QC Lot: 1119143)									
EB1718855-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
ES1722907-008	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	4	4	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.00	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) LowHigh	
Method: Compound	CAS Number	LOR	Unit	Result				
ED007: Exchangeable Cations (QCLot: 1124808)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	1 meq/100g	98.0	76	120
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.67 meq/100g	97.8	75	115
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.51 meq/100g	118	80	120
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.87 meq/100g	115	80	120
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----
ED007: Exchangeable Sodium Percent	----	0.1	%	<0.1	----	----	----	----
EG005T: Total Metals by ICP-AES (QCLot: 1119201)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	93.7	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	93.8	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	90.5	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	93.5	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	92.3	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	99.0	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	107	80	122
EG005T: Total Metals by ICP-AES (QCLot: 1119203)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	99.8	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	95.2	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	96.8	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	98.9	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	95.6	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	100	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	104	80	122
EG005T: Total Metals by ICP-AES (QCLot: 1119207)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	94.8	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	91.4	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	90.0	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	96.8	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	91.6	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	98.1	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	103	80	122
EG005T: Total Metals by ICP-AES (QCLot: 1119209)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	90.0	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	92.8	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	92.8	76	128



Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG005T: Total Metals by ICP-AES (QCLot: 1119209) - continued								
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	97.3	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	92.0	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	100	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	97.1	80	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1119202)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	88.2	70	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1119204)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	85.5	70	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1119208)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	71.2	70	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1119210)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	74.9	70	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1115751)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	85.0	62	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 1114782)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	81.6	69	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	65	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	107	67	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	68	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	65	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.1	67	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	93.1	69	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	101	62	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	104	63	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	100	66	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	104	64	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	100.0	66	116
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	67	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	108	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.7	69	115
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	69	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	56	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	62	124
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	104	66	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	99.7	64	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	104	54	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 1115743)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	96.7	69	113



Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP068A: Organochlorine Pesticides (OC) (QCLot: 1115743) - continued								
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	98.5	65	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	104	67	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	103	68	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.2	65	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.5	67	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	69	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	84.7	62	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	63	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	66	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.7	64	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	84.5	66	116
EP068: 4,4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.0	67	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.4	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.3	69	115
EP068: 4,4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.4	69	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	86.2	56	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.6	62	124
EP068: 4,4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	94.8	66	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	86.6	64	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	95.1	54	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 1115750)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	105	69	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	108	65	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	103	67	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	103	68	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.2	65	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.2	67	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	69	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	98.5	62	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	63	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.5	66	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	64	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	66	116
EP068: 4,4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	67	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	67	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	69	115
EP068: 4,4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	69	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	89.8	56	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.5	62	124

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP068A: Organochlorine Pesticides (OC) (QCLot: 1115750) - continued								
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	96.1	66	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	102	64	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	93.1	54	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1115748)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	118	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	119	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	107	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	116	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	121	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	120	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	119	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	120	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	110	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	116	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	6 mg/kg	112	68	116
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	114	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	112	70	126
EP075(SIM): Indeno(1,2,3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	107	61	121
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	98.7	62	118
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	110	63	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1114724)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	94.9	68	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1114731)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	85.2	68	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1115749)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	107	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	105	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	100	71	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1114724)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	89.1	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1114731)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	83.8	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1115749)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	102	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	105	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	98.1	63	131
EP080: BTEXN (QCLot: 1114724)								



Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EP080: BTEXN (QCLot: 1114724) - continued								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	83.7	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	78.5	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	80.1	65	117
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	80.9	66	118
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	81.1	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	86.4	63	119
EP080: BTEXN (QCLot: 1114731)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	90.1	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	85.9	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	77.6	65	117
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	81.2	66	118
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	80.4	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	97.5	63	119

Sub-Matrix: WATER				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) LowHigh	
Method: Compound	CAS Number	LOR	Unit	Result				
EG020T: Total Metals by ICP-MS (QCLot: 1115406)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	82	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.6	84	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	90.3	86	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.5	83	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.8	85	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.9	84	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.7	79	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1116253)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	89.1	77	111
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1115649)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	69.8	50	94
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	78.9	64	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	77.7	62	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	77.1	64	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	87.0	63	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	83.8	64	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	86.6	64	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	83.4	63	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	82.1	64	117



Sub-Matrix: **WATER**

Method: Compound				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
						LCS	Low	High
CAS Number	LOR	Unit	Result					
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1115649) - continued								
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	90.3	63	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	1	µg/L	<1.0	5 µg/L	72.0	62	119
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	85.3	63	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	86.6	63	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	79.3	60	118
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	83.4	61	117
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	76.0	59	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1115650)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	2000 µg/L	97.7	76	116
EP071: C15 - C28 Fraction	----	100	µg/L	<100	3000 µg/L	94.7	83	109
EP071: C29 - C36 Fraction	----	50	µg/L	<50	2000 µg/L	82.8	75	113
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1119143)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	87.6	75	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1115650)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	2500 µg/L	89.0	76	114
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	3500 µg/L	94.2	81	111
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	1500 µg/L	98.0	77	119
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1119143)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	89.2	75	127
EP080: BTEXN (QCLot: 1119143)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.5	70	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	99.6	69	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	96.1	70	120
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	90.9	69	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	98.2	72	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	102	70	120

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID				Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%)	Recovery Limits (%)	
					MS	Low	High
Client sample ID	Method: Compound	CAS Number					
EG005T: Total Metals by ICP-AES (QCLot: 1119201)							
ES1723018-001	BH1 0.0-0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	88.8	70	130

Matrix Spike (MS) Report

				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1119201) - continued							
ES1723018-001	BH1 0.0-0.1	EG005T: Cadmium	7440-43-9	50 mg/kg	91.9	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	94.4	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	92.6	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	92.0	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	93.0	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	96.1	70	130
EG005T: Total Metals by ICP-AES (QCLot: 1119203)							
ES1723018-021	BH21 0.0-0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	94.4	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	94.1	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	92.6	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	94.9	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	91.5	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	95.6	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	108	70	130
EG005T: Total Metals by ICP-AES (QCLot: 1119207)							
ES1723011-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	93.3	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	100	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	103	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	109	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	103	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	101	70	130
EG005T: Total Metals by ICP-AES (QCLot: 1119209)							
ES1723018-073	S8 0.0-0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	94.7	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	93.1	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	93.8	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	91.8	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	92.8	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	93.6	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	96.1	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1119202)							
ES1723018-001	BH1 0.0-0.1	EG035T: Mercury	7439-97-6	5 mg/kg	86.2	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1119204)							
ES1723018-021	BH21 0.0-0.1	EG035T: Mercury	7439-97-6	5 mg/kg	99.7	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1119208)							
ES1723011-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	84.2	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1119210)							

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1119210) - continued							
ES1723018-073	S8 0.0-0.1	EG035T: Mercury	7439-97-6	5 mg/kg	# 56.4	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 1115751)							
ES1723018-052	S1 0.0-0.1	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	94.0	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 1114782)							
ES1723018-001	BH1 0.0-0.1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	86.1	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	76.7	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	75.1	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	92.4	70	130
		EP068: Endrin	72-20-8	2 mg/kg	86.4	70	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	86.8	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 1115743)							
ES1723018-021	BH21 0.0-0.1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	94.0	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	93.1	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	84.5	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	94.7	70	130
		EP068: Endrin	72-20-8	2 mg/kg	93.7	70	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	98.9	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 1115750)							
ES1723018-052	S1 0.0-0.1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	104	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	96.3	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	97.6	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	93.4	70	130
		EP068: Endrin	72-20-8	2 mg/kg	91.6	70	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	96.3	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1115748)							
ES1723018-052	S1 0.0-0.1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	109	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	113	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1114724)							
ES1723014-041	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	89.6	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1114731)							
ES1723018-085	S15 0.0-0.1	EP080: C6 - C9 Fraction	----	32.5 mg/kg	99.8	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1115749)							
ES1723018-052	S1 0.0-0.1	EP071: C10 - C14 Fraction	----	523 mg/kg	95.0	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	117	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	126	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1114724)							

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 Work Order : ES1723018
 Client : AARGUS PTY LTD
 Project : ES7021/2 DSI



Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1119143)							
EB1718855-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	113	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1119143)							
EB1718855-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	112	70	130
EP080: BTEXN (QCLot: 1119143)							
EB1718855-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	107	70	130
		EP080: Toluene	108-88-3	25 µg/L	112	70	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	116	70	130
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	111	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	25 µg/L	117	70	130
		EP080: Naphthalene	91-20-3	25 µg/L	107	70	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES1723018	Page	: 1 of 14
Client	: AARGUS PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MR MARK KELLY	Telephone	: +61-2-8784 8555
Project	: ES7021/2 DSI	Date Samples Received	: 13-Sep-2017
Site	: SCHOFIELD	Issue Date	: 20-Sep-2017
Sampler	: SP	No. of samples received	: 95
Order number	: ----	No. of samples analysed	: 79

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- Matrix Spike outliers exist - please see following pages for full details.
- Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

Outliers : Analysis Holding Time Compliance

- **NO** Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG035T: Total Recoverable Mercury by FIMS	ES1723018--073	S8 0.0-0.1	Mercury	7439-97-6	56.4 %	70-130%	Recovery less than lower data quality objective

Regular Sample Surrogates

Sub-Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP075(SIM)T: PAH Surrogates	ES1723018-094	D3	2-Fluorobiphenyl	321-60-8	68.5 %	70-122 %	Recovery less than lower data quality objective

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	13	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	11	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	13	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002 : pH (Soils)							
Soil Glass Jar - Unpreserved (EA002) BH21 - 0.9-1.0	11-Sep-2017	18-Sep-2017	18-Sep-2017	✔	18-Sep-2017	18-Sep-2017	✔
Soil Glass Jar - Unpreserved (EA002) BH29 - 1.0-1.1, BH38 - 0.9-1.0	12-Sep-2017	19-Sep-2017	19-Sep-2017	✔	19-Sep-2017	19-Sep-2017	✔

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date		Extraction / Preparation			Analysis			
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA055: Moisture Content (Dried @ 105-110°C)									
Soil Glass Jar - Unpreserved (EA055)		11-Sep-2017	----	----	----	15-Sep-2017	25-Sep-2017	✓	
BH1 - 0.0-0.1,	BH2 - 0.0-0.1,								
BH3 - 0.0-0.1,	BH4 - 0.0-0.1,								
BH5 - 0.0-0.1,	BH6 - 0.0-0.1,								
BH7 - 0.0-0.1,	BH8 - 0.0-0.1,								
BH9 - 0.0-0.1,	BH10 - 0.0-0.1,								
BH11 - 0.0-0.1,	BH12 - 0.0-0.1,								
BH13 - 0.0-0.1,	BH14 - 0.0-0.1,								
BH15 - 0.0-0.1,	BH16 - 0.0-0.1,								
D1,	BH17 - 0.0-0.1,								BH18 - 0.0-0.1,
BH19 - 0.0-0.1,	BH20 - 0.0-0.1,								
BH21 - 0.0-0.1,	BH21 - 0.9-1.0,								
BH22 - 0.0-0.1,	BH23 - 0.0-0.1,								
BH25 - 0.1-0.2,	BH26 - 0.0-0.1,								
S13 - 0.0-0.1,									
S15 - 0.0-0.1,	S16 - 0.0-0.1,								
S18 - 0.0-0.1,	S19 - 0.0-0.1,								
S20 - 0.0-0.1,	S21 - 0.0-0.1								
Soil Glass Jar - Unpreserved (EA055)		12-Sep-2017	----	----	----	15-Sep-2017	26-Sep-2017	✓	
BH24 - 0.0-0.1,	BH27 - 0.0-0.1,								
BH28 - 0.0-0.1,	BH29 - 0.0-0.1,								
BH29 - 1.0-1.1,	BH30 - 0.0-0.1,								
BH31 - 0.0-0.1,	BH32 - 0.0-0.1,								
BH33 - 0.0-0.1,	BH34 - 0.0-0.1,								
BH35 - 0.0-0.1,	BH36 - 0.0-0.1,								
BH37 - 0.0-0.1,	BH38 - 0.0-0.1,								
BH38 - 0.9-1.0,	D2,								
D3,	D4,								
BH39 - 0.0-0.1,									
S1 - 0.0-0.1,	S1 - 0.9-1.0,								
S2 - 0.0-0.1,	S2 - 0.5-0.6,								
S3 - 0.0-0.1,	S3 - 0.9-1.0,								
S4 - 0.0-0.1,	S4 - 0.2-0.3,								
S5 - 0.0-0.1,	S5 - 0.9-1.0,								
S6 - 0.0-0.1,	S6 - 0.9-1.0,								
S7 - 0.0-0.1,	S7 - 0.2-0.3,								
S8 - 0.0-0.1,	S8 - 0.2-0.3,								
S9 - 0.0-0.1,	S10 - 0.0-0.1,								
S11 - 0.0-0.1,	S12 - 0.0-0.1,								
S14 - 0.0-0.1									

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 Work Order : ES1723018
 Client : AARGUS PTY LTD
 Project : ES7021/2 DSI



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED007: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED007) BH21 - 0.9-1.0	11-Sep-2017	20-Sep-2017	09-Oct-2017	✔	20-Sep-2017	09-Oct-2017	✔
Soil Glass Jar - Unpreserved (ED007) BH29 - 1.0-1.1, BH38 - 0.9-1.0	12-Sep-2017	20-Sep-2017	10-Oct-2017	✔	20-Sep-2017	10-Oct-2017	✔

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method			Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)				Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005T: Total Metals by ICP-AES									
Soil Glass Jar - Unpreserved (EG005T)			11-Sep-2017	18-Sep-2017	10-Mar-2018	✓	18-Sep-2017	10-Mar-2018	✓
BH1 - 0.0-0.1,	BH2 - 0.0-0.1,								
BH3 - 0.0-0.1,	BH4 - 0.0-0.1,								
BH5 - 0.0-0.1,	BH6 - 0.0-0.1,								
BH7 - 0.0-0.1,	BH8 - 0.0-0.1,								
BH9 - 0.0-0.1,	BH10 - 0.0-0.1,								
BH11 - 0.0-0.1,	BH12 - 0.0-0.1,								
BH13 - 0.0-0.1,	BH14 - 0.0-0.1,								
BH15 - 0.0-0.1,	BH16 - 0.0-0.1,								
D1,	BH17 - 0.0-0.1,	BH18 - 0.0-0.1,							
BH19 - 0.0-0.1,	BH20 - 0.0-0.1,								
BH21 - 0.0-0.1,	BH21 - 0.9-1.0,								
BH22 - 0.0-0.1,	BH23 - 0.0-0.1,								
BH25 - 0.1-0.2,	BH26 - 0.0-0.1,								
S13 - 0.0-0.1,									
S15 - 0.0-0.1,	S16 - 0.0-0.1,								
S18 - 0.0-0.1,	S19 - 0.0-0.1,								
S20 - 0.0-0.1,	S21 - 0.0-0.1								
Soil Glass Jar - Unpreserved (EG005T)			12-Sep-2017	18-Sep-2017	11-Mar-2018	✓	18-Sep-2017	11-Mar-2018	✓
BH24 - 0.0-0.1,	BH27 - 0.0-0.1,								
BH28 - 0.0-0.1,	BH29 - 0.0-0.1,								
BH29 - 1.0-1.1,	BH30 - 0.0-0.1,								
BH31 - 0.0-0.1,	BH32 - 0.0-0.1,								
BH33 - 0.0-0.1,	BH34 - 0.0-0.1,								
BH35 - 0.0-0.1,	BH36 - 0.0-0.1,								
BH37 - 0.0-0.1,	BH38 - 0.0-0.1,								
BH38 - 0.9-1.0,	D2,								
D3,	D4,								
BH39 - 0.0-0.1,									
S1 - 0.0-0.1,	S1 - 0.9-1.0,								
S2 - 0.0-0.1,	S2 - 0.5-0.6,								
S3 - 0.0-0.1,	S3 - 0.9-1.0,								
S4 - 0.0-0.1,	S4 - 0.2-0.3,								
S5 - 0.0-0.1,	S5 - 0.9-1.0,								
S6 - 0.0-0.1,	S6 - 0.9-1.0,								
S7 - 0.0-0.1,	S7 - 0.2-0.3,								
S8 - 0.0-0.1,	S8 - 0.2-0.3,								
S9 - 0.0-0.1,	S10 - 0.0-0.1,								
S11 - 0.0-0.1,	S12 - 0.0-0.1,								
S14 - 0.0-0.1									

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method			Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)				Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS									
Soil Glass Jar - Unpreserved (EG035T)			11-Sep-2017	18-Sep-2017	09-Oct-2017	✓	19-Sep-2017	09-Oct-2017	✓
BH1 - 0.0-0.1,	BH2 - 0.0-0.1,								
BH3 - 0.0-0.1,	BH4 - 0.0-0.1,								
BH5 - 0.0-0.1,	BH6 - 0.0-0.1,								
BH7 - 0.0-0.1,	BH8 - 0.0-0.1,								
BH9 - 0.0-0.1,	BH10 - 0.0-0.1,								
BH11 - 0.0-0.1,	BH12 - 0.0-0.1,								
BH13 - 0.0-0.1,	BH14 - 0.0-0.1,								
BH15 - 0.0-0.1,	BH16 - 0.0-0.1,								
D1,	BH17 - 0.0-0.1,	BH18 - 0.0-0.1,							
BH19 - 0.0-0.1,	BH20 - 0.0-0.1,								
BH21 - 0.0-0.1,	BH21 - 0.9-1.0,								
BH22 - 0.0-0.1,	BH23 - 0.0-0.1,								
BH25 - 0.1-0.2,	BH26 - 0.0-0.1,								
S13 - 0.0-0.1,									
S15 - 0.0-0.1,	S16 - 0.0-0.1,								
S18 - 0.0-0.1,	S19 - 0.0-0.1,								
S20 - 0.0-0.1,	S21 - 0.0-0.1								
Soil Glass Jar - Unpreserved (EG035T)			12-Sep-2017	18-Sep-2017	10-Oct-2017	✓	19-Sep-2017	10-Oct-2017	✓
BH24 - 0.0-0.1,	BH27 - 0.0-0.1,								
BH28 - 0.0-0.1,	BH29 - 0.0-0.1,								
BH29 - 1.0-1.1,	BH30 - 0.0-0.1,								
BH31 - 0.0-0.1,	BH32 - 0.0-0.1,								
BH33 - 0.0-0.1,	BH34 - 0.0-0.1,								
BH35 - 0.0-0.1,	BH36 - 0.0-0.1,								
BH37 - 0.0-0.1,	BH38 - 0.0-0.1,								
BH38 - 0.9-1.0,	D2,								
D3,	D4,								
BH39 - 0.0-0.1,									
S1 - 0.0-0.1,	S1 - 0.9-1.0,								
S2 - 0.0-0.1,	S2 - 0.5-0.6,								
S3 - 0.0-0.1,	S3 - 0.9-1.0,								
S4 - 0.0-0.1,	S4 - 0.2-0.3,								
S5 - 0.0-0.1,	S5 - 0.9-1.0,								
S6 - 0.0-0.1,	S6 - 0.9-1.0,								
S7 - 0.0-0.1,	S7 - 0.2-0.3,								
S8 - 0.0-0.1,	S8 - 0.2-0.3,								
S9 - 0.0-0.1,	S10 - 0.0-0.1,								
S11 - 0.0-0.1,	S12 - 0.0-0.1,								
S14 - 0.0-0.1									



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
S1 - 0.0-0.1,	S2 - 0.0-0.1,	12-Sep-2017	15-Sep-2017	26-Sep-2017	✔	17-Sep-2017	25-Oct-2017	✔
S3 - 0.0-0.1,	S5 - 0.0-0.1,							
S6 - 0.0-0.1,	D3							
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
S18 - 0.0-0.1,	S19 - 0.0-0.1	11-Sep-2017	15-Sep-2017	25-Sep-2017	✔	17-Sep-2017	25-Oct-2017	✔
Soil Glass Jar - Unpreserved (EP068)								
BH1 - 0.0-0.1,	BH2 - 0.0-0.1,	11-Sep-2017	15-Sep-2017	25-Sep-2017	✔	18-Sep-2017	25-Oct-2017	✔
BH3 - 0.0-0.1,	BH4 - 0.0-0.1,							
BH5 - 0.0-0.1,	BH6 - 0.0-0.1,							
BH7 - 0.0-0.1,	BH8 - 0.0-0.1,							
BH9 - 0.0-0.1,	BH10 - 0.0-0.1,							
BH11 - 0.0-0.1,	BH12 - 0.0-0.1,							
BH13 - 0.0-0.1,	BH14 - 0.0-0.1,							
BH15 - 0.0-0.1,	BH16 - 0.0-0.1,							
BH17 - 0.0-0.1,	BH18 - 0.0-0.1,							
BH19 - 0.0-0.1,	BH20 - 0.0-0.1							
Soil Glass Jar - Unpreserved (EP068)								
BH21 - 0.0-0.1,	BH22 - 0.0-0.1,	11-Sep-2017	15-Sep-2017	25-Sep-2017	✔	19-Sep-2017	25-Oct-2017	✔
BH23 - 0.0-0.1,	D1,							
S20 - 0.0-0.1								
Soil Glass Jar - Unpreserved (EP068)								
S1 - 0.0-0.1,	S2 - 0.0-0.1,	12-Sep-2017	15-Sep-2017	26-Sep-2017	✔	17-Sep-2017	25-Oct-2017	✔
S3 - 0.0-0.1,	S5 - 0.0-0.1,							
S6 - 0.0-0.1,	D3							
Soil Glass Jar - Unpreserved (EP068)								
BH24 - 0.0-0.1,	BH27 - 0.0-0.1,	12-Sep-2017	15-Sep-2017	26-Sep-2017	✔	19-Sep-2017	25-Oct-2017	✔
BH28 - 0.0-0.1,	BH29 - 0.0-0.1,							
BH30 - 0.0-0.1,	S4 - 0.0-0.1,							
S7 - 0.0-0.1,	S8 - 0.0-0.1,							
S9 - 0.0-0.1								



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) BH25 - 0.1-0.2, S13 - 0.0-0.1, S16 - 0.0-0.1, S19 - 0.0-0.1,	BH26 - 0.0-0.1, S15 - 0.0-0.1, S18 - 0.0-0.1, S21 - 0.0-0.1	11-Sep-2017	15-Sep-2017	25-Sep-2017	✓	15-Sep-2017	25-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) S1 - 0.0-0.1, S2 - 0.0-0.1, S3 - 0.9-1.0, S5 - 0.9-1.0, S6 - 0.9-1.0, D3,	S1 - 0.9-1.0, S3 - 0.0-0.1, S5 - 0.0-0.1, S6 - 0.0-0.1, D2, D4	12-Sep-2017	15-Sep-2017	26-Sep-2017	✓	15-Sep-2017	25-Oct-2017	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP071) BH25 - 0.1-0.2, S13 - 0.0-0.1, S16 - 0.0-0.1, S19 - 0.0-0.1,	BH26 - 0.0-0.1, S15 - 0.0-0.1, S18 - 0.0-0.1, S21 - 0.0-0.1	11-Sep-2017	15-Sep-2017	25-Sep-2017	✓	15-Sep-2017	25-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP080) BH25 - 0.1-0.2, S13 - 0.0-0.1	BH26 - 0.0-0.1,	11-Sep-2017	15-Sep-2017	25-Sep-2017	✓	18-Sep-2017	25-Sep-2017	✓
Soil Glass Jar - Unpreserved (EP071) S1 - 0.0-0.1, S2 - 0.0-0.1, S3 - 0.9-1.0, S5 - 0.9-1.0, S6 - 0.9-1.0, D3,	S1 - 0.9-1.0, S3 - 0.0-0.1, S5 - 0.0-0.1, S6 - 0.0-0.1, D2, D4	12-Sep-2017	15-Sep-2017	26-Sep-2017	✓	15-Sep-2017	25-Oct-2017	✓
Soil Glass Jar - Unpreserved (EP080) TRIP SPIKE2, TSC2, S1 - 0.9-1.0, S3 - 0.0-0.1, S5 - 0.0-0.1, S6 - 0.0-0.1,	TRIP BLANK2, S1 - 0.0-0.1, S2 - 0.0-0.1, S3 - 0.9-1.0, S5 - 0.9-1.0, S6 - 0.9-1.0	12-Sep-2017	15-Sep-2017	26-Sep-2017	✓	18-Sep-2017	26-Sep-2017	✓



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method		Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP071) BH25 - 0.1-0.2, S13 - 0.0-0.1, S16 - 0.0-0.1, S19 - 0.0-0.1,	BH26 - 0.0-0.1, S15 - 0.0-0.1, S18 - 0.0-0.1, S21 - 0.0-0.1	11-Sep-2017	15-Sep-2017	25-Sep-2017	✔	15-Sep-2017	25-Oct-2017	✔
Soil Glass Jar - Unpreserved (EP080) BH25 - 0.1-0.2, S13 - 0.0-0.1	BH26 - 0.0-0.1,	11-Sep-2017	15-Sep-2017	25-Sep-2017	✔	18-Sep-2017	25-Sep-2017	✔
Soil Glass Jar - Unpreserved (EP071) S1 - 0.0-0.1, S2 - 0.0-0.1, S3 - 0.9-1.0, S5 - 0.9-1.0, S6 - 0.9-1.0, D3,	S1 - 0.9-1.0, S3 - 0.0-0.1, S5 - 0.0-0.1, S6 - 0.0-0.1, D2, D4	12-Sep-2017	15-Sep-2017	26-Sep-2017	✔	15-Sep-2017	25-Oct-2017	✔
Soil Glass Jar - Unpreserved (EP080) TRIP SPIKE2, TSC2, S1 - 0.9-1.0, S3 - 0.0-0.1, S5 - 0.0-0.1, S6 - 0.0-0.1,	TRIP BLANK2, S1 - 0.0-0.1, S2 - 0.0-0.1, S3 - 0.9-1.0, S5 - 0.9-1.0, S6 - 0.9-1.0	12-Sep-2017	15-Sep-2017	26-Sep-2017	✔	18-Sep-2017	26-Sep-2017	✔
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) S15 - 0.0-0.1, S18 - 0.0-0.1, S21 - 0.0-0.1	S16 - 0.0-0.1, S19 - 0.0-0.1,	11-Sep-2017	15-Sep-2017	25-Sep-2017	✔	15-Sep-2017	25-Sep-2017	✔
Soil Glass Jar - Unpreserved (EP080) BH25 - 0.1-0.2, S13 - 0.0-0.1	BH26 - 0.0-0.1,	11-Sep-2017	15-Sep-2017	25-Sep-2017	✔	18-Sep-2017	25-Sep-2017	✔
Soil Glass Jar - Unpreserved (EP080) D2, D4	D3,	12-Sep-2017	15-Sep-2017	26-Sep-2017	✔	15-Sep-2017	26-Sep-2017	✔
Soil Glass Jar - Unpreserved (EP080) TRIP SPIKE2, TSC2, S1 - 0.9-1.0, S3 - 0.0-0.1, S5 - 0.0-0.1, S6 - 0.0-0.1,	TRIP BLANK2, S1 - 0.0-0.1, S2 - 0.0-0.1, S3 - 0.9-1.0, S5 - 0.9-1.0, S6 - 0.9-1.0	12-Sep-2017	15-Sep-2017	26-Sep-2017	✔	18-Sep-2017	26-Sep-2017	✔

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020A-T) R1	11-Sep-2017	15-Sep-2017	10-Mar-2018	✓	15-Sep-2017	10-Mar-2018	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG020A-T) R2	12-Sep-2017	15-Sep-2017	11-Mar-2018	✓	15-Sep-2017	11-Mar-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) R1	11-Sep-2017	----	----	----	15-Sep-2017	09-Oct-2017	✓
Clear Plastic Bottle - Nitric Acid; Unspecified (EG035T) R2	12-Sep-2017	----	----	----	15-Sep-2017	10-Oct-2017	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) R2	12-Sep-2017	15-Sep-2017	19-Sep-2017	✓	19-Sep-2017	25-Oct-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) R1	11-Sep-2017	15-Sep-2017	18-Sep-2017	✓	19-Sep-2017	25-Oct-2017	✓
Amber Glass Bottle - Unpreserved (EP071) R2	12-Sep-2017	15-Sep-2017	19-Sep-2017	✓	19-Sep-2017	25-Oct-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080) R1	11-Sep-2017	18-Sep-2017	25-Sep-2017	✓	18-Sep-2017	25-Sep-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080) R2	12-Sep-2017	18-Sep-2017	26-Sep-2017	✓	18-Sep-2017	26-Sep-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) R1	11-Sep-2017	15-Sep-2017	18-Sep-2017	✓	19-Sep-2017	25-Oct-2017	✓
Amber Glass Bottle - Unpreserved (EP071) R2	12-Sep-2017	15-Sep-2017	19-Sep-2017	✓	19-Sep-2017	25-Oct-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080) R1	11-Sep-2017	18-Sep-2017	25-Sep-2017	✓	18-Sep-2017	25-Sep-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080) R2	12-Sep-2017	18-Sep-2017	26-Sep-2017	✓	18-Sep-2017	26-Sep-2017	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) R1	11-Sep-2017	18-Sep-2017	25-Sep-2017	✓	18-Sep-2017	25-Sep-2017	✓
Amber VOC Vial - Sulfuric Acid (EP080) R2	12-Sep-2017	18-Sep-2017	26-Sep-2017	✓	18-Sep-2017	26-Sep-2017	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Exchangeable Cations	ED007	1	7	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	8	80	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	5	42	11.90	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	3	25	12.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	8	78	10.26	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	9	78	11.54	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Exchangeable Cations	ED007	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	3	42	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	78	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	78	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Exchangeable Cations	ED007	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	3	42	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	78	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	78	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	3	42	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	78	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	78	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	0.00	10.00	✖	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	13	0.00	10.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	13	7.69	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	11	9.09	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	13	7.69	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	11	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	13	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3)
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons (2011) Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM (2013) Schedule B(3) (Method 301)
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.



Analytical Methods	Method	Matrix	Method Descriptions
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Higginson (1992) method 15A1. A 1M NH ₄ Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	* ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.

**SAMPLE RECEIPT NOTIFICATION (SRN)****Work Order : ES1723018**

Client	: AARGUS PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MR MARK KELLY	Contact	: Customer Services ES
Address	: PO BOX 398 DRUMMOYNE NSW, AUSTRALIA 2047	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: mark.kelly@aargus.net	E-mail	: ALSEnviro.Sydney@alsglobal.com
Telephone	: 1300137038	Telephone	: +61-2-8784 8555
Facsimile	: 1300136038	Facsimile	: +61-2-8784 8500
Project	: ES7021/2 DSI	Page	: 1 of 6
Order number	: ----	Quote number	: ES2014AARGUS0129 (SY/258/14 V2)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: SCHOFIELD		
Sampler	: SP		

Dates

Date Samples Received	: 13-Sep-2017 15:50	Issue Date	: 14-Sep-2017
Client Requested Due Date	: 20-Sep-2017	Scheduled Reporting Date	: 20-Sep-2017

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 5	Temperature	: 10.3 - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 95 / 79

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **DATE ON SAMPLES FOR TRIP BLANKS AND TRIP SPIKES RECEIVED AS 12/7/17 FOR ALL SAMPLES**
- **TRIP SPIKE1 AND TRIP BLANK1 ON HOLD AS DATE ON JAR RECEIVED AS 12/9/17 AND NOT MATCHING THE DATE ON COC.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - ED008 Def Exchangeable Cations with pre-treatment -	SOIL - EP068A (solids) Organochlorine Pesticides by GCMS	SOIL - S-02 Metals (incl. Digestion)	SOIL - S-26 Metals/TRH/BTEXN/PAH
ES1723018-001	11-Sep-2017 00:00	BH1 0.0-0.1		✓		✓	✓	
ES1723018-002	11-Sep-2017 00:00	BH2 0.0-0.1		✓		✓	✓	
ES1723018-003	11-Sep-2017 00:00	BH3 0.0-0.1		✓		✓	✓	
ES1723018-004	11-Sep-2017 00:00	BH4 0.0-0.1		✓		✓	✓	
ES1723018-005	11-Sep-2017 00:00	BH5 0.0-0.1		✓		✓	✓	
ES1723018-006	11-Sep-2017 00:00	BH6 0.0-0.1		✓		✓	✓	
ES1723018-007	11-Sep-2017 00:00	BH7 0.0-0.1		✓		✓	✓	
ES1723018-008	11-Sep-2017 00:00	BH8 0.0-0.1		✓		✓	✓	
ES1723018-009	11-Sep-2017 00:00	BH9 0.0-0.1		✓		✓	✓	
ES1723018-010	11-Sep-2017 00:00	BH10 0.0-0.1		✓		✓	✓	
ES1723018-011	11-Sep-2017 00:00	BH11 0.0-0.1		✓		✓	✓	
ES1723018-012	11-Sep-2017 00:00	BH12 0.0-0.1		✓		✓	✓	
ES1723018-013	11-Sep-2017 00:00	BH13 0.0-0.1		✓		✓	✓	
ES1723018-014	11-Sep-2017 00:00	BH14 0.0-0.1		✓		✓	✓	
ES1723018-015	11-Sep-2017 00:00	BH15 0.0-0.1		✓		✓	✓	
ES1723018-016	11-Sep-2017 00:00	BH16 0.0-0.1		✓		✓	✓	
ES1723018-017	11-Sep-2017 00:00	BH17 0.0-0.1		✓		✓	✓	
ES1723018-018	11-Sep-2017 00:00	BH18 0.0-0.1		✓		✓	✓	
ES1723018-019	11-Sep-2017 00:00	BH19 0.0-0.1		✓		✓	✓	
ES1723018-020	11-Sep-2017 00:00	BH20 0.0-0.1		✓		✓	✓	
ES1723018-021	11-Sep-2017 00:00	BH21 0.0-0.1		✓		✓	✓	
ES1723018-022	11-Sep-2017 00:00	BH21 0.9-1.0	✓	✓	✓		✓	
ES1723018-023	11-Sep-2017 00:00	BH22 0.0-0.1		✓		✓	✓	
ES1723018-024	11-Sep-2017 00:00	BH23 0.0-0.1		✓		✓	✓	
ES1723018-025	12-Sep-2017 00:00	BH24 0.0-0.1		✓		✓	✓	
ES1723018-026	11-Sep-2017 00:00	BH25 0.1-0.2		✓				✓
ES1723018-027	11-Sep-2017 00:00	BH26 0.0-0.1		✓				✓
ES1723018-028	12-Sep-2017 00:00	BH27 0.0-0.1		✓		✓	✓	
ES1723018-029	12-Sep-2017 00:00	BH28 0.0-0.1		✓		✓	✓	
ES1723018-030	12-Sep-2017 00:00	BH29 0.0-0.1		✓		✓	✓	
ES1723018-031	12-Sep-2017 00:00	BH29 1.0-1.1	✓	✓	✓		✓	
ES1723018-032	12-Sep-2017 00:00	BH30 0.0-0.1		✓		✓	✓	
ES1723018-033	11-Sep-2017 00:00	D1		✓		✓	✓	
ES1723018-038	12-Sep-2017 00:00	BH31 0.0-0.1		✓			✓	
ES1723018-039	12-Sep-2017 00:00	BH32 0.0-0.1		✓			✓	



			SOIL - EA002 pH (1:5)	SOIL - EA055-103 Moisture Content	SOIL - ED008 Def Exchangeable Cations with pre-treatment -	SOIL - EP068A (solids) Organochlorine Pesticides by GC/MS	SOIL - S-02 8 Metals (incl. Digestion)	SOIL - S-26 8 metals/TRH/TEXT/PAH
ES1723018-040	12-Sep-2017 00:00	BH33 0.0-0.1		✓			✓	
ES1723018-041	12-Sep-2017 00:00	BH34 0.0-0.1		✓			✓	
ES1723018-042	12-Sep-2017 00:00	BH35 0.0-0.1		✓			✓	
ES1723018-043	12-Sep-2017 00:00	BH36 0.0-0.1		✓			✓	
ES1723018-044	12-Sep-2017 00:00	BH37 0.0-0.1		✓			✓	
ES1723018-045	12-Sep-2017 00:00	BH38 0.0-0.1		✓			✓	
ES1723018-046	12-Sep-2017 00:00	BH38 0.9-1.0	✓	✓	✓		✓	
ES1723018-047	12-Sep-2017 00:00	BH39 0.0-0.1		✓			✓	
ES1723018-052	12-Sep-2017 00:00	S1 0.0-0.1		✓				
ES1723018-053	12-Sep-2017 00:00	S1 0.9-1.0		✓				✓
ES1723018-055	12-Sep-2017 00:00	S2 0.0-0.1		✓				
ES1723018-056	12-Sep-2017 00:00	S2 0.5-0.6		✓			✓	
ES1723018-058	12-Sep-2017 00:00	S3 0.0-0.1		✓				
ES1723018-059	12-Sep-2017 00:00	S3 0.9-1.0		✓				✓
ES1723018-061	12-Sep-2017 00:00	S4 0.0-0.1		✓		✓	✓	
ES1723018-062	12-Sep-2017 00:00	S4 0.2-0.3		✓			✓	
ES1723018-064	12-Sep-2017 00:00	S5 0.0-0.1		✓				
ES1723018-065	12-Sep-2017 00:00	S5 0.9-1.0		✓				✓
ES1723018-067	12-Sep-2017 00:00	S6 0.0-0.1		✓				
ES1723018-068	12-Sep-2017 00:00	S6 0.9-1.0		✓				✓
ES1723018-070	12-Sep-2017 00:00	S7 0.0-0.1		✓		✓	✓	
ES1723018-071	12-Sep-2017 00:00	S7 0.2-0.3		✓			✓	
ES1723018-073	12-Sep-2017 00:00	S8 0.0-0.1		✓		✓	✓	
ES1723018-074	12-Sep-2017 00:00	S8 0.2-0.3		✓			✓	
ES1723018-076	12-Sep-2017 00:00	S9 0.0-0.1		✓		✓	✓	
ES1723018-079	12-Sep-2017 00:00	S10 0.0-0.1		✓			✓	
ES1723018-080	12-Sep-2017 00:00	S11 0.0-0.1		✓			✓	
ES1723018-081	12-Sep-2017 00:00	S12 0.0-0.1		✓			✓	
ES1723018-082	11-Sep-2017 00:00	S13 0.0-0.1		✓				✓
ES1723018-084	12-Sep-2017 00:00	S14 0.0-0.1		✓			✓	
ES1723018-085	11-Sep-2017 00:00	S15 0.0-0.1		✓				✓
ES1723018-087	11-Sep-2017 00:00	S16 0.0-0.1		✓				✓
ES1723018-089	11-Sep-2017 00:00	S18 0.0-0.1		✓		✓		✓
ES1723018-090	11-Sep-2017 00:00	S19 0.0-0.1		✓		✓		✓
ES1723018-091	11-Sep-2017 00:00	S20 0.0-0.1		✓		✓	✓	
ES1723018-092	11-Sep-2017 00:00	S21 0.0-0.1		✓				✓
ES1723018-093	12-Sep-2017 00:00	D2		✓				✓
ES1723018-094	12-Sep-2017 00:00	D3		✓				
ES1723018-095	12-Sep-2017 00:00	D4		✓				✓



Matrix: **SOIL**

Laboratory sample ID	Client sampling date / time	Client sample ID	(On Hold) SOIL No analysis requested	SOIL - S-08 TRH/BTEXN/PAH/OC/PCB/8 Metals	SOIL - S-18 (NO MOIST) TRH(C6-C9)/BTEXN with No Moisture for TBs
ES1723018-035	12-Sep-2017 00:00	TRIP SPIKE1	✓		
ES1723018-036	12-Sep-2017 00:00	TRIP BLANK1	✓		
ES1723018-037	12-Sep-2017 00:00	TSC1	✓		
ES1723018-049	12-Sep-2017 00:00	TRIP SPIKE2			✓
ES1723018-050	12-Sep-2017 00:00	TRIP BLANK2			✓
ES1723018-051	12-Sep-2017 00:00	TSC2			✓
ES1723018-052	12-Sep-2017 00:00	S1 0.0-0.1		✓	
ES1723018-054	12-Sep-2017 00:00	S1 1.4-1.5	✓		
ES1723018-055	12-Sep-2017 00:00	S2 0.0-0.1		✓	
ES1723018-057	12-Sep-2017 00:00	S2 0.9-1.0	✓		
ES1723018-058	12-Sep-2017 00:00	S3 0.0-0.1		✓	
ES1723018-060	12-Sep-2017 00:00	S3 1.2-1.3	✓		
ES1723018-063	12-Sep-2017 00:00	S4 0.9-1.0	✓		
ES1723018-064	12-Sep-2017 00:00	S5 0.0-0.1		✓	
ES1723018-066	12-Sep-2017 00:00	S5 1.1-1.2	✓		
ES1723018-067	12-Sep-2017 00:00	S6 0.0-0.1		✓	
ES1723018-069	12-Sep-2017 00:00	S6 1.0-1.1	✓		
ES1723018-072	12-Sep-2017 00:00	S7 0.9-1.0	✓		
ES1723018-075	12-Sep-2017 00:00	S8 0.9-1.0	✓		
ES1723018-077	12-Sep-2017 00:00	S9 0.2-0.3	✓		
ES1723018-078	12-Sep-2017 00:00	DS9 0.9-1.0	✓		
ES1723018-083	11-Sep-2017 00:00	S13 0.1-0.2	✓		
ES1723018-086	11-Sep-2017 00:00	S15 0.2-0.3	✓		
ES1723018-088	11-Sep-2017 00:00	S17 0.0-0.1	✓		
ES1723018-094	12-Sep-2017 00:00	D3		✓	

Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-05T TRH/BTEXN/8 Metals (Total)
ES1723018-034	11-Sep-2017 00:00	R1	✓

Issue Date : 14-Sep-2017
Page : 5 of 6
Work Order : ES1723018 Amendment 0
Client : AARGUS PTY LTD



Matrix: **WATER**

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - W-26T TRH/BTEXN/PAH/Total 8 Metals
ES1723018-048	12-Sep-2017 00:00	R2	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



Requested Deliverables

ALL REPORTS (CYNTHIA)

- *AU Certificate of Analysis - NATA (COA)	Email	cynthia@aargus.net
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	cynthia@aargus.net
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	cynthia@aargus.net
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	cynthia@aargus.net
- A4 - AU Tax Invoice (INV)	Email	cynthia@aargus.net
- Chain of Custody (CoC) (COC)	Email	cynthia@aargus.net
- EDI Format - ENMRG (ENMRG)	Email	cynthia@aargus.net
- EDI Format - ESDAT (ESDAT)	Email	cynthia@aargus.net
- EDI Format - XTab (XTAB)	Email	cynthia@aargus.net

ANIKA

- A4 - AU Tax Invoice (INV)	Email	anika@aargus.net
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DEREK

- *AU Certificate of Analysis - NATA (COA)	Email	dereck@aargus.net
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	dereck@aargus.net
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	dereck@aargus.net
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	dereck@aargus.net
- Chain of Custody (CoC) (COC)	Email	dereck@aargus.net
- EDI Format - ENMRG (ENMRG)	Email	dereck@aargus.net
- EDI Format - ESDAT (ESDAT)	Email	dereck@aargus.net
- EDI Format - XTab (XTAB)	Email	dereck@aargus.net

MARK KELLY

- *AU Certificate of Analysis - NATA (COA)	Email	mark.kelly@aargus.net
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	mark.kelly@aargus.net
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	mark.kelly@aargus.net
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	mark.kelly@aargus.net
- A4 - AU Tax Invoice (INV)	Email	mark.kelly@aargus.net
- Chain of Custody (CoC) (COC)	Email	mark.kelly@aargus.net
- EDI Format - ENMRG (ENMRG)	Email	mark.kelly@aargus.net
- EDI Format - ESDAT (ESDAT)	Email	mark.kelly@aargus.net
- EDI Format - XTab (XTAB)	Email	mark.kelly@aargus.net

NINGYE ZHANG

- *AU Certificate of Analysis - NATA (COA)	Email	ningye@aargus.net
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ningye@aargus.net
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ningye@aargus.net
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ningye@aargus.net
- Chain of Custody (CoC) (COC)	Email	ningye@aargus.net
- EDI Format - ENMRG (ENMRG)	Email	ningye@aargus.net
- EDI Format - ESDAT (ESDAT)	Email	ningye@aargus.net
- EDI Format - XTab (XTAB)	Email	ningye@aargus.net

SETAREH

- *AU Certificate of Analysis - NATA (COA)	Email	setareh@aargus.net
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	setareh@aargus.net
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	setareh@aargus.net
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	setareh@aargus.net
- Chain of Custody (CoC) (COC)	Email	setareh@aargus.net
- EDI Format - ENMRG (ENMRG)	Email	setareh@aargus.net
- EDI Format - ESDAT (ESDAT)	Email	setareh@aargus.net
- EDI Format - XTab (XTAB)	Email	setareh@aargus.net

AARGUS PTY LTD

410 Farm 37th Road
PETERSHAM NSW 2040Tel: 02 834 8555
Fax: 02 8704 8500Email: info@argus.com.au
Web: www.argus.com.au

Laboratory Test Request / Chain of Custody Record

To: A/S (Environmental Laboratory Services) Environmental

277 - 288 Woodcroft Road
SALTWATER, NSW 2164

PH: 02 8734 8555

ATTN: Samples Received

FAX: 02 8704 8500

Sampling Date: 11 & 12 Oct 2017
Job No: EN1015
Sampled By: SP
Project Manager: RAC
Project: 201
Location: Salsford

1 of 3

Results required by: Standard TAT

Quotation Number (if applicable): SY/258/14 V2

Location	Depth (m)	Date	Water Type	Soil Type	Moisture (As Collected)	TRH	ATRX	PAU	DO	POB	pH, CEC	Analysis	NEEP
BH1	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH2	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH3	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH4	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH5	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH6	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH7	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH8	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH9	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH10	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH11	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH12	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH13	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH14	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH15	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH16	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH17	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH18	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH19	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH20	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH21	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH22	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH23	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH24	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH25	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH26	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH27	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH28	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH29	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH30	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH31	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH32	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH33	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH34	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH35	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH36	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH37	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH38	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH39	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH40	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH41	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH42	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH43	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH44	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH45	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH46	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH47	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH48	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH49	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH50	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH51	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH52	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH53	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH54	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH55	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH56	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH57	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH58	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH59	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH60	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH61	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH62	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH63	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH64	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH65	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH66	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH67	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH68	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH69	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH70	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH71	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH72	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH73	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH74	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH75	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH76	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH77	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH78	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH79	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH80	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH81	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH82	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH83	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH84	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH85	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH86	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH87	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH88	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH89	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH90	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH91	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH92	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH93	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH94	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH95	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH96	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH97	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH98	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH99	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH100	0.0-1.0	11.05.2017	OSG	UP1	✓	✓	✓	✓	✓	✓	✓	✓	✓

Laboratory Test Request / Chain of Custody Record



Environmental Division
Sydney
Work Order Reference
ES1723018

Signature: [Signature]

Date: 11/10/2017

Signature: [Signature]

Date: 11/10/2017

Signature: [Signature]

Date: 11/10/2017

Signature: [Signature]

Date: 11/10/2017

Signature: [Signature]

Date: 11/10/2017

Signature: [Signature]

Date: 11/10/2017

Signature: [Signature]

APPENDIX O

QA/QC ASSESSMENT



1 FIELD DATA QUALITY ASSESSMENT SOILS

1.1 Field Data Completeness

Field Sample Category - Soils	Number (Target)	Non-conformances	Number (Useable)	Overall Completeness %
Primary Samples	70	0	70	100%
Intra-Lab Duplicates	4	0	4	100%
Inter-Lab Duplicates	4	0	4	100%
Rinsate Blanks	2	0	2	100%
Trip Spikes	2	1	1	50%
Trip Blank	2	1	1	50%

Note: (*) – Overall Completeness is calculated as a percentage of the number of useable samples over the target number of samples required. The required percentage completeness is specified in the DQOs.

Field Consideration	Yes / No	Comments / Non-Conformances
Were all critical locations sampled?	Y	All critical locations were sampled as per the DQOs.
Were all samples collected from critical densities and depths?	Y	All sampled were recovered as per DQOs.
Were the Standard Operating Procedures (SOPs) appropriate and complied with?	Y	The Aargus Fieldwork Protocols were appropriate and complied with.
Were the samplers adequately experienced?	Y	Sampling was conducted by Aargus Environmental Scientist.
Was field documentation complete and correct?	Y	Field records can be found within their respective appendices of the report.
Were an adequate number of intra-laboratory duplicate samples collected?	Y	100% of intra-laboratory duplicate samples required were collected as the table above.
Were an adequate number of inter-laboratory duplicate samples collected?	Y	100% of inter-laboratory duplicate samples required were collected as per the table above.
Were an adequate number of rinsate samples collected?	Y	100% of rinsate samples required were collected as per the table above.
Were an adequate number of trip blanks collected?	N	Only one set of trip blank was analysed. However, since all samples were dispatched to lab on the same day and the recoveries were in control limit, the data set is considered to be completed.
Were an adequate number of trip spikes collected?	N	Only one set of trip blank was analysed. However, since all samples were dispatched to lab on the same day and the recoveries were in control limit, the data set is considered to be completed.

1.2 Field Data Comparability

Field Consideration	Yes / No	Comments / Non-Conformances
Were the same SOPs used on each occasion?	Y	Aargus Fieldwork Protocols were utilised throughout each sampling event.
Was all sampling undertaken by the same person?	Y	Sampling was undertaken by the same person.
Could climatic conditions (such as temperature, rainfall, etc.) influence data comparability?	N	All sampling was undertaken on days without rain.
Were the same types of samples collected (filtered, size, fractions, etc.) for each media?	Y	Samples were collected in the same types of containers provided by the laboratory.
Was each field parameter measured using the same equipment?	Y	Headspace analysis was carried out using the same PID meter.
Was the same method and equipment used for extraction of samples?	N	Soil sample from sampling location BH24 was recovered by hand auger because of limited access and soil samples collected from other locations were recovered with the aid of flight augers attached to a drill rig. However, this was not considered to affect data comparability given that the same sampling techniques were used.

1.3 Field Data Representativeness

Laboratory Batch	Laboratory	Sample Medium	Container Breakages	Sample Preservation	Headspace Temperature /
ES1723018	ALS Environmental Sydney	Soil and Water (rinsate)	Compliant	Compliant	Compliant
EM1712592	ALS Environmental Melbourne	Soil	Compliant	Compliant	Compliant
ASET59288/62468/1-27	ASET	Soil	Compliant	Compliant	Compliant

Field Consideration	Yes / No	Comments / Non-Conformances
Was appropriate media sampled in accordance with the DQOs?	Y	All soil samples were sampled in accordance with the DQOs.
Was all media identified in the DQOs sampled?	Y	All soil samples specified in the DQO were sampled.
Were all samples the samples appropriately handled?	Y	All samples collected were received by the laboratories intact.
Were all samples preserved appropriately?	Y	All samples collected were received by laboratories in the correct temperature. Where relevant, samples were stored in acid-preserved containers supplied by laboratories.

1.4 Field Data Precision

Field Consideration	Yes / No	Comments / Non-Conformances
Were the SOPs appropriate and complied with?	Y	The recovery of field duplicates was conducted in accordance with Aargus Fieldwork Protocols to allow for the assessment of field precision.

1.5 Field Data Accuracy

Field Consideration	Yes / No	Comments / Non-Conformances
Were the SOPs appropriate and complied with?	N	.Only one set of trip spike/ trip blank were tested. However, this is considered to be a minor Non-conformance.

2 LABORATORY DATA QUALITY ASSESSMENT

2.1 Laboratory Data Completeness

Laboratory Considerations	Yes / No	Comments / Non-Conformances
Were all critical samples analysed according to the DQOs?	Y	All critical samples analysed according to DQOs.
Were all analytes analysed according to the DQOs?	Y	All analytes analysed according to DQOs.
Were the laboratory methods and PQLs appropriate?	Y	US EPA Analytical Methods were used. PQLs were below their respective assessment criteria.
Was sample documentation complete?	Y	The sample documentation was correctly completed on the COC's.
Were sample holding times complied with?	Y	All the samples were within holding time for soil samples.
Were an adequate number of laboratory duplicates analysed?	Y	An adequate number of laboratory duplicates were analysed.
Were an adequate number of laboratory blank samples analysed?	Y	An adequate number of laboratory blank samples were analysed.
Were an adequate number of Laboratory Control Samples analysed?	Y	An adequate number of Laboratory Control Samples were analysed.
Were an adequate number of laboratory matrix spikes/duplicates analysed?	N	An adequate number of Matrix spikes / duplicates were analysed. Matrix sample for PCB was not tested by ALS Melbourne and matrix spike sample for rinsate was not tested for PAH and TRH in Sydney laboratory. However, given that the majority of the matrix samples were analysed, the outcome of the assessment is not affected.
Were an adequate number of surrogates analysed?	Y	An adequate number of surrogates were analysed.

2.2 Laboratory Data Comparability

Laboratory Considerations	Yes / No	Comments / Non-Conformances
Were the same analytical methods used for each analyte?	Y	All analytical methods used between laboratories were based on the USEPA/APHA methods.
Were the PQLs used for each analyte less than 20% of their respective assessment criteria?	Y	The PQLs for analytes in soil samples were below 20% of their respective assessment criteria.
Were the sample PQLs used for each analyte the same?	Y	Sample PQL's were the same within each laboratory.
Were the same laboratories used for analyses of each contaminant type?	Y	ALS Environmental Sydney was the primary laboratory. ALS Environmental Melbourne was the secondary laboratories. ASET Hornsby was the asbestos laboratory.
Were the units reported for each analyte the same?	Y	Analytical units of measurement for soil were mg/kg.

2.3 Laboratory Data Representativeness

Laboratory Considerations	Yes / No	Comments / Non-Conformances
Were all samples analysed according to the DQOs?	Y	The majority of the samples were analysed according to the DQOs.

2.4 Laboratory Data Precision

Laboratory Considerations	Yes / No	Comments / Non-Conformances
Were the RPDs of the field duplicates within control limits?	Y	RPDs were <50%, the data set was considered to be adequately precise.
Were the RPDs of the laboratory duplicates within control limits?	Y	All RPDs of all laboratory duplicates were within control limits, the data set was considered to be adequately precise.

Note: Please refer to the tables attached at the end of this QA/QC assessment for calculations of the field RPDs.

2.5 Laboratory Data Accuracy

Laboratory Considerations	Yes / No	Comments / Non-Conformances
Were the rinsates free of contaminants?	Y	The concentrations of the analytes were below the PQLs, the data set was considered to be adequately accurate.
Were the trip blanks free of contaminants?	Y	The test results for the trip blank samples, reported concentrations to be less than the PQL's, therefore cross contamination has not occurred.
Were the laboratory blanks free of contaminants?	Y	Laboratory blanks were free of contaminants.
Were the surrogate spikes within control limits?	Y	Surrogate spikes were within control limits.
Were laboratory control samples within control limits?	Y	Laboratory control samples were within control limits.
Were matrix spike recoveries within control limits?	N	The concentration of Arsenic, Lead and Zinc were not within control limits. However, the results for these analytes were all below their respective PQLs. Therefore, the non-conformance is not considered to have any effect on the investigation outcome.
Were the trip spike recoveries within the control limits?	Y	The results show a recovery of trip spike concentrations, ranging between 100-110%. Based on the above, it is considered that no loss of volatiles from the recovered samples occurred.

Note: Please refer to the tables attached at the end of this QA/QC assessment for tables showing results of field blanks.

TABLE 1
DUPLICATE SAMPLE 1

ANALYTE	BH9 0.0-0.1m mg/kg	DUPLICATE D1 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	9	8	12
Cadmium	<1	<1	-
Chromium	9	10	11
Copper	16	15	6
Lead	17	17	0
Mercury	<0.1	<0.1	-
Nickel	11	11	0
Zinc	64	60	6
ORGANOCHLORINE PESTICIDES (OCP)			
DDD + DDE + DDT	<0.05	<0.05	-
Aldrin + Dieldrin	<0.05	<0.05	-
Chlordane	<0.05	<0.05	-
Endosulfan	<0.05	<0.05	-
Endrin	<0.05	<0.05	-
Heptachlor	<0.05	<0.05	-
HCB	<0.05	<0.05	-
Methoxychlor	<0.2	<0.2	-

TABLE 2
DUPLICATE SAMPLE 2

ANALYTE	S15 0.0-0.1m mg/kg	DUPLICATE D2 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	8	11	0
Cadmium	<1	<1	-
Chromium	22	23	4
Copper	38	37	3
Lead	26	24	8
Mercury	<0.1	<0.1	-
Nickel	30	29	3
Zinc	80	83	4
TOTAL Recoverable HYDROCARBONS (TPH)			
C6 - C10	<10	<10	-
C10 - C16	<50	<50	-
C16 - C34	150	160	6
C34-C40	140	190	30
BTEX			
Naphthalene	<1	<1	-
Benzene	<0.2	<0.2	-
Toluene	<0.5	<0.5	-
Ethyl Benzene	<0.5	<0.5	-
Total Xylenes	<0.5	<0.5	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
B(a)P as TEQ	0.6	0.6	-
Total PAH	<0.5	<0.5	-
Benzo(a)pyrene	<0.5	<0.5	-
Naphthalene	<0.5	<0.5	-

TABLE 3
DUPLICATE SAMPLE

ANALYTE	S1 0.0-0.1m mg/kg	DUPLICATE D3 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	7	6	15
Cadmium	<1	<1	-
Chromium	9	10	11
Copper	21	23	9
Lead	12	12	0
Mercury	<0.1	<0.1	-
Nickel	8	9	12
Zinc	54	64	17
TOTAL Recoverable HYDROCARBONS (TPH)			
C6 - C10	<10	<10	-
C10 - C16	<50	<50	-
C16 - C34	<100	<100	-
C34- C40	<100	<100	-
BTEX			
Naphthalene	<1	<1	-
Benzene	<0.2	<0.2	-
Toluene	<0.5	<0.5	-
Ethyl Benzene	<0.5	<0.5	-
Total Xylenes	<0.5	<0.5	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
B(a)P as TEQ	0.6	0.6	0
Total PAH	<0.5	<0.5	-
Benzo(a)pyrene	<0.5	<0.5	-
Naphthalene	<0.5	<0.5	-
ORGANOCHLORINE PESTICIDES (OCP)			
DDD + DDE + DDT	<0.05	<0.05	-
Aldrin + Dieldrin	<0.05	<0.05	-
Chlordane	<0.05	<0.05	-
Endosulfan	<0.05	<0.05	-
Endrin	<0.05	<0.05	-
Heptachlor	<0.05	<0.05	-
HCB	<0.05	<0.05	-
Methoxychlor	<0.2	<0.2	-
POLYCHLORINATED BIPHENYLS (PCB)			
Total PCB	<0.1	<0.1	-

TABLE 4
DUPLICATE SAMPLE 4

ANALYTE	S13 0.0-0.1m mg/kg	DUPLICATE D4 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	9	8	12
Cadmium	<1	<1	-
Chromium	86	138	46
Copper	35	33	6
Lead	15	15	0
Mercury	<0.1	<0.1	-
Nickel	41	31	28
Zinc	75	79	5
TOTAL Recoverable HYDROCARBONS (TPH)			
C6 - C10	<10	<10	-
C10 - C16	<50	<50	-
C16 - C34	100	100	-
C34-C40	140	140	-
BTEX			
Naphthalene	<1	<1	-
Benzene	<0.2	<0.2	-
Toluene	<0.5	<0.5	-
Ethyl Benzene	<0.5	<0.5	-
Total Xylenes	<0.5	<0.5	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
B(a)P as TEQ	0.6	0.6	0
Total PAH	<0.5	<0.5	-
Benzo(a)pyrene	<0.5	<0.5	-
Naphthalene	<0.5	<0.5	-

TABLE 5
SPLIT SAMPLE 1

ANALYTE	BH9 0.0-0.1m mg/kg ALS SYDNEY	SPLIT SS1 mg/kg ALS MELBOURNE	RELATIVE PERCENTAGE DIFFERENCE (RPD) %
HEAVY METALS			
Arsenic	9	9	-
Cadmium	<1	<1	-
Chromium	9	9	0
Copper	16	15	6
Lead	17	13	27
Mercury	<0.1	<0.1	-
Nickel	11	10	10
Zinc	64	63	2
ORGANOCHLORINE PESTICIDES (OCP)			
DDD + DDE + DDT	<0.05	<0.05	-
Aldrin + Dieldrin	<0.05	<0.05	-
Chlordane	<0.05	<0.05	-
Endosulfan	<0.05	<0.05	-
Endrin	<0.05	<0.05	-
Heptachlor	<0.05	<0.05	-
HCB	<0.05	<0.05	-
Methoxychlor	<0.2	<0.2	-

TABLE 6
SPLIT SAMPLE 2

ANALYTE	S15 0.0-0.1m mg/kg ALS SYDNEY	SPLIT SS2 mg/kg ALS MELBOURNE	RELATIVE PERCENTAGE DIFFERENCE (RPD) %
HEAVY METALS			
Arsenic	8	11	32
Cadmium	<1	<1	-
Chromium	22	16	32
Copper	38	28	30
Lead	26	16	48
Mercury	<0.1	<0.1	-
Nickel	30	19	45
Zinc	80	56	35
TOTAL Recoverable HYDROCARBONS (TPH)			
C6 - C10	<10	<10	-
C10 - C16	<50	<50	-
C16 - C34	150	150	0
C34-C40	140	140	0
BTEX			
Naphthalene	<1	<1	-
Benzene	<0.2	<0.2	-
Toluene	<0.5	<0.5	-
Ethyl Benzene	<0.5	<0.5	-
Total Xylenes	<0.5	<0.5	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
B(a)P as TEQ	0.6	0.6	0
Total PAH	<0.5	<0.5	-
Benzo(a)pyrene	<0.5	<0.5	-
Naphthalene	<0.5	<0.5	-

TABLE 7
SPLIT SAMPLE 3

ANALYTE	S1 0.0-0.1m mg/kg	SPLIT SS3 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	7	7	0
Cadmium	<1	<1	-
Chromium	9	9	0
Copper	21	21	0
Lead	12	11	9
Mercury	<0.1	<0.1	-
Nickel	8	7	13
Zinc	54	47	14
TOTAL Recoverable HYDROCARBONS (TPH)			
C6 - C10	<10	<10	-
C10 - C16	<50	<50	-
C16 - C34	<100	<100	-
C34- C40	<100	<100	-
BTEX			
Naphthalene	<1	<1	-
Benzene	<0.2	<0.2	-
Toluene	<0.5	<0.5	-
Ethyl Benzene	<0.5	<0.5	-
Total Xylenes	<0.5	<0.5	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
B(a)P as TEQ	0.6	0.6	0
Total PAH	<0.5	<0.5	-
Benzo(a)pyrene	<0.5	<0.5	-
Naphthalene	<0.5	<0.5	-
ORGANOCHLORINE PESTICIDES (OCP)			
DDD + DDE + DDT	<0.05	<0.05	-
Aldrin + Dieldrin	<0.05	<0.05	-
Chlordane	<0.05	<0.05	-
Endosulfan	<0.05	<0.05	-
Endrin	<0.05	<0.05	-
Heptachlor	<0.05	<0.05	-
HCB	<0.05	<0.05	-
Methoxychlor	<0.2	<0.2	-
POLYCHLORINATED BIPHENYLS (PCB)			
Total PCB	<0.1	<0.1	<0.1

TABLE 8
SPLIT SAMPLE 4

ANALYTE	S13 0.0-0.1m mg/kg ALS SYDNEY	SPLIT SS4 mg/kg ALS MELBOURNE	RELATIVE PERCENTAGE DIFFERENCE (RPD) %
HEAVY METALS			
Arsenic	9	8	12
Cadmium	<1	<1	-
Chromium	86	96	11
Copper	35	32	9
Lead	15	14	7
Mercury	<0.1	<0.1	-
Nickel	41	39	5
Zinc	75	70	7
TOTAL Recoverable HYDROCARBONS (TPH)			
C6 - C10	<10	<10	-
C10 - C16	<50	<50	-
C16 - C34	100	150	40
C34-C40	140	140	0
BTEX			
Naphthalene	<1	<1	-
Benzene	<0.2	<0.2	-
Toluene	<0.5	<0.5	-
Ethyl Benzene	<0.5	<0.5	-
Total Xylenes	<0.5	<0.5	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
B(a)P as TEQ	0.6	0.6	0
Total PAH	<0.5	<0.5	-
Benzo(a)pyrene	<0.5	<0.5	-
Naphthalene	<0.5	<0.5	-

TABLE 9
RINSATE SAMPLE

ANALYTE	Practical Quantitation Limits (µg/L) (PQL)	RINSATE R1 (µg/L) 11.09.2017
HEAVY METALS		
Arsenic	1	<1
Cadmium	0.1	<0.1
Chromium	1	<1
Copper	1	<1
Mercury	0.1	<0.1
Nickel	1	<1
Lead	1	<1
Zinc	5	<5
TOTAL Recoverable HYDROCARBONS (TPH)		
C6 - C10	20	<20
C10 - C16	100	<100
C16 - C34	100	<100
C34-C40	100	<100
BTEX		
Naphthalene	5	<5
Benzene	1	<1
Toluene	2	<2
Ethyl Benzene	2	<2
Total Xylenes	2	<2

TABLE 10
RINSATE SAMPLE

ANALYTE	Practical Quantitation Limits (µg/L) (PQL)	RINSATE R2 (µg/L) 12.09.2017
HEAVY METALS		
Arsenic	1	<1
Cadmium	0.1	<0.1
Chromium	1	<1
Copper	1	<1
Mercury	0.1	<0.1
Nickel	1	<1
Lead	1	<1
Zinc	5	<5
TOTAL Recoverable HYDROCARBONS (TPH)		
C6 - C10	20	<20
C10 - C16	100	<100
C16 - C34	100	<100
C34-C40	100	<100
BTEX		
Naphthalene	5	<5
Benzene	1	<1
Toluene	2	<2
Ethyl Benzene	2	<2
Total Xylenes		
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)		
B(a)P as TEQ	0.5	<0.5
Total PAH	0.5	<0.5
Benzo(a)pyrene	0.5	<0.5
Naphthalene	1.0	<1.0

TABLE 11
TRIP SPIKE SAMPLES

ANALYTE	TRIP SPIKE TS2 % 12.09.2017
TRH	
C6-C10	77
BTEX	
Naphthalene	100
Benzene	100
Toluene	68
Ethyl Benzene	90
Total Xylenes	82

TABLE 12
TRIP BLANKS SAMPLES

ANALYTE	TRIP BLANK TB1 (mg/L) 12.09.2017	Practical Quantitation Limits (PQL)
TRH		
C6-C10	<10	10
BTEX		
Naphthalene	<1	1
Benzene	<0.2	0.2
Toluene	<0.5	0.5
Ethyl Benzene	<0.5	0.5
Total Xylenes	<0.5	0.5

TABLE 1
DUPLICATE SAMPLE 1

ANALYTE	BH9 0.0-0.1m mg/kg	DUPLICATE D1 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	9	8	12
Cadmium	<1	<1	-
Chromium	9	10	11
Copper	16	15	6
Lead	17	17	0
Mercury	<0.1	<0.1	-
Nickel	11	11	0
Zinc	64	60	6
ORGANOCHLORINE PESTICIDES (OCP)			
DDD + DDE + DDT	<0.05	<0.05	-
Aldrin + Dieldrin	<0.05	<0.05	-
Chlordane	<0.05	<0.05	-
Endosulfan	<0.05	<0.05	-
Endrin	<0.05	<0.05	-
Heptachlor	<0.05	<0.05	-
HCB	<0.05	<0.05	-
Methoxychlor	<0.2	<0.2	-

TABLE 2
DUPLICATE SAMPLE 2

ANALYTE	S15 0.0-0.1m mg/kg	DUPLICATE D2 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	8	11	0
Cadmium	<1	<1	-
Chromium	22	23	4
Copper	38	37	3
Lead	26	24	8
Mercury	<0.1	<0.1	-
Nickel	30	29	3
Zinc	80	83	4
TOTAL Recoverable HYDROCARBONS (TPH)			
C6 - C10	<10	<10	-
C10 - C16	<50	<50	-
C16 - C34	150	160	6
C34-C40	140	190	30
BTEX			
Naphthalene	<1	<1	-
Benzene	<0.2	<0.2	-
Toluene	<0.5	<0.5	-
Ethyl Benzene	<0.5	<0.5	-
Total Xylenes	<0.5	<0.5	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
B(a)P as TEQ	0.6	0.6	-
Total PAH	<0.5	<0.5	-
Benzo(a)pyrene	<0.5	<0.5	-
Naphthalene	<0.5	<0.5	-

TABLE 3
DUPLICATE SAMPLE

ANALYTE	S1 0.0-0.1m mg/kg	DUPLICATE D3 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	7	6	15
Cadmium	<1	<1	-
Chromium	9	10	11
Copper	21	23	9
Lead	12	12	0
Mercury	<0.1	<0.1	-
Nickel	8	9	12
Zinc	54	64	17
TOTAL Recoverable HYDROCARBONS (TPH)			
C6 - C10	<10	<10	-
C10 - C16	<50	<50	-
C16 - C34	<100	<100	-
C34-C40	<100	<100	-
BTEX			
Naphthalene	<1	<1	-
Benzene	<0.2	<0.2	-
Toluene	<0.5	<0.5	-
Ethyl Benzene	<0.5	<0.5	-
Total Xylenes	<0.5	<0.5	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
B(a)P as TEQ	0.6	0.6	0
Total PAH	<0.5	<0.5	-
Benzo(a)pyrene	<0.5	<0.5	-
Naphthalene	<0.5	<0.5	-
ORGANOCHLORINE PESTICIDES (OCP)			
DDD + DDE + DDT	<0.05	<0.05	-
Aldrin + Dieldrin	<0.05	<0.05	-
Chlordane	<0.05	<0.05	-
Endosulfan	<0.05	<0.05	-
Endrin	<0.05	<0.05	-
Heptachlor	<0.05	<0.05	-
HCB	<0.05	<0.05	-
Methoxychlor	<0.2	<0.2	-
POLYCHLORINATED BIPHENYLS (PCB)			
Total PCB	<0.1	<0.1	-

TABLE 4
DUPLICATE SAMPLE 4

ANALYTE	S13 0.0-0.1m mg/kg	DUPLICATE D4 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	9	8	12
Cadmium	<1	<1	-
Chromium	86	138	46
Copper	35	33	6
Lead	15	15	0
Mercury	<0.1	<0.1	-
Nickel	41	31	28
Zinc	75	79	5
TOTAL Recoverable HYDROCARBONS (TPH)			
C6 - C10	<10	<10	-
C10 - C16	<50	<50	-
C16 - C34	100	100	-
C34-C40	140	140	-
BTEX			
Naphthalene	<1	<1	-
Benzene	<0.2	<0.2	-
Toluene	<0.5	<0.5	-
Ethyl Benzene	<0.5	<0.5	-
Total Xylenes	<0.5	<0.5	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
B(a)P as TEQ	0.6	0.6	0
Total PAH	<0.5	<0.5	-
Benzo(a)pyrene	<0.5	<0.5	-
Naphthalene	<0.5	<0.5	-

TABLE 5
SPLIT SAMPLE 1

ANALYTE	BH9 0.0-0.1m mg/kg ALS SYDNEY	SPLIT SS1 mg/kg ALS MELBOURNE	RELATIVE PERCENTAGE DIFFERENCE (RPD) %
HEAVY METALS			
Arsenic	9	9	-
Cadmium	<1	<1	-
Chromium	9	9	0
Copper	16	15	6
Lead	17	13	27
Mercury	<0.1	<0.1	-
Nickel	11	10	10
Zinc	64	63	2
ORGANOCHLORINE PESTICIDES (OCP)			
DDD + DDE + DDT	<0.05	<0.05	-
Aldrin + Dieldrin	<0.05	<0.05	-
Chlordane	<0.05	<0.05	-
Endosulfan	<0.05	<0.05	-
Endrin	<0.05	<0.05	-
Heptachlor	<0.05	<0.05	-
HCB	<0.05	<0.05	-
Methoxychlor	<0.2	<0.2	-

TABLE 6
SPLIT SAMPLE 2

ANALYTE	S15 0.0-0.1m mg/kg ALS SYDNEY	SPLIT SS2 mg/kg ALS MELBOURNE	RELATIVE PERCENTAGE DIFFERENCE (RPD) %
HEAVY METALS			
Arsenic	8	11	32
Cadmium	<1	<1	-
Chromium	22	16	32
Copper	38	28	30
Lead	26	16	48
Mercury	<0.1	<0.1	-
Nickel	30	19	45
Zinc	80	56	35
TOTAL Recoverable HYDROCARBONS (TPH)			
C6 - C10	<10	<10	-
C10 - C16	<50	<50	-
C16 - C34	150	150	0
C34-C40	140	140	0
BTEX			
Naphthalene	<1	<1	-
Benzene	<0.2	<0.2	-
Toluene	<0.5	<0.5	-
Ethyl Benzene	<0.5	<0.5	-
Total Xylenes	<0.5	<0.5	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
B(a)P as TEQ	0.6	0.6	0
Total PAH	<0.5	<0.5	-
Benzo(a)pyrene	<0.5	<0.5	-
Naphthalene	<0.5	<0.5	-

TABLE 7
SPLIT SAMPLE 3

ANALYTE	S1 0.0-0.1m mg/kg	SPLIT SS3 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	7	7	0
Cadmium	<1	<1	-
Chromium	9	9	0
Copper	21	21	0
Lead	12	11	9
Mercury	<0.1	<0.1	-
Nickel	8	7	13
Zinc	54	47	14
TOTAL Recoverable HYDROCARBONS (TPH)			
C6 - C10	<10	<10	-
C10 - C16	<50	<50	-
C16 - C34	<100	<100	-
C34-C40	<100	<100	-
BTEX			
Naphthalene	<1	<1	-
Benzene	<0.2	<0.2	-
Toluene	<0.5	<0.5	-
Ethyl Benzene	<0.5	<0.5	-
Total Xylenes	<0.5	<0.5	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
B(a)P as TEQ	0.6	0.6	0
Total PAH	<0.5	<0.5	-
Benzo(a)pyrene	<0.5	<0.5	-
Naphthalene	<0.5	<0.5	-
ORGANOCHLORINE PESTICIDES (OCP)			
DDD + DDE + DDT	<0.05	<0.05	-
Aldrin + Dieldrin	<0.05	<0.05	-
Chlordane	<0.05	<0.05	-
Endosulfan	<0.05	<0.05	-
Endrin	<0.05	<0.05	-
Heptachlor	<0.05	<0.05	-
HCB	<0.05	<0.05	-
Methoxychlor	<0.2	<0.2	-
POLYCHLORINATED BIPHENYLS (PCB)			
Total PCB	<0.1	<0.1	<0.1

TABLE 8
SPLIT SAMPLE 4

ANALYTE	S13 0.0-0.1m mg/kg ALS SYDNEY	SPLIT SS4 mg/kg ALS MELBOURNE	RELATIVE PERCENTAGE DIFFERENCE (RPD) %
HEAVY METALS			
Arsenic	9	8	12
Cadmium	<1	<1	-
Chromium	86	96	11
Copper	35	32	9
Lead	15	14	7
Mercury	<0.1	<0.1	-
Nickel	41	39	5
Zinc	75	70	7
TOTAL Recoverable HYDROCARBONS (TPH)			
C6 - C10	<10	<10	-
C10 - C16	<50	<50	-
C16 - C34	100	150	40
C34-C40	140	140	0
BTEX			
Naphthalene	<1	<1	-
Benzene	<0.2	<0.2	-
Toluene	<0.5	<0.5	-
Ethyl Benzene	<0.5	<0.5	-
Total Xylenes	<0.5	<0.5	-
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)			
B(a)P as TEQ	0.6	0.6	0
Total PAH	<0.5	<0.5	-
Benzo(a)pyrene	<0.5	<0.5	-
Naphthalene	<0.5	<0.5	-

TABLE 9
RINSATE SAMPLE

ANALYTE	Practical Quantitation Limits (µg/L) (PQL)	RINSATE R1 (µg/L) 11.09.2017
HEAVY METALS		
Arsenic	1	<1
Cadmium	0.1	<0.1
Chromium	1	<1
Copper	1	<1
Mercury	0.1	<0.1
Nickel	1	<1
Lead	1	<1
Zinc	5	<5
TOTAL Recoverable HYDROCARBONS (TPH)		
C6 - C10	20	<20
C10 - C16	100	<100
C16 - C34	100	<100
C34-C40	100	<100
BTEX		
Naphthalene	5	<5
Benzene	1	<1
Toluene	2	<2
Ethyl Benzene	2	<2
Total Xylenes	2	<2

TABLE 10
RINSATE SAMPLE

ANALYTE	Practical Quantitation Limits (µg/L) (PQL)	RINSATE R2 (µg/L) 12.09.2017
HEAVY METALS		
Arsenic	1	<1
Cadmium	0.1	<0.1
Chromium	1	<1
Copper	1	<1
Mercury	0.1	<0.1
Nickel	1	<1
Lead	1	<1
Zinc	5	<5
TOTAL Recoverable HYDROCARBONS (TPH)		
C6 - C10	20	<20
C10 - C16	100	<100
C16 - C34	100	<100
C34-C40	100	<100
BTEX		
Naphthalene	5	<5
Benzene	1	<1
Toluene	2	<2
Ethyl Benzene	2	<2
Total Xylenes		
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)		
B(a)P as TEQ	0.5	<0.5
Total PAH	0.5	<0.5
Benzo(a)pyrene	0.5	<0.5
Naphthalene	1.0	<1.0

TABLE 11
TRIP SPIKE SAMPLES

ANALYTE	TRIP SPIKE TS2 % 12.09.2017
TRH C6-C10	77
BTEX Naphthalene Benzene Toluene Ethyl Benzene Total Xylenes	100 100 68 90 82

TABLE 12
TRIP BLANKS SAMPLES

ANALYTE	TRIP BLANK TB1 (mg/L) 12.09.2017	Practical Quantitation Limits (PQL)
TRH		
C6-C10	<10	10
BTEX		
Naphthalene	<1	1
Benzene	<0.2	0.2
Toluene	<0.5	0.5
Ethyl Benzene	<0.5	0.5
Total Xylenes	<0.5	0.5

APPENDIX P

SUMMARY OF RESULTS



TABLE 1
SCHEDULE OF LABORATORY TESTING

Analyte / Analyte Group		TYPE	SAMPLING DATE	DUPLICATE	SPLIT	MET-8	TPH & BTEX	PAH	OC	PCB	PH,CEC	ASBESTOS
Sample	Depth (m)											
BH1	0.0-0.1	T	11.09.2017			√			√			
BH2	0.0-0.1	T	11.09.2017			√			√			
BH3	0.0-0.1	T	11.09.2017			√			√			
BH4	0.0-0.1	T	11.09.2017			√			√			
BH5	0.0-0.1	T	11.09.2017			√			√			
BH6	0.0-0.1	T	11.09.2017			√			√			
BH7	0.0-0.1	T	11.09.2017			√			√			
BH8	0.0-0.1	T	11.09.2017			√			√			
BH9	0.0-0.1	T	11.09.2017	D1	SS1	√			√			√
BH10	0.0-0.1	T	11.09.2017			√			√			
BH11	0.0-0.1	T	11.09.2017			√			√			
BH12	0.0-0.1	T	11.09.2017			√			√			
BH13	0.0-0.1	T	11.09.2017			√			√			
BH14	0.0-0.1	T	11.09.2017			√			√			
BH15	0.0-0.1	T	11.09.2017			√			√			
BH16	0.0-0.1	T	11.09.2017			√			√			
BH17	0.0-0.1	T	11.09.2017			√			√			
BH18	0.0-0.1	T	11.09.2017			√			√			
BH19	0.0-0.1	T	11.09.2017			√			√			√
BH20	0.0-0.1	T	11.09.2017			√			√			
BH21	0.0-0.1	T	11.09.2017			√			√	√		
BH21	0.9-1.0	N	11.09.2017			√					√	
BH22	0.0-0.1	T	11.09.2017			√			√			
BH23	0.0-0.1	T	11.09.2017			√			√			
BH24	0.0-0.1	T	11.09.2017			√			√			√
BH25	0.1-0.2	T	11.09.2017			√	√	√				√
BH26	0.0-0.1	T	11.09.2017			√	√	√				
BH27	0.0-0.1	T	11.09.2017			√			√			
BH28	0.0-0.1	T	11.09.2017			√			√			
BH29	0.0-0.1	T	11.09.2017			√			√	√		
BH29	1.0-1.1	N	11.09.2017			√					√	
BH30	0.0-0.1	T	11.09.2017			√			√			
BH31	0.0-0.1	T	11.09.2017			√						
BH32	0.0-0.1	T	11.09.2017			√						
BH33	0.0-0.1	T	11.09.2017			√						
BH34	0.0-0.1	T	11.09.2017			√						
BH35	0.0-0.1	T	11.09.2017			√						
BH36	0.0-0.1	T	11.09.2017			√						
BH37	0.0-0.1	T	11.09.2017			√						
BH38	0.0-0.1	T	11.09.2017			√						
BH38	0.9-1.0	N	11.09.2017			√				√	√	
BH39	0.0-0.1	T	11.09.2017			√						
S1	0.0-0.1	F	12.09.2017	D3	SS3	√	√	√	√	√		√
S1	0.9-1.0	F	12.09.2017			√	√	√				√
S2	0.0-0.1	F	12.09.2017			√	√	√	√	√		√
S2	0.5-0.6	N	12.09.2017			√						
S2	0.9-1.0		12.09.2017									√
S3	0.0-0.1	F	12.09.2017			√	√	√	√	√		√
S3	0.9-1.0	N	12.09.2017			√	√	√				
S4	0.0-0.1	T	12.09.2017			√			√			√
S4	0.2-0.3	N	12.09.2017			√						
S5	0.0-0.1	F	12.09.2017			√	√	√	√	√		√
S5	0.9-1.0	F	12.09.2017			√	√	√				√
S6	0.0-0.1	F	12.09.2017			√	√	√	√	√		√
S6	0.9-1.0	F	12.09.2017			√	√	√				√
S7	0.0-0.1	T	12.09.2017			√			√			√
S7	0.2-0.3	N	12.09.2017			√						
S8	0.0-0.1	T	12.09.2017			√			√			√
S8	0.2-0.3	N	12.09.2017			√						
S9	0.0-0.1	T	12.09.2017			√			√			√
S10	0.0-0.1	T	12.09.2017			√						
S11	0.0-0.1	T	12.09.2017			√						
S12	0.0-0.1	T	11.09.2017			√						
S13	0.0-0.1	T	11.09.2017	D4	SS4	√	√	√				√
S14	0.0-0.1	T	12.09.2017			√						
S15	0.0-0.1	T	11.09.2017	D2	SS2	√	√	√		√		√
S16	0.0-0.1	T	11.09.2017			√	√	√				
S18	0.0-0.1	T	11.09.2017			√	√	√	√			√
S19	0.0-0.1	T	11.09.2017			√	√	√	√			√
S20	0.0-0.1	T	11.09.2017			√			√			√
S21	0.0-0.1	T	11.09.2017			√	√	√				√

Notes MET-8: arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc
OC : Organochlorine Pesticides
PCB : Polychlorinated Biphenyls
PAH: Polycyclic Aromatic Hydrocarbons
TPH: Total Petroleum Hydrocarbons
BTEX: Benzene, Toluene, Ethyl Benzene, Xylene
F,T,N: Fill, Topsoil, Natural

TABLE A1
HEAVY METALS TEST RESULTS FOR HILs & EILs

Analyte		HEAVY METALS (mg/kg)							
		ARSENIC	CADMIUM	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	ZINC
Sample Location	Depth (m)								
BH1	0.0-0.1	5	<1	9	12	15	<0.1	6	30
BH2	0.0-0.1	<5	<1	8	12	12	<0.1	6	26
BH3	0.0-0.1	6	<1	7	20	10	<0.1	6	35
BH4	0.0-0.1	9	<1	13	15	22	<0.1	13	42
BH5	0.0-0.1	6	<1	9	15	18	<0.1	9	46
BH6	0.0-0.1	6	<1	7	28	13	<0.1	5	26
BH7	0.0-0.1	6	<1	9	18	18	<0.1	8	57
BH8	0.0-0.1	9	<1	11	19	13	<0.1	8	48
BH9	0.0-0.1	9	<1	9	16	17	<0.1	11	64
D1	-	8	<1	10	15	17	<0.1	11	60
SS1	-	9	<1	9	15	13	<0.1	10	63
BH10	0.0-0.1	6	<1	9	20	18	<0.1	8	42
BH11	0.0-0.1	<5	<1	7	12	11	<0.1	5	28
BH12	0.0-0.1	<5	<1	11	12	13	<0.1	5	21
BH13	0.0-0.1	9	<1	6	15	9	<0.1	12	103
BH14	0.0-0.1	8	<1	12	18	23	<0.1	10	32
BH15	0.0-0.1	12	<1	12	18	22	<0.1	8	32
BH16	0.0-0.1	6	<1	10	14	20	<0.1	8	29
BH17	0.0-0.1	11	<1	9	14	9	<0.1	2	19
BH18	0.0-0.1	6	<1	15	16	21	<0.1	11	119
BH19	0.0-0.1	11	<1	16	16	23	<0.1	9	51
BH20	0.0-0.1	<5	<1	11	15	13	<0.1	6	42
BH21	0.0-0.1	<5	<1	8	19	21	<0.1	20	182
BH21	0.9-1.0	<5	<1	4	14	16	<0.1	5	72
BH22	0.0-0.1	6	<1	14	26	19	<0.1	14	60
BH23	0.0-0.1	14	<1	10	20	18	<0.1	8	35
BH24	0.0-0.1	<5	<1	6	7	12	<0.1	5	26
BH25	0.1-0.2	8	<1	6	31	11	<0.1	6	34
BH26	0.0-0.1	24	<1	12	26	21	<0.1	5	27
BH27	0.0-0.1	24	<1	10	26	13	<0.1	4	30
BH28	0.0-0.1	26	<1	9	24	11	<0.1	3	20
BH29	0.0-0.1	9	<1	4	28	10	<0.1	2	22
BH29	1.0-1.1	<5	<1	3	28	13	<0.1	4	61
BH30	0.0-0.1	24	<1	11	21	14	<0.1	4	28
BH31	0.0-0.1	9	<1	12	16	25	<0.1	8	78
BH32	0.0-0.1	20	<1	9	22	16	<0.1	5	28
BH33	0.0-0.1	12	<1	7	14	12	<0.1	6	42
BH34	0.0-0.1	10	<1	10	24	16	<0.1	3	19
BH35	0.0-0.1	18	<1	7	28	16	<0.1	6	43
BH36	0.0-0.1	<5	<1	8	12	13	<0.1	5	21
BH37	0.0-0.1	8	<1	7	15	15	<0.1	6	28
BH38	0.0-0.1	<5	<1	3	18	8	<0.1	4	40
BH38	0.9-1.0	<5	<1	3	29	13	<0.1	16	73
BH39	0.0-0.1	32	<1	9	31	18	<0.1	6	34
S1	0.0-0.1	7	<1	9	21	12	<0.1	8	54
D3	-	6	<1	10	23	12	<0.1	9	64
SS3	-	7	<1	9	21	11	<0.1	7	47
S1	0.9-1.0	6	<1	9	23	12	<0.1	8	54
S2	0.0-0.1	5	<1	8	33	18	<0.1	21	114
S2	0.5-0.6	11	<1	7	35	22	<0.1	20	84
S3	0.0-0.1	14	<1	6	31	24	<0.1	16	84
S3	0.9-0.1	11	<1	7	31	15	<0.1	15	70
S4	0.0-0.1	11	<1	8	15	16	<0.1	9	41
S4	0.2-0.3	11	<1	11	21	20	<0.1	14	62
S5	0.0-0.1	<5	<1	13	22	23	<0.1	14	55
S5	0.9-1.0	10	<1	7	19	15	<0.1	6	60
S6	0.0-0.1	6	<1	18	67	30	<0.1	21	101
S6	0.9-1.0	7	<1	8	22	13	<0.1	7	35
S7	0.0-0.1	9	<1	5	18	10	<0.1	8	115
S7	0.2-0.3	7	<1	6	33	13	<0.1	12	107
S8	0.0-0.1	11	<1	2	22	11	<0.1	2	20
S8	0.2-0.3	9	<1	<2	19	10	<0.1	<2	19
S9	0.0-0.1	18	<1	6	35	13	<0.1	18	73
S10	0.0-0.1	10	<1	9	10	13	<0.1	7	26
S11	0.0-0.1	<5	<1	7	17	12	<0.1	6	87
S12	0.0-0.1	10	<1	5	27	10	<0.1	4	37
S13	0.0-0.1	9	<1	86	35	15	<0.1	41	75
D4	-	8	<1	138	33	15	<0.1	31	79
SS4	-	8	<1	96	32	14	<0.1	39	70
S14	0.0-0.1	30	<1	14	20	21	<0.1	6	34
S15	0.0-0.1	8	<1	22	38	26	<0.1	30	80
D2	-	11	<1	23	37	24	<0.1	29	83
SS2	-	11	<1	16	28	16	<0.1	19	56
S16	0.0-0.1	7	<1	7	21	20	<0.1	7	96
S18	0.0-0.1	<5	<1	10	15	15	<0.1	5	45
S19	0.0-0.1	7	<1	15	16	29	<0.1	11	120
S20	0.0-0.1	6	<1	12	18	21	<0.1	9	61
S21	0.0-0.1	10	<1	13	18	18	<0.1	6	46
Practical Quantitation Limits (POL)		5	1	2	5	5	0.1	2	5
NATIONAL ENVIRONMENT PROTECTION MEASURE (2013)									
Health Investigation Levels (HIL) - Table 1A (1)									
HIL A ^a		100	20	100	6000	300	40 ^b / 10 ^d	400	7400
HIL B ^a		500	150	500	30,000	1,200	120 ^b / 30 ^d	1200	60,000
HIL C ^a		300	90	300	17,000	600	80 ^b / 13 ^d	1200	30,000
HIL D ^a		3000	900	3600	240,000	1,500	730 ^b / 180 ^d	6000	400,000
Ecological Investigation Levels (EIL) - Table 1B (5)									
Areas of ecological significance		40 ^b							
Urban residential and public open space ^c		100 ^b							
Commercial and industrial		180 ^b							

- Notes
- a: Residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake (no poultry), also includes childcare centres, preschools and primary schools)
 - b: Residential with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high rise buildings and apartments.
 - c: Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths. This does not include undeveloped public open space where the potential for exposure is lower and where a site-specific assessment may be more appropriate
 - d: Commercial/industrial, includes premises such as shops, offices, factories and industrial sites
 - e: Elemental mercury: HIL does not address elemental mercury. A site-specific assessment should be considered if elemental mercury is present, or suspected to be present.
 - f: Methyl mercury: assessment of methyl mercury should only occur where there is evidence of its potential source. It may be associated with inorganic mercury and anaerobic microorganism activity in aquatic environments. In addition the reliability and quality of sampling/analysis should be considered.
 - g: Lead: HIL is based on blood lead models (IEUBK for HILs A, B and C and adult lead model for HIL D where 50% oral bioavailability has been considered. Site-specific bioavailability may be important and should be considered where appropriate.
 - h: Aged values are applicable to arsenic contamination present in soil for at least two years. For fresh contamination refer to Schedule B5c.
 - i: Urban residential / public open space is broadly equivalent to the HIL-A, HIL-B and HIL-C land use scenarios in Table 1A(1) Footnote 1 and as described in Schedule B7.

TABLE A2
CATION EXCHANGE CAPACITY (CEC) & pH TEST RESULTS FOR THE SOIL
PROPERTIES FOR EILs

Analyte		CEC (cmol/kg)	pH (pH units)
Sample Location	Depth (m)		
BH21	0.9-1.0	9.3	5.4
BH29	1.0-1.1	7.9	6.6
BH38	0.9-1.0	8.9	6.9

TABLE A3
SITE DERIVED EILs

Analyte		HEAVY METALS (mg/kg)			
		COPPER	ZINC	NICKEL	LEAD
Sample Location	Depth (m)				
<u>Added Contaminant Limit (ACL)</u> ^a					
BH21	0.9-1.0	130	270	170	1100
BH29	1.0-1.1	190	400	170	1100
BH38	0.9-1.0	190	400	170	1100
<u>Ambient Background Concentration (ABC)</u>					
BH21	0.9-1.0	14	72	5	16
BH29	1.0-1.1	28	61	4	13
BH38	0.9-1.0	29	73	16	13
<u>Calculated EIL (ABC + ACL)</u>					
BH21	0.9-1.0	144	342	175	1116
BH29	1.0-1.1	218	461	174	1113
BH38	0.9-1.0	219	473	186	1113
<u>FINAL SITE EIL AFTER ROUNDING</u> ^b					
BH21	0.9-1.0	140	340	170	1120
BH29	1.0-1.1	220	470	170	1110
BH38	0.9-1.0	220	470	190	1110

Notes a: The ACL for Cu may be determined by pH or CEC and the lower of the determined values should be selected for EIL calculation.

 b: The following rounding rules are applicable to the EILs:

<1	to nearest 0.1
1 - <10	to nearest interger
10 - <100	to nearest 5
100 - <1000	to nearest 10
>1000	to nearest 100

TABLE A4
METAL TEST RESULTS FOR SITE DERIVED EILs

Analyte		HEAVY METALS (mg/kg)			
		COPPER	ZINC	NICKEL	LEAD
Sample Location	Depth (m)				
BH1	0.0-0.1	12	30	6	15
BH2	0.0-0.1	12	26	6	12
BH3	0.0-0.1	20	35	6	10
BH4	0.0-0.1	15	42	13	22
BH5	0.0-0.1	15	46	9	18
BH6	0.0-0.1	28	26	5	13
BH7	0.0-0.1	18	57	8	18
BH8	0.0-0.1	19	48	8	13
BH9	0.0-0.1	16	64	11	17
D1	-	15	60	11	17
SS1	-	15	63	10	13
BH10	0.0-0.1	20	42	8	18
BH11	0.0-0.1	12	28	5	11
BH12	0.0-0.1	12	21	5	13
BH13	0.0-0.1	15	103	12	9
BH14	0.0-0.1	18	32	10	23
BH15	0.0-0.1	18	32	8	22
BH16	0.0-0.1	14	29	8	20
BH17	0.0-0.1	14	19	2	9
BH18	0.0-0.1	16	119	11	21
BH19	0.0-0.1	16	51	9	23
BH20	0.0-0.1	15	42	6	13
BH21	0.0-0.1	19	182	20	21
BH21	0.9-1.0	14	72	5	16
BH22	0.0-0.1	26	60	14	19
BH23	0.0-0.1	20	35	8	18
BH24	0.0-0.1	7	26	5	12
BH25	0.1-0.2	31	34	6	11
BH26	0.0-0.1	26	27	5	21
BH27	0.0-0.1	26	30	4	13
BH28	0.0-0.1	24	20	3	11
BH29	0.0-0.1	28	22	2	10
BH29	1.0-1.1	28	61	4	13
BH30	0.0-0.1	21	28	4	14
BH31	0.0-0.1	16	78	8	25
BH32	0.0-0.1	22	28	5	16
BH33	0.0-0.1	14	42	6	12
BH34	0.0-0.1	24	19	3	16
BH35	0.0-0.1	28	43	6	16
BH36	0.0-0.1	12	21	5	13
BH37	0.0-0.1	15	28	6	15
BH38	0.0-0.1	18	40	4	8
BH38	0.9-1.0	29	73	16	13
BH39	0.0-0.1	31	34	6	18
S1	0.0-0.1	21	54	8	12
D3	-	23	64	9	12
SS3	-	21	47	7	11
S1	0.9-1.0	23	54	8	12
S2	0.0-0.1	33	114	21	18
S2	0.5-0.6	35	84	20	22
S3	0.0-0.1	31	84	16	24
S3	0.9-0.1	31	70	15	15
S4	0.0-0.1	15	41	9	16
S4	0.2-0.3	21	62	14	20
S5	0.0-0.1	22	55	14	23
S5	0.9-1.0	19	60	6	15
S6	0.0-0.1	67	101	21	30
S6	0.9-1.0	22	35	7	13
S7	0.0-0.1	18	115	8	10
S7	0.2-0.3	33	107	12	13
S8	0.0-0.1	22	20	2	11
S8	0.2-0.3	19	19	<2	10
S9	0.0-0.1	35	73	18	13
S10	0.0-0.1	10	26	7	13
S11	0.0-0.1	17	87	6	12
S12	0.0-0.1	27	37	4	10
S13	0.0-0.1	35	75	41	15
D4	-	33	79	31	15
SS4	-	32	70	39	14
S14	0.0-0.1	20	34	6	21
S15	0.0-0.1	38	80	30	26
D2	-	37	83	29	24
SS2	-	28	56	19	16
S16	0.0-0.1	21	96	7	20
S18	0.0-0.1	15	45	5	15
S19	0.0-0.1	16	120	11	29
S20	0.0-0.1	18	61	9	21
S21	0.0-0.1	18	46	6	18
Practical Quantitation Limits (PQL)		5	5	2	5
Site Derived Ecological Investigation Levels (EIL)		140	340	170	1110

Notes a: none

TABLE B1
TOTAL RECOVERABLE HYDROCARBONS (TRH), BTEX AND NAPHTHALENE TEST RESULTS
FOR HSLs IN CLAY

Analyte		TRH (mg/kg)		BTEX (mg/kg)				
		F1 ^a	F2 ^b	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES	NAPHTHALENE
Sample Location	Depth (m)							
BH25	0.1-0.2	<10	<10	<0.2	<0.5	<0.5	<0.5	<1
BH26	0.0-0.1	<50	<50	<0.2	<0.5	<0.5	<0.5	<1
S1	0.0-0.1	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
D3	-	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
S1	0.9-1.0	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
SS3	-	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
S2	0.0-0.1	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
S3	0.0-0.1	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
S3	0.9-1.0	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
S5	0.0-0.1	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
S5	0.9-1.0	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
S6	0.0-0.1	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
S6	0.9-1.0	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
S13	0.0-0.1	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
D4	-	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
SS4	-	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
S15	0.0-0.1	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
D2	-	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
SS2	-	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
S16	0.0-0.1	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
S18	0.0-0.1	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
S19	0.0-0.1	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
S21	0.0-0.1	<10	<50	<0.2	<0.5	<0.5	<0.5	<1
Practical Quantitation Limits (PQL)		10	50	0.2	0.5	0.5	0.5	1
NATIONAL ENVIRONMENT PROTECTION MEASURE (2013)								
Health Screening Levels (HSL) - Table 1A (3)								
<i>HSL A & HSL B: Low-high density residential</i>								
Source depth - 0m to <1m		50	280	0.7	480	NL	110	5
Source depth - 1m to <2m		90	NL	1	NL	NL	310	NL
Source depth - 2m to <4m		150	NL	2	NL	NL	NL	NL
Source depth - 4m +		290	NL	3	NL	NL	NL	NL
<i>HSL C: recreational / open space</i>								
Source depth - 0m to <1m		NL	NL	NL	NL	NL	NL	NL
Source depth - 1m to <2m		NL	NL	NL	NL	NL	NL	NL
Source depth - 2m to <4m		NL	NL	NL	NL	NL	NL	NL
Source depth - 4m +		NL	NL	NL	NL	NL	NL	NL
<i>HSL D: Commercial / Industrial</i>								
Source depth - 0m to <1m		310	NL	4	NL	NL	NL	NL
Source depth - 1m to <2m		480	NL	6	NL	NL	NL	NL
Source depth - 2m to <4m		NL	NL	9	NL	NL	NL	NL
Source depth - 4m +		NL	NL	20	NL	NL	NL	NL

Notes

a: To obtain F1 subtract the sum of BTEX concentrations from the C₆-C₁₀ fraction.

b: To obtain F2 subtract naphthalene from the >C₁₀-C₁₆ fraction.

NL: Not Limiting

TABLE B2
TOTAL RECOVERABLE HYDROCARBONS (TRH), BTEX AND BENZO(a)PYRENE TEST RESULTS
ESLs FOR FINE GRAINED SOIL TEXTURE

Analyte		TRH (mg/kg)				BTEX (mg/kg)				PAH (mg/kg)
		F1 (C ₆ -C ₁₀) ^a	F2 (>C ₁₀ -C ₁₆) ^b	F3 (C ₁₆ -C ₃₄)	F4 (C ₃₄ -C ₄₀)	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES	BENZO(a)PYRENE
Sample Location	Depth (m)									
BH25	0.1-0.2	<10	<50	<100	140	<0.2	<0.5	<0.5	<0.5	<0.5
BH26	0.0-0.1	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5
S1	0.0-0.1	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5
D3	-	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5
SS3	-	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5
S1	0.9-1.0	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5
S2	0.0-0.1	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5
S3	0.0-0.1	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5
S3	0.9-1.0	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5
S5	0.0-0.1	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5
S5	0.9-1.0	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5
S6	0.0-0.1	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5
S6	0.9-1.0	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5
S13	0.0-0.1	<10	<50	100	140	<0.2	<0.5	<0.5	<0.5	<0.5
D4	-	<10	<50	100	140	<0.2	<0.5	<0.5	<0.5	<0.5
SS4	-	<10	<50	150	140	<0.2	<0.5	<0.5	<0.5	<0.5
S15	0.0-0.1	<10	<50	150	140	<0.2	<0.5	<0.5	<0.5	<0.5
D2	-	<10	<50	160	190	<0.2	<0.5	<0.5	<0.5	<0.5
SS2	-	<10	<50	150	140	<0.2	<0.5	<0.5	<0.5	<0.5
S16	0.0-0.1	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5
S18	0.0-0.1	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5
S19	0.0-0.1	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5
S21	0.0-0.1	<10	<50	<100	<100	<0.2	<0.5	<0.5	<0.5	<0.5
Practical Quantitation Limits (PQL)		10	50	100	100	0.2	0.5	0.5	0.5	0.5
NATIONAL ENVIRONMENT PROTECTION MEASURE (2013)										
Ecological Screening Levels (ESL) - Table 1B (6)										
Areas of ecological significance		125*	25*	-	-	10	65	40	1.6	0.7
Urban residential and public open space		180*	120*	1300	5600	65	105	125	45	0.7
Commercial and industrial		215*	170*	2500	6600	95	135	185	95	1.4

Notes

a: To obtain F1 subtract the sum of BTEX concentrations from the C₆-C₁₀ fraction.

b: To obtain F2 subtract naphthalene from the >C₁₀-C₁₆ fraction.

*: ESLs are of low reliability except where indicated by * which indicates that the ESL is of moderate reliability.

"-": "-" indicates that insufficient data was available to derive a value.

TABLE B3
TOTAL RECOVERABLE HYDROCARBONS (TRH) TEST RESULTS
MANAGEMENT LIMITS FOR FINE GRAINED SOIL TEXTURE

Analyte		TRH (mg/kg)			
		F1 (C ₆ -C ₁₀) ^a	F2 (>C ₁₀ -C ₁₆) ^a	F3 (C ₁₆ -C ₃₄)	F4 (C ₃₄ -C ₄₀)
Sample Location	Depth (m)				
BH25	0.1-0.2	<10	<50	<100	140
BH26	0.0-0.1	<10	<50	<100	<100
S1	0.0-0.1	<10	<50	<100	<100
D3	-	<10	<50	<100	<100
SS3	-	<10	<50	<100	<100
S1	0.9-1.0	<10	<50	<100	<100
S2	0.0-0.1	<10	<50	<100	<100
S3	0.0-0.1	<10	<50	<100	<100
S3	0.9-1.0	<10	<50	<100	<100
S5	0.0-0.1	<10	<50	<100	<100
S5	0.9-1.0	<10	<50	<100	<100
S6	0.0-0.1	<10	<50	<100	<100
S6	0.9-1.0	<10	<50	<100	<100
S13	0.0-0.1	<10	<50	100	140
D4	-	<10	<50	100	140
SS4	-	<10	<50	150	140
S15	0.0-0.1	<10	<50	150	140
D2	-	<10	<50	160	190
SS2	-	<10	<50	150	140
S16	0.0-0.1	<10	<50	<100	<100
S18	0.0-0.1	<10	<50	<100	<100
S19	0.0-0.1	<10	<50	<100	<100
S21	0.0-0.1	<10	<50	<100	<100
Practical Quantitation Limits (PQL)		10	50	100	100
NATIONAL ENVIRONMENT PROTECTION MEASURE (2013)					
Management Limits - Table 1B (7)					
Residential parkland and public open space		800	1000	3500	10,000
Commercial and industrial		800	1000	5000	10,000

Notes

a: Separate management limits for BTEX and naphthalene are not available hence these should not be subtracted from the relevant fractions to obtain F1 and F2.

b: Management limits are applied after consideration of relevant ESLs and HSLs.

TABLE C
POLYCYCLIC AROMATIC HYDROCARBONS (PAH), ORGANOCHLORINE PESTICIDES (OCP), POLYCHLORINATED BIPHENYLS (PCB), PHENOLS AND
CYANIDES TEST RESULTS FOR HILs, EILs & ESLs

		Analyte	PAH (mg/kg)				Organochlorine Pesticides (mg/kg)								PCB ¹	
			Carcinogenic PAHs (as BaP TEQ) ^a	TOTAL PAHs ¹	BENZO(a)PYRENE	NAPHTHALENE	DDT + DDE + DDD	ALDRIN & DIELDRIN	CHLORDANE	ENDOSULFAN	ENDRIN	HEPTACHLOR	HCB	METHOXYCHLOR		
Sample Location	Depth (m)															
BH1	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH2	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH3	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH4	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH5	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH6	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH7	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH8	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH9	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
D1	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
SS1	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH10	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH11	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH12	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH13	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH14	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH15	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH16	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH17	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH18	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH19	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH20	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH21	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH22	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH23	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH24	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH25	0.1-0.2	0.6	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
BH26	0.0-0.1	0.6	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
BH27	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH28	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH29	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
BH30	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
S1	0.0-0.1	0.6	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.1	-	-
D3	-	0.6	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.1	-	-
SS3	-	0.6	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.1	-	-
S1	0.9-1.0	0.6	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
S2	0.0-0.1	0.6	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.1	-	-
S3	0.0-0.1	0.6	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.1	-	-
S3	0.9-1.0	0.6	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
S4	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
S5	0.0-0.1	0.6	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.1	-	-
S5	0.9-1.0	0.6	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
S6	0.0-0.1	0.6	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.1	-	-
S6	0.9-1.0	0.6	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
S7	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
S8	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
S9	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
S13	0.0-0.1	0.6	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
D4	-	0.6	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
SS4	-	0.6	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
S15	0.0-0.1	0.6	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
D2	-	0.6	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
SS2	-	0.6	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
S16	0.0-0.1	0.6	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
S18	0.0-0.1	0.6	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
S19	0.0-0.1	0.6	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
S20	0.0-0.1	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	-	-
S21	0.0-0.1	0.6	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-
Practical Quantitation Limits (PQL)		0.5	0.5	0.5	0.5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.1		
NATIONAL ENVIRONMENT PROTECTION MEASURE (2013)																
Health Investigation Levels (HIL) - Table 1A (1)																
HIL A ^a		3	300			240	6	50	270	10	6	10	300	1		
HIL B ^b		4	400			600	10	90	400	20	10	15	500	1		
HIL C ^c		3	300			400	10	70	340	20	10	10	400	1		
HIL D ^d		40	4000			3600	45	530	2000	100	50	80	2500	7		
Ecological Investigation Levels (EIL) - Table 1B (5)																
Areas of ecological significance																
Urban residential and public open space ^e					10 ^g											
Commercial and industrial					370 ^h											
Ecological Screening Levels (ESL) - Table 1B (6)																
Areas of ecological significance																
Urban residential and public open space					0.7 ⁱ											
Commercial and industrial					1.4 ^j											

- Notes
- Residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake (no poultry), also includes childcare centres, preschools and primary schools.
 - Residential with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high rise buildings and apartments.
 - Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths. This does not include undeveloped public open space where the potential for exposure is lower and where a site-specific assessment may be more appropriate.
 - Commercial/industrial, includes premises such as shops, offices, factories and industrial sites
 - Carcinogenic PAHs: HIL is based on the 8 carcinogenic PAHs and their TEFs (potency relative to B(a)P) adopted by CCME 2008 (refer Schedule B7). The B(a)P TEQ is calculated by multiplying the concentration of each carcinogenic PAH in the sample by its B(a)P TEF, given below, and summing these products.
- | PAH species | TEF | PAH species | TEF |
|----------------------|-----|-------------------------|------|
| Benzo(a)anthracene | 0.1 | Benzo(g,h,i)perylene | 0.01 |
| Benzo(a)pyrene | 1 | Chrysene | 0.01 |
| Benzo(b)fluoranthene | 0.1 | Dibenz(a,h)anthracene | 1 |
| Benzo(k)fluoranthene | 0.1 | Indeno(1,2,3-c,d)pyrene | 0.1 |
- Where the B(a)P occurs in bitumen fragments it is relatively immobile and does not represent a significant health risk.
- Total PAHs: HIL is based on the sum of the 16 PAHs most commonly reported for contaminated sites (WHO 1998). The application of the total PAH HIL should consider the presence of carcinogenic PAHs and naphthalene (the most volatile PAH). Carcinogenic PAHs reported in the total PAHs should meet the B(a)P TEQ HIL. Naphthalene reported in the total PAHs should be used.
 - Insufficient data was available to calculate aged values for DDT and naphthalene, consequently the values for fresh contamination should be used.
 - Urban residential / public open space is broadly equivalent to the HIL-A, HIL-B and HIL-C land use scenarios in Table 1A(1) Footnote 1 and as described in Schedule B7.
 - For coarse and fine grained texture soils.
 - PCBs: HIL relates to non-dioxin-like PCBs only. Where a PCB source is known, or suspected, to be present at a site, a site-specific assessment of exposure to all PCBs (including dioxin-like PCBs) should be undertaken.
 - For DDT only.

**TABLE D
ASBESTOS TEST RESULTS**

Analyte			Field Observations*	Material Sampled for Analysis	Laboratory Results Asbestos Present / Absent	Type of Asbestos Present	Laboratory Results Asbestos %w/w
Sample Location	Date Sampled	Depth (m)					
BH9	11.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	No asbestos detected	-	<0.001
SS1	11.09.2017	-	No fibro-cement fragments observed	Soil	No asbestos detected	-	<0.001
BH19	11.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
BH24	12.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
BH25	12.09.2017	0.1-0.2	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S1	12.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
SS3	12.09.2017	-	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
D3	12.09.2017	-	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S1	12.09.2017	0.9-1.0	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S2	12.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S2	12.09.2017	0.9-1.0	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S3	12.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S4	12.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S5	12.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S5	12.09.2017	0.9-1.0	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S6	12.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	Crocidolite Asbestos detected	AF	0.0002%
S6	12.09.2017	0.9-1.0	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S7	12.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S8	12.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S9	12.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S13	12.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
SS4	12.09.2017	-	No fibro-cement fragments observed	Soil	Chrysotile Asbestos and Crocidolite Asbestos detected	-	<0.001
D4	12.09.2017	-	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S13 fragment	12.09.2017	-	Visible ACM observed	Fragment	Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected	ACM	ACM present
S15	12.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected	ACM/AF	0.73% (AF) & 0.72% (ACM)
SS2	12.09.2017	-	No fibro-cement fragments observed	Soil	Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected	ACM/AF	0.294% (AF) & 1.44% (ACM)
D2	12.09.2017	-	No fibro-cement fragments observed	Soil	Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected	ACM/AF	0.0412% (AF) & 0.3095% (ACM)
S15 fragment	12.09.2017	-	Visible ACM observed	Fragment	Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected	ACM	ACM present
S18	11.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S18 fragment	11.09.2017	-	Visible ACM observed	Fragment	Chrysotile Asbestos and Amosite Asbestos detected	ACM	ACM present
S19	11.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S20	11.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
S20 fragment	11.09.2017	-	Visible ACM observed	Fragment	Chrysotile Asbestos, Amosite Asbestos and Crocidolite Asbestos detected	ACM	ACM present
S21	11.09.2017	0.0-0.1	No fibro-cement fragments observed	Soil	No Asbestos detected	-	<0.001
WA Guidelines for the Assessment, Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009							
National Environment Protection (Assessment of Site Contamination) Measure 2013 Schedule B1							
%w/w asbestos for FA and AF							0.001%
%w/w asbestos for ACM - Residential use, childcare centres, preschools etc.							0.01%
%w/w asbestos for ACM - Residential, minimal soil access (fully sealed surfaces)							0.04%
%w/w asbestos for ACM - Parks, public open spaces, playing fields etc.							0.02%
%w/w asbestos for ACM - Commercial / Industrial							0.05%
All forms of Asbestos						No visible asbestos for surface soils	

Note:

ACM = Asbestos Containing Materials >7mm x 7mm (visible by eye)

FA = Friable and Fibrous Asbestos Materials >7mm x 7mm and <7mm x 7mm

AF = Asbestos Fines <7mm x 7mm ACM including free fibres (visible by microscope only)

* Field Observations: All ACM observed are assumed to contain Asbestos until otherwise tested and recorded as such.

NT = Not Tested

APPENDIX Q

**IMPORTANT
INFORMATION ABOUT
YOUR REPORT**



Recommended Holding Times and Preservations for Soil and Air



APPLICABLE LOCATIONS

The bottles, preservation and holding times following are for the ALS Environmental operations excluding the ALS Water Resources Group (WRG). The ALS operations covered by this document include;

Adelaide Unit 2, 1 Burma Road Pooraka, Adelaide, SA 5095 P +6- 8-8162-5130 ALSEnviro.Adelaide@alsglobal.com	Melbourne 2-4 Westall Road Springvale VIC 3171 P +61-3-8549-9600 ALSEnviro.Melbourne@alsglobal.com	Roma Lot 4, 73 Beaumont Drive Roma QLD 4455 P +61-7-4622-8978 ALSEnviro.Roma@alsglobal.com
Brisbane 2 Byth Street (Corner Byth and Shand St) Stafford QLD 4053 P +61-7-3243-7222 ALSEnviro.Brisbane@alsglobal.com	Mudgee 29 Sydney Road Mudgee NSW 2850 P +61-2-6372-6735 ALSEnviro.Mudgee@alsglobal.com	Sydney 277-289 Woodpark Road Smithfield NSW 2164 P +61-2-8784-8555 ALSEnviro.Sydney@alsglobal.com
Darwin 4/16 Charlton Court Woolner, NT 0820 P +61-488-073-271 ALSEnviro.Darwin@alsglobal.com	Newcastle 5 Rosegum Road Warabrook NSW 2304 P +61-2-4968-9433 ALSEnviro.Newcastle@alsglobal.com	Townsville 14-15 Desma Court Bohle, QLD 4818 P +61-7-4796-0600 ALSEnviro.Townsville@alsglobal.com
Gladstone 46 Callemondah Drive Clinton Gladstone, QLD 4680 P +61-7-4971-5600 ALSEnviro.Gladstone@alsglobal.com	Nowra 4/13 Geary Place North Nowra NSW 2541 P +61-2-4423-2063 ALSEnviro.Nowra@alsglobal.com	Wollongong 99 Kenny Street Wollongong NSW 2500 P +61-2-4225-3125 ALSEnviro.Wollongong@alsglobal.com
Mackay 78 Harbour Road Mackay, QLD 4740 P +61-7-4944-0177 ALSEnviro.Mackay@alsglobal.com	Perth 10 Hod Way Malaga WA 6090 P +61-8-9209-7655 ALSEnviro.Perth@alsglobal.com	

SOIL AND SEDIMENT SAMPLE CHILLING AND SUBMISSION

Most soils should be chilled to <4°C or <6°C (guideline dependent) and transported to the laboratory within 24 hours. Sediments may also benefit from being frozen. ALS recommends placing samples on ice immediately upon sampling for best practice chilling with either repacking into another esky or draining of free water and replacement of ice just prior to dispatch. Chilling overnight in a fridge may also benefit. The post-chilling addition of ice bricks is also recommended where samples are air freighted or dispatched long distance and where couriers will not freight ice.

Please note that where possible samples should be submitted to the laboratory with at least half the recommended holding time remaining and it is preferable to avoid submitting holding time critical tests and full VOC suites late on Fridays without prior arrangement.

GENERAL NOTES

The following soil testing services are centralized in specialist laboratory locations. These tests require additional separate jars or bags to optimize service delivery and holding time compliance;

- Dioxins, Total S, TOC, TBT (Brisbane),
- PFOS/PFOA/AFFs, PBDEs, Explosives, Herbicides, Pesticides and Ultra trace Organics (Sydney).
- Sizings, Asbestos and Foreign Materials Testing (Newcastle);
- TRH Speciation (Perth and Melbourne),
- ASS/AMD (Perth and Brisbane).

KEY			
G	Glass	G(T)	Glass Jar with Teflon Lined Lid
(ZH)	Zero Headspace required	PB	Plastic (Polyethylene) Bag
HVAS	High Volume Air Sampler Paper	PTFE	Polytetrafluoroethylene Filter
PUF	Polyurethane Filter	P	Plastic Container

SOIL SAMPLES						
Parameter		ALS Preferred Container	Preservation	Holding Time	Reference	
INORGANICS, METALS, RADIONUCLIDES, ACID SULFATE SOILS AND PHYSICAL PARAMETERS						
General Anions and Cations: Chloride, Bromide, Fluoride, Sulfate, CEC & exchangeable Cations		PB, P or G	Chill, preferably to <6°C	28 days ⁽⁴⁾	NEPM 2013	
Asbestos		PB (double bagged)	Nil	Indefinite	AS4964-2004	
Cyanide		P or G	Chill, Store in dark	14 days ⁽⁴⁾	NEPM 2013	
Electrical conductivity		PB, P or G	Chill, preferably to <6°C	7 days ⁽⁴⁾	NEPM 2013	
Gross alpha, Gross beta		PB, P or G	Nil	180 days	ISO9696, ISO9697, ASTM D7283-06.	
Hexavalent Chromium (Alkali extract)		P or G	Chill, Store in dark	28 days (plus 7 for extract)	NEPM 2013	
Metals - General		PB, P or G	Nil	6 months	NEPM 2013	
Mercury		P or G	Chill, Store in dark	28 days	NEPM 2013	
Methyl Mercury	Option 1	G(T)	Chill, Store in dark	40 days	Horvat et al, 1993	
	Option 2	G(T)	Freeze, Store in dark	8 months	Horvat et al, 1993	
Moisture Content		PB, P or G	Chill, preferably to <6°C	14 days	NEPM 2013	
Organic Carbon / TOC	Option 1	G	Chill, to <6°C store in dark	28 days	NEPM 2013	
	Option 2	G	Freeze for sediments	6 months	NAGD 2009	
pH		PB, P or G	Chill, preferably to <6°C	7 days	NEPM 2013	
Radium 226, 228		PB or G	Nil	180 days	ISO10703, ASTM D7283-06.	
SPOCAS, TOS, Chromium Suite	Option 1	PB (exclude air)	Freeze	Indefinite	AS4969.1-2008	
	Option 2		Chill, preferably to <6°C	24 hours		
	Option 3		Dry at 80°C	Indefinite		
Sizings and Foreign Material Tests		PB or G	Nil for sediments	Indefinite	NAGD 2009	
Sulfur - total		PB or G	Chill, preferably to <6°C	7 days (6 months once prepared)	NEPM 2013 plus in house	
Sulfide		PB or G	Chill, preferably to <6°C	28 days (if Total S hold' time met)	NEPM 2013 plus in house	
ORGANICS - SEMIVOLATILE COMPOUNDS (SVOCs)						
General less persistent Semi-Volatile Organic chemicals including: • Carbamate Pesticides • Explosive residues • OC, OP Pesticides & PCBs • Phenoxy acid Herbicides • General Herbicides • TRH/TPH (C₁₀-C₁₈), • PAHs and Phenols • Phthalate Esters • Pyrethroids (Synthetic) • Semi Volatile Chlorinated Compound • Tributyl Tin (TBT)		G(T)	Place immediately in the esky and chill to <6°C using ice. Avoid exposure to light	14 days (plus holding of extracts typically for up to 40 days)	NEPM 2013	
		Dioxins & Furans & PCBs		G(T)	1 year in dark, freeze to -10 ⁰ C	USEPA 1613
		PBDEs		G(T)	1 year in dark, freeze to -10 ⁰ C	USEPA 1614
		PFOS & PFOA/ 6:2-Fts / AFFFs		G(T)	6 months	In house - POPs
Tributyl Tin, OCPs, OPPs, Phenols, PAHs and PCBs		G(T)	Freeze within 12 hours of sampling for sediments	56 days (plus 40 days for extracts)	NAGD 2009	
ORGANICS - VOLATILE COMPOUNDS (VOCs)						
VOCs <i>except</i> vinyl chloride, styrene and/or 2-chloroethyl vinyl ether		G(T)	Rapidly sample, minimize headspace and Chill to <6°C. Avoid exposure to light	14 days	NEPM 2013	
Vinyl chloride and styrene		G(T)		7 days (Previously 14 days under NEPM 1999)	NEPM 2013	
AMBIENT AIR, SOIL GAS AND OCCUPATIONAL HYGIENE						
ORGANICS - VOLATILE AND SEMIVOLATILE COMPOUNDS						
Parameter		Media	Preservation	Holding Time	Reference	
VOCs in whole air samples		Silonite Canister	Nil	30 days	USEPA TO15r	
VOCs on Sorbents		Charcoal Tubes/ Passive Badge	Nil	30 Days	NIOSH 1500/1501/1003	
Semi-Volatile Organics including: PAHs		XAD-2 Resin	Protect from light. Store in the dark submit as soon as possible	7-14 Days	USEPA TO4A/TO10A/TO13A NIOSH 5515/5517	
Chlorinated Benzenes		PTFE/GFF/MCE Filters		7 Days	NIOSH 5515/5517	
Chlorinated Phenols		PUF		7 Days	USEPA TO4A/TO13A	
		HVAS		7 Days	USEPA TO4A/TO13A	

NOTES

1. Samples for ZHE TCLP or ASLP require a separate additional jar.
2. TCLP and other leaching procedures need to be conducted within the solid sample holding time of the analyte of interest.
3. When a moisture determination is used for dry weight basis reporting, no holding time applies when performed on the same day as the chemical analytes of interest.
4. Holding times for extracted parameters (e.g. Chloride, Bromide, EC, Sulfate, Sulfide & Cyanide) are until extraction. Extract solution holding times also apply.

ANALYTE – Soil	HOLDING TIME
Metals *	6 months
Mercury	28 days
Chromium VI	7 days
Monocyclic Aromatic Hydrocarbons (MAH)	14 days
Total Petroleum Hydrocarbons (TPH)	14 days
Polycyclic Aromatic Hydrocarbons (PAH)	14 days
Organochlorine Pesticides (OCP)	14 days
Polychlorinated Biphenyls (PCB)	28 days
Phenols	14 days
Cyanide	14 days
Asbestos	Indefinite
ANALYTE – Water	HOLDING TIME
Metals *	6 months
Mercury	30 days
Chromium VI	28 days (preserved)
Monocyclic Aromatic Hydrocarbons (MAH)	7 days
Total Petroleum Hydrocarbons (TPH)	7 days
Polycyclic Aromatic Hydrocarbons (PAH)	7 days

* Metals include arsenic (As), cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), nickel (Ni) and zinc (Zn)