

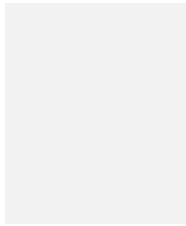
DETAILED SITE INVESTIGATION

2-18 CENTENNIAL ROAD, BOWRAL NSW

19 MARCH 2019



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DETAILED SITE INVESTIGATION

10025626

2-18 CENTENNIAL ROAD, BOWRAL NSW

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Report No	10025626RP02	
Date	21/03/2019	
Revision Text	01	

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REVISIONS

Revision	Date	Description	Prepared by	Approved by
00	19/03/2019	Draft for client review.	JP	LM
01	21/03/2019	Client comments addressed.	JP	LM

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EXECUTIVE SUMMARY

Commissioning

Arcadis Asia Pacific Pty Ltd (Arcadis) was commissioned by Waterbrook Bowral Pty Ltd (Waterbrook) to complete this Detailed Site Investigation (DSI) at 2-18 Centennial Road, Bowral NSW 2576 (herein known as the 'Site'). The investigation has been triggered following a Preliminary Site Investigation (PSI) with limited soil sampling conducted by Arcadis in 2018, which was commissioned to support a development application for proposed works at the Site. The Site is proposed to be redeveloped into an aged care facility.

Background

The following historical site information was primarily sourced from the Paul Davies Pty Ltd (PD, December 2012) *Heritage Assessment Report*. The site (prior to 1904) was understood to be used primarily for agricultural purposes. The Daughters of Our Lady of Sacred Heart (OLSH), Kensington, Sydney purchased the site in 1904 and used it primarily as a convent, boarding facility and school up until 1979. The site was used as an education centre and retreat until 2004.

Australand/Australian Unity proposed to purchase the site and develop the lower south-eastern portion into a retirement village; however, the Wingecarribee Shire Council (WSC) refused the Development Application (DA) in July 2008. Australand/Australian Unity did not go ahead with the purchase of the site as a result.

Waterbrook purchased the 16.998-hectare property in 2017 with plans to create a luxury retirement village (under DA 17/1822).

WSC issued a request to Waterbrook on the 31st August 2018 for additional information relating to the proposed development (33 items in total). Arcadis has been engaged to address part of condition 21:

21. *"Preliminary Site Investigations and Hazardous Building Material Assessments are required to be undertaken. The preliminary contamination assessment needs to be undertaken across the whole site, with targeted sampling undertaken throughout the areas that show signs of historic filling and associated with the construction of large bunds. Hazardous Building Material Assessment should be undertaken throughout the existing buildings that are proposed for removal".*

The EI Australia (EI, 19 July 2018) Hazardous Materials Survey is understood to address the requirement for a *"Hazardous Building Material Assessment..."*. Arcadis completed a Preliminary Site Investigation (PSI) with limited targeted soil sampling to satisfy the remaining component of condition 21.

Infrastructure, the Northern Playing Field (NPF) and Main Oval (MO), and other areas of suspected fill were preliminarily investigated as part of the Arcadis (2018) PSI, and this DSI has been triggered to further delineate these areas, as well as further characterise the Site as a whole, particularly in areas where the proposed development footprint lies.

The DA 17/1822 was deferred by the Southern Regional Planning Panel (SRPP) and the following comment was provided:

"Following the assessment by Council of the additional matters, including an assessment against SEPP 55 to confirm the suitability of the site; a supplementary

assessment report is to be resubmitted for further consideration by the SRPP at the appropriate time"

Arcadis notes that the PSI report (Arcadis 2018) and this DSI report satisfy the Site Investigation process as per the "Managing Land Contamination, SEPP55 Planning Guidelines – Remediation of Land (April 1999)" Stage 1 and Stage 2.

Scope of Works

- A review of historical reports for the Site was conducted including the Arcadis (2018) PSI;
- Following service location, thirty-seven (37) testpits were dug using an excavator across the Site and in targeted areas of where fill was known or suspected to be present to a maximum investigation depth of 4m below ground level (bgl);
- Analytical samples were collected from test pits and submitted to a National Association of Testing Authorities (NATA) accredited laboratory (Envirolab) for selective analysis of the following potential contaminants of concern:
 - Total recoverable hydrocarbons (TRH);
 - Benzene, toluene, ethyl benzene, xylenes and naphthalene (BTEXN);
 - Polycyclic aromatic hydrocarbons (PAHs);
 - 8 metals (Arsenic As, Cadmium Cd, Chromium (total) Cr, Copper Cu, Nickel Ni, Lead Pb, Zinc Zn and Mercury Hg);
 - Asbestos identification + AF/FA – selected fill samples only;
 - NEPM 2013 soil characteristics;
 - Organochlorine pesticides (OP) and organophosphorus pesticides (OP); surface soils only;
 - Polychlorinated biphenyls (PCBs); and
 - Phenols – surface soils only.
- Five (5) potentially asbestos containing material (PACM) samples from testpits advanced across the Site also submitted to a NATA accredited laboratory (Envirolab) and analysed for asbestos ID;
- Analytical soil results were compared against the relevant NEPM (2013) Residential A Guidelines based on the sites intended use as a retirement village;
- Preparation and internal review of this DSI report in general accordance with the NEPC (2013) NEPM and NSW OEH (2011) Guidelines for Consultants Reporting on Contaminated Sites.

Conclusions and Recommendations

Based on the findings of this DSI, the following conclusions are made:

- Soils within the Stage 1 Development Footprint were variable depending on location, though observations included:
 - Reworked natural materials and imported fill likely emplaced during construction of the NPF;

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- No evidence of agricultural use including detections of pesticides and herbicides were observed within analytical results in the north-western portion of the Site including Lots 10 and 11 DP1109214.
- Anthropogenic fill materials (including ACM) within the NPF to a maximum depth of 2.7m bgl;
- Large thickness of fill (>4m) located within the NPF Berm, including ACM at surface and 2.5m bgl;
- Exceedances of ecological SAC for nickel were observed within the NPF Berm and NPF. No exceedances of health SAC were observed for Nickel in the NPF and NPF Berm. Hence, Arcadis does not consider that these nickel concentrations pose a risk to human health. It is also noted that the Site is not located in a significant ecological habitat;
- It should be noted that soils within the Stage 1 Development Footprint towards the south-western portion are yet to be fully characterized due to existing onsite structures blocking access for intrusive works;
- Arcadis considers that, due to comparably elevated heavy metal species in fill within the NPF and NPF Berm (APEC 09), this fill material is different to the fill on the rest of the Site. Arcadis also notes that this material is likely to be disturbed, based on supplied cut and fill plans;
- Soils within the Stage 2 Development Footprint are generally observed to be:
 - Natural soils or reworked natural fill materials used for levelling purposes and characterized sufficiently;
 - Some anthropogenic fill including red bricks was encountered within TP227, likely emplaced for levelling purposes. Arcadis notes that this area was vegetated. Arcadis understands that, based on the cut and fill plans supplied, this area will not undergo cutting and filling. Based on the analytical results this material does not pose a human health risk. If this material is to be exposed/excavated, offsite disposal should be considered from an aesthetic viewpoint.
- Soils within the Stage 3 Development Footprint generally consisted of:
 - Reworked natural fill materials overlying natural materials within the MO, which increase with thickness towards the east of the Site.
 - Anthropogenic fill was present around (and likely underlying) the Amenities Building. ACM was located within this fill material in TP219. Bonded ACM in soil %w/w calculations indicate that the ACM in soil content falls below adopted HIL-A criteria.
- The former location infilled dam within the NPF was observed during intrusive works (TP208) and the sample of fill at 1.5m above the former dam base was noted to have PAH concentrations above detection limits, however below adopted SAC.
- A vegetated fill mound was observed south-west of the Amenities Building and was observed to contain both ACM (TP246) and detections of PAHs below adopted SAC. It is noted that this location is outside the staged development footprint including the cut and fill areas.
- Arcadis considers it likely that fill mounds of this nature will be present at other portions of the Site, however, notes that these are difficult to recognize due to the undulating nature of the Site and the fact they may be vegetated. Such fill locations should be addressed with a UFP during construction works.

- Arcadis notes that given the low reported concentration of CoPC in soils in staged development locations, the risks to current and future site occupants is likely to be low, lending more confidence what was established within the Arcadis (2018) PSI. Further sampling of fill materials including those within building footprints is necessary to more wholly characterise and assess the nature of fill material at the Site.
- The remaining reported results indicate that, apart from areas where noted exceedances of SAC were identified during the PSI and DSI, the Site is suitable for the proposed residential development. Whilst, the sampling density completed is less than that recommended in the NSW EPA (1995) *Sampling Design Guidelines*, Arcadis considers the sampling density conducted for Stage 2 and Stage 3 development footprints is sufficient. The sampling density in the Stage 1 development footprint will increase post-demolition.
- Stockpiles of waste associated primarily with Outbuilding demolition activities should be removed from Site.

Based on the conclusions of the DSI, which utilizes the findings of intrusive works conducted for both the PSI and DSI, the following recommendations are made (**supplemental to recommendations made in the PSI**):

- Completion of activities under a Construction Environmental Management Plan (CEMP) and an Asbestos Management Plan (AMP). The CEMP should include an unexpected finds protocol in the event that additional fill material, waste etc. is identified during construction/civil activities, which Arcadis considers likely. This recommendation is reiterated from the PSI;
- Arcadis considers that, due to the presence of bonded ACM above criteria, the fill material within the NPF berm should be either disposed of off-site, capped on-site or additional assessment undertaken to further understand the volume of asbestos. On-site capping will require the preparation of an EMP that will sit with the property title; and
- Arcadis considers that the Site can be made suitable for the proposed landuse should the recommendations outlined within this DSI report and those outstanding within the Arcadis (2018) PSI be adopted.

1 INTRODUCTION

Arcadis Asia Pacific Pty Ltd (Arcadis) was commissioned by Waterbrook Bowral Pty Ltd (Waterbrook) to complete this Detailed Site Investigation (DSI) at 2-18 Centennial Road, Bowral NSW 2576 (herein known as the 'Site'). Refer to Figure 1, Appendix A for the site location. The investigation has been triggered following a Preliminary Site Investigation (PSI) with limited soil sampling conducted by Arcadis in 2018, which was commissioned to support a development application for proposed works at the Site. The Site is proposed to be redeveloped into an aged care facility.

1.1 Background

The following historical site information was primarily sourced from the Paul Davies Pty Ltd (PD, December 2012) *Heritage Assessment Report*. The site (prior to 1904) was understood to be used primarily for agricultural purposes. The Daughters of Our Lady of Sacred Heart (OLSH), Kensington, Sydney purchased the site in 1904 and used it primarily as a convent, boarding facility and school up until 1979. The site was used as an education centre and retreat until 2004.

Australand/Australian Unity proposed to purchase the site and develop the lower south-eastern portion into a retirement village; however, the Wingecarribee Shire Council (WSC) refused the Development Application (DA) in July 2008. Australand/Australian Unity did not go ahead with the purchase of the site as a result.

Arcadis understands that, except for one building (the former Priests cottage now occupied by a caretaker), the site has been vacant for over a decade. Waterbrook purchased the 16.998-hectare property in 2017 with plans to create a luxury retirement village (under DA 17/1822).

WSC issued a request to Waterbrook on the 31st August 2018 for additional information relating to the proposed development (33 items in total). Arcadis has been engaged to address part of condition 21:

22. "Preliminary Site Investigations and Hazardous Building Material Assessments are required to be undertaken. The preliminary contamination assessment needs to be undertaken across the whole site, with targeted sampling undertaken throughout the areas that show signs of historic filling and associated with the construction of large bunds. Hazardous Building Material Assessment should be undertaken throughout the existing buildings that are proposed for removal".

The EI Australia (EI, 19 July 2018) Hazardous Materials Survey is understood to address the requirement for a "Hazardous Building Material Assessment...". Arcadis completed a Preliminary Site Investigation (PSI) with limited targeted soil sampling to satisfy the remaining component of condition 21.

Arcadis contacted WSC representative Mr. Michael St Clair (appointed contact on the WSC request for additional information letter) on the 11th September 2018 to confirm the areas which WSC required targeted soil sampling. Mr. St Clair indicated that targeted sampling was required around:

- Infrastructure (i.e. site buildings);
- The Northern Playing Field (NPF) and Main Oval (MO); and
- Other areas of suspected fill.

Infrastructure, the NPF and MO, and other areas of suspected fill were preliminarily investigated as part of the Arcadis (2018) PSI, and this DSI has been triggered to further delineate these areas, as well as further characterise the Site as a whole, particularly in areas where the proposed development footprint lies. It is noted that, after correspondence from Waterbrook, that the floodplain areas in the southern and south-eastern portion of the Site are not required to be assessed as part of the works.

The DA 17/1822 was deferred by the Southern Regional Planning Panel (SRPP) and the following comment was provided:

“Following the assessment by Council of the additional matters, including an assessment against SEPP 55 to confirm the suitability of the site; a supplementary assessment report is to be resubmitted for further consideration by the SRPP at the appropriate time”

Arcadis notes that the PSI report (Arcadis 2018) and this DSI report satisfy the Site Investigation process as per the “Managing Land Contamination, SEPP55 Planning Guidelines – Remediation of Land (April 1999)” Stage 1 and Stage 2.

1.2 Objective

The objective of this DSI was to both undertake further intrusive investigation and delineation of areas potential of environmental concern (APEC) identified within the PSI (particularly targeting areas of imported fill), and to conduct additional soil assessment both to further characterise previously unassessed areas of the Site and increase sampling density.

1.3 Scope of Work

To achieve the objectives of the investigation, the following scope of works was completed by Arcadis:

- A review of historical reports for the Site was conducted including the Arcadis (2018) PSI;
- Following service location, thirty-seven (37) testpits were dug using an excavator across the Site and in targeted areas of where fill was known or suspected to be present, to a maximum investigation depth of 4m below ground level (bgl);
- Samples were collected at immediately below surface, 0.5m bgl, 1.0m bgl and every metre thereafter, at changes in lithology and zones of gross contamination;
- Analytical samples were submitted to a National Association of Testing Authorities (NATA) accredited laboratory (Envirolab) for selective analysis of the following potential contaminants of concern:
 - Total recoverable hydrocarbons (TRH);
 - Benzene, toluene, ethyl benzene, xylenes and naphthalene (BTEXN);
 - Polycyclic aromatic hydrocarbons (PAHs);
 - 8 metals (Arsenic As, Cadmium Cd, Chromium (total) Cr, Copper Cu, Nickel Ni, Lead Pb, Zinc Zn and Mercury Hg);
 - Asbestos identification + AF/FA – selected fill samples only;
 - NEPM 2013 soil characteristics;

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- Organochlorine pesticides (OP) and organophosphorus pesticides (OP); surface soils only;
 - Polychlorinated biphenyls (PCBs); and
 - Phenols – surface soils only.
- Five (5) potentially asbestos containing material (PACM) samples from testpits advanced across the Site also submitted to a NATA accredited laboratory (Envirolab) and analysed for asbestos ID;
- For quality assurance / quality control (QA/QC) purposes, five (5) sets of duplicate and triplicate samples were collected for soil at a rate of 1:20 and analysed for the above analytes. A rinsate sample was also sent with samples and analysed for selective analytes;
- Each soil sample location was logged in general accordance with the Unified Soil Classification System (USCS). Each soil sample collected was screened with a Photo-ionisation Detector (PID) to detect the potential presence of volatile organic compounds (VOCs);
- Analytical soil sampling results collected for this report, as well as those collected as part of the Arcadis (2018) PSI and Douglas Partners Geotechnical Investigation were compared against the relevant NEPM (2013) Residential A Guidelines based on the sites intended use as a retirement village;
- Preparation and internal review of this DSI report in general accordance with the NEPC (2013) NEPM and NSW OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites*.

2 SITE IDENTIFICATION

The site identification details, as required by Office of Environment and Heritage (OEH, 2011) *Guidelines for Consultants Reporting on Contaminated Sites* are provided in Table 2.1. Refer to **Appendix A**, Figures 1 – 2 for the Locality Map and Current Site Plan.

Table 2.1: Site Identification Details

Item	Details		
Street Number, Name and Suburb	2-18 Centennial Road, Bowral NSW 2576.		
Lot and Deposited Plan (DP) (Sourced from NSW Government Valuer General – Property Number 1109752).	• Lot 1 DP1101892. • Lot 2 DP1101892. • Lot 4 DP1109214. • Lot 5 DP1109214. • Lot 6 DP1109214. • Lot 7 DP1109214. • Lot 8 DP1109214. • Lot 9 DP1109214. • Lot 10 DP1109214. • Lot 11 DP1109214.		
Site Area	16.988 hectares.		
Topography	Between 668 and 692 metres Australian Height Datum (m AHD).		
Local Government Area	Wingecarribee Shire Council (WSC).		
Zoning	RE1 - Public Recreation (south-eastern portion of the site) R5 - Large Lot Residential (Remainder of the site).		
Geographic Coordinates (of the entire site area) GDA 94 – MGA 56	Corner	Easting	Northing
	Northeast:	262998.603	6182452.903
	Southeast	262902.154	6182145.361
	Southwest	262444.807	6182144.476
	Northwest	262486.975	6182452.847
Locality Map	Refer to Figure 1, Appendix A .		
Current Site Plan	Refer to Figure 2, Appendix A .		
Identified Areas of Potential Environmental Concern (APEC)	Refer to Figure 3, Appendix A .		
Soil sampling locations	Refer to Figure 4, Appendix A .		

3 SITE HISTORY

A brief summary of the Site History, as required by OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites*, is provided in Table 3.1 and primarily sourced from the Arcadis (2018) PSI. Considering the PSI was completed within the last 6 months and the usage of the Site has not changed in that time, Arcadis considers that any public records searches are still applicable to the Site. A more detailed site history is available in the Arcadis (2018) PSI.

Table 3.1: Site History

Item	Description
Land use	The site has been used for: - Primarily residential and agricultural purposes up until 1904 based on the PD (December 2012) <i>Heritage Assessment Report</i>. - Boarding house, school and convent between 1904 and 1979. - An education and centre and retreat from 1979 until 2004. - Vacant property (except for a caretaker currently occupying the Priest Cottage) for over a decade to present-day. A detailed description of historical land uses is available in the Arcadis (2018) PSI with limited soil sampling prepared for the Site.
Summary of council rezoning, relevant development and building approvals records	The PD (December 2012) <i>Heritage Assessment Report</i> stated that Australand/Australian Unity proposed to purchase the site and develop the lower south-eastern portion into a retirement village; however, the Wingecarribee Shire Council (WSC) refused the Development Application in July 2008. Australand/Australian Unity did not go ahead with the purchase of the site as a result. WSC prepared a site-specific Development Control plan (DCP) for the site which was adopted, following public exhibition, in October 2008. The site is currently under Development Application (DA 17/1822). This DA is for the proposed development of the site by Waterbrook into a luxury retirement village. WSC issued a request for additional information on the 31st August 2018. This request included 33 items related to the proposed development. Arcadis was engaged to address part of condition 21 (specifically the completion of a PSI with targeted soil sampling within fill material).
Review of aerial photographs	Historical aerial photographs from 1949, 1963, 1972, 1987, 1997, 2008, 2014, 2016, and 2018 were reviewed as part of the Arcadis (2018) PSI. A summary of the review is provided below: 1949 The site school, convent, Merilbah Homestead, and several outbuildings (north-west of the school) are visible. Parts of the site have been cleared.

Detailed Site Investigation

Item	Description
	• The Mittagong Creek is visible along the eastern boundary of the site. No development around the river is evident. • Kirkham Road to the east is visible; however, Centennial Road to the north has not been constructed. • The railway line to the east has been developed. • Low density residential and presumed industrial sites are present in the wider area. 1963 • Parts of the Site have been cleared, the MO appears to have been constructed, the current driveway to Centennial Road (north) has been constructed, and the Priest's cottage has been constructed south of the NPF. • Development surrounding the site appears to have increased. 1972 • Merilbah Homestead appears to have been demolished. The current tennis court appears to have been constructed in this location. • New vegetation (presumed to be planted trees) are visible along the sides of the driveway and the MO. This is consistent with current site conditions. • A dirt track appears to pass from the Priest's cottage to the north towards Centennial Road. Therefore, it is likely the filling at the NPF had not occurred yet. • Development has continued to increase in the wider area. 1987 • Vegetation has increased across the site, and the amenities building, immediately south of the MO appears to have been constructed. 1997 • The Lot beyond the north-western site boundary (known as Lot 12 DP978826) appears to have been developed into a residential property. Development has continued to increase in the wider area. • The NPF appears to have been formed, with vegetation (similar to current) surrounding the outside of the field. 2008 • Site buildings and features appear to be consistent with current observations, except for the presence of some outbuildings north-west of the school which are no longer present. • The service access road to the rear (northern side of the school) is visible. 2014 • Outbuilding 5 north-west of the school is no longer present. 2016 • Outbuilding 2 to the north-west of the school is no longer present. An oval shaped dirt track is visible to the west of the tennis courts.

Detailed Site Investigation

Item	Description
	- Development has continued to increase in the wider area. 2018 - Outbuilding 8 to the north-west of the school is no longer visible. - The site layout appears consistent generally consistent with the observations made during the intrusive works for this DSI.
Site photographs	Site photographs taken during the intrusive works at the Site are included in Appendix B .
Inventory of chemicals and wastes associated with site use and their on-site storage location	Arcadis did not have access into all site buildings during the site walkover due to access restrictions related to asbestos containing material in the buildings and vandalism. No chemicals and wastes were observed during the intrusive investigations. Some chemical storage was observed within the Arcadis (2018) PSI with limited soil sampling.
Possible contaminant sources	Possible contaminant sources based on the Arcadis (2018) PSI with limited soil sampling include: - Fill of unknown origin and quality used at the NPF. It is Arcadis' understanding that most of the civil activities related to the construction of the school buildings and the MO were generally cut and fill based. The aerial photograph indicates that the NPF was constructed somewhere between 1987 and 1997. No obvious construction of civil works was noted in this time, and therefore there is the potential for imported fill material to have been used in this area; - Fill of unknown origin and quality at the MO, based on the findings of Douglas Partners (2008b) Geotechnical Report which encountered ACM. - Fill of unknown origin and quality around the amenities block, where ACM was encountered during the Arcadis (2018) PSI. - Herbicide and pesticide use across the site based on the historical agricultural use of the site; - Ash and other waste from the observed incinerator west of the school and those noted within the school building in the EI (19 July 2018) Hazardous Materials Survey report (Incinerette machines noted); - Asbestos containing material (ACM) associated with onsite buildings as noted in the EI (19 July 2018) Hazardous Materials Survey report; - Lead in paint, synthetic mineral fibres and polychlorinated biphenyls (PCBs) as noted within building materials in the EI (19 July 2018) Hazardous Materials Survey report; - Fill material used to backfill a reported well within Lot 9 DP DP1109214 in the PD (December 2012) Heritage Assessment Report; and - Fill material used to backfill a reported dam within Lot 7 DP DP1109214 in the PD (December 2012) Heritage Assessment Report.

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Item	Description
Site layout plans showing present and past industrial processes	Industrial process such as manufacturing are not known to have occurred at the site. Figure 2, Appendix A shows the location of past and present site features/buildings at the site.
Sewer and service plans	The following information is sourced from the Arcadis (2018) PSI: The school building, Priest's cottage and various outbuildings were observed to be connected to power, water, telecommunications and sewer at the site. The school was observed to be connected to mains gas, understood to be used to power the two boilers observed at within the school building. No septic tanks were observed during the site walkover. A hydrant line was observed at the site, running from Centennial Road to the school. The PD (December 2012) Heritage Assessment report stated that the site was not operated as a retreat between 1991 and 1993 in order to bring the site buildings up to contemporary fire and safety standards. The hydrant lines appeared to be relatively new and in good condition, and therefore were likely to have been installed during this period. Arcadis notes that, during intrusive works for the PSI on the 12th September 2018, one test pit (TP01) encountered a galvanised pipe. TP01 was located on the southern side of the school building. It is likely that this pipe was a water service; however, this could not be confirmed. Discussions with Waterbrook representatives indicated that mains water and gas had been shut off from the school building. The underground services observed on the site have the potential to act as a preferential pathway for subsurface water flow. Arcadis observed a number of unlined drainage channels or concrete culverts at the site designed to take surface water runoff and direct it to the Mittagong Creek on the southern portion of the site.
Description of manufacturing processes	There is no record of manufacturing occurring at the site.
Details and locations of current and former underground and above ground storage tanks	No observations of Underground Storage Tanks (USTs) or Aboveground Storage Tanks (ASTs) were made during the site walkover for Arcadis (2018) PSI. The site is in an Underground Petroleum Storage System (UPSS) environmentally sensitive zone. The NSW Environment Protection Authority (NSW EPA) defines a UPPS environmentally sensitive zone as: <i>"...areas that are likely to be vulnerable to contamination from leaking UPSS (due to geology or groundwater properties), or in close proximity to vulnerable environmental receptors (such as national parks and anything that is likely to be adversely affected by contaminated groundwater, e.g. groundwater bores, rivers, lakes, etc.)."</i> If a UST was installed at the site it would require monitoring and compliance under the UPSS (2017) regulation.

Detailed Site Investigation

Item	Description
Product spill and loss history	No records of spill and losses were not available for review.
Discharges to land, water and air	No records of discharges to land water and air were available for review. Arcadis considers potential discharges may have included: - Minor spilling of chemicals on unsealed surfaces (such as paints, oils, and other household items). This may have occurred around the school building, or other outbuildings where they appeared to have been used for storage or maintenance. - Incineration of waste may have released ash and metals into the air and surrounding land surface. Arcadis notes that, during the 2018 PSI, one hand auger sample (HA01) was completed from immediately downgradient of the observed incinerator west of the school building. As no records were available, the above cannot be confirmed.
Disposal locations	No records of historical waste disposal for the site was available for review. Arcadis observed tree/timber/wood stockpiles in various locations at the site. Arcadis assumes that all general waste and recycling are disposed of using WSC supplied bins.
Relevant complaint history	A register of complaints was not available for review.
Local site knowledge	On the 12th September 2018, Arcadis staff were approached by a former resident of the school boarding house from 1946 to 1952 and provided the following anecdotal information: - The NPF was not built during his time at the school. - The north-western portion of the site specifically Lots 11 and 12, was used for agricultural purposes. - The tennis courts were not present during his time at the school. This is consistent with aerial photography which indicated that Merilbah homestead had been demolished between 1963 and 1972.
Summary of local literature about the site	The PD (December 2012) Heritage Assessment report includes detailed information related to the history of the Site.
Details of building and related permits, licences, approvals and trade waste agreements	No permits, licences and approvals, other than a copy of DA 17/1822 Request for Additional Information letter report, were available for review.
Details of the Section 10.7 (2) and (5) Certificate.	Names of relevant planning instruments and development control plans (DCPs): - State Environmental Planning Policy No. 21 Caravan Parks - State Environmental Planning Policy No. 30 Intensive Agriculture - State Environmental Planning Policy No. 33 Hazardous and Offensive Development

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Item	Description
	- State Environmental Planning Policy No. 36 Manufactured Home Estates - State Environmental Planning Policy No. 44 Koala Habitat Protection - State Environmental Planning Policy No. 50 Canal Estate Development - State Environmental Planning Policy No. 55 Remediation of Land - State Environmental Planning Policy No. 62 Sustainable Aquaculture - State Environmental Planning Policy No. 64 Advertising and Signage - State Environmental Planning Policy No. 65 Design Quality of Residential Apartment Development - State Environmental Planning Policy (Housing for Seniors or People with Disability) 2004 - State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 - State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 - State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007 - State Environmental Planning Policy (Infrastructure) 2007 - State Environmental Planning Policy (Rural Lands) 2008 - State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 - State Environmental Planning Policy (Affordable Rental Housing) 2009 - State Environmental Planning Policy (State and Regional Development) 2011 - State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011 - State Environmental Planning Policy (Educational Establishments and Childcare Facilities) 2017 - State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 Local Environment Plans (LEPs): - Wingecarribee Local Environmental Plan 2010 - Bowral Town Plan Development Control Plan State Environmental Planning Policies (SEPP): - Draft State Environmental Planning Policies - Draft SEPP 44 Koala Habitat Protection - Draft SEPP (Environment) - Draft SEPP (Primary Production and Rural Development) - Draft SEPP (Mining, Petroleum Production and Extractive Industries)

Item	Description
	• Draft Local Environmental Plans • Shire wide Draft Local Environmental Plan to amend certain clauses in WLEP 2010 Critical Habitat: • The land DOES NOT include or comprise critical habitat. Conservation Area: • The land IS NOT within a Conservation Area (however described). Heritage Items: • An item of environmental heritage (however described) IS NOT situated on the land. Zoning and land use under the SEPP (Sydney Region Growth Centres) 2006. • the State Environmental Planning Policy as prescribed is not applicable to the land. Mine Subsidence: • The land IS NOT within a proclaimed Mine Subsidence District within the meaning of section 15 of the <i>Mine Compensation Act 1961</i>. Flood related development controls: • There ARE flood related development controls on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (<u>not including development for the purposes of group homes or seniors housing</u>). • There are flood related development controls on the land or part of the land for any other purpose. Biodiversity Certified Land: • The land IS NOT biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016. Bushfire prone land: • NONE of the land is bushfire prone land. Loose-filled asbestos insulation: • The land DOES NOT include any residential premises (within the meaning of Division 1 A of Part 8 of the Home Building Act 1989) that are listed on the register that is required to be maintained under that Division. Contaminated Land Management Act 1997: • Council HAS NO record that the land is significantly contaminated land at the date or the issue of this certificate. • Council HAS NO record that the land is subject to a management order within the meaning of that Act at the date of the issue of this certificate. • Council HAS NO record that the land is the subject of an approved voluntary management proposal within the meaning of that Act at the date of the issue of this certificate.

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Item	Description
	• Council HAS NO record that the land is the subject of an ongoing maintenance order within the meaning of that Act at the date of the issue of this certificate. • Council HAS NO record that the land is the subject of a site audit statement within the meaning of that Act at the date of the issue of this certificate.
Historical use of adjacent land	Based on review of historical aerial photographs, surrounding land use appears to have been used for: North (beyond Centennial Road) • Historically agricultural land and the Bowral Country Club Golf Course. South (beyond Mount Road) • Historically a mixture of residential and commercial land uses. East (beyond Kirkham Road) • Historically used for a train line and Mittagong Road and the Bowral town centre beyond • The LI Resources, 7 September 2018) <i>Enviro-Screen</i> report indicated that unexploded ordnance (UXO) is has the potential to be present within the disused Railway Tunnel east of the site (which was reportedly used to store ammunition during World War II). Arcadis is unaware if any UXO is present in this location, or if it has the potential to impact the site. West • Historically was used for low density residential and agricultural purposes. Refer to Arcadis (2018) Appendix B for details of the Historical Commercial and Trade Directory Data from 1981 and 1991 from properties within a 200m radius of the site.
Local usage of ground/surface waters, and location of bores/pumps	Surface Water The Mittagong Creek forms the majority of the eastern boundary of the site, and passes through the south-central portion of the site. According to the WSC, the Mittagong Creek forms part of the Sydney Water Catchment: <i>“with much of the water flowing down the creek eventually finding its way to Warragamba Dam, supplying drinking water to over 4.5 million people in the Sydney metropolitan area”.</i> https://www.wsc.nsw.gov.au/services/environment/get-involved/rivercare/mittagongcreek It is understood that water from Mittagong Creek was historically used as irrigation on the site. The PD (December 2012) <i>Heritage Assessment Report</i> provided a figure illustrating the 1880s ‘Sale Plan’ for the property. On this plan a Dam is noted to be located on Lot 7. During the intrusive investigation completed on the 12 September 2018, Arcadis conducted test pitting in this area, with TP07, specifically targeting the assumed location of the former dam. During the intrusive investigation conducted on 5th-6th March 2019, soils indicative of the historical dam were encountered and sampled.

Detailed Site Investigation

Item	Description
	Groundwater The PD (December 2012) <i>Heritage Assessment Report</i> provided a figure illustrating the 1880s 'Sale Plan' for the property. On this plan a 'Well' is noted to be located on Lot 9. During both the limited intrusive investigation completed on the 12 September 2018 and the expanded intrusive investigation performed for this DSI, Arcadis did not locate the historical well or any fill materials suggesting its historical infilling. No registered groundwater bores were noted to be on the property. Twenty-two registered groundwater bores are present within a 1km radius of the property. The closest registered well is located 214m north of the Site, within Centennial Park. The registered use for this well (GW102668) is 'Recreation'. This well is likely to be up or cross gradient of the site (although groundwater flow direction is yet to be confirmed). A groundwater bore registered for 'Household' use, is located on the residential property to the immediate west of the site. This well is likely to be up gradient of the site (although groundwater flow direction is to be confirmed). Refer to Arcadis (2018) PSI for a summary of the registered groundwater bores within a 1km radius of the site.
Details of any relevant local sensitive environments	The three closest sensitive environments around/in the Site include: • A preschool and childcare centre located approximately 50m north of the Site across Centennial Road; • The Mittagong Creek located on the south-central portion of the Site; • Settlers Park, located 118m east of the Site across the railway line; and • Centennial Park located 183m north of the site. Refer to Arcadis (2018) PSI for all local sensitive environments within a 500m radius of the site.
SafeWork NSW Schedule 11 Hazardous Chemicals on Premises	Within the Arcadis (2018) PSI, Arcadis contacted SafeWork NSW on the 18th September 2018, requesting a search of the site for records of Hazardous Chemicals having been stored on the premises (such as fuel storage in above ground and underground storage tanks). The SafeWork search was not reported within the PSI due to delays, however, the results of the search were available for this DSI and are as followed: <i>"A search of the records held by SafeWork NSW has not located any records pertaining to the above-mentioned premises."</i> This indicates that there was likely no UST or UST infrastructure historically present on the Site.
Integrity assessment (assessment of the accuracy of information).	The information provided above is seen as a true and accurate representation of the site and site history. It was sourced from sources outside of Arcadis that have no connection with the proposed development of the site, and there is seen as non-biased.

4 SITE WALKOVER OBSERVATIONS

4.1 2018 Site Walkover Observations

The following section summarises the Site Walkover completed by Arcadis Senior Environmental Scientist, Ryan Wells on Monday the 3rd September 2018 as part of the Arcadis (2018) PSI. Observations made during the site walkover are summarised below:

- The Site slopes towards the east towards the Mittagong Creek.
- Locations where the main School Building, Chapel, Amenities Block, Priest's cottage, the tennis court, and the various Outbuildings are located, appear to have undergone cutting and filling to provide level pads.
- The tennis court appeared to be in a state of disrepair. The exposed soils around the burrow entrance appeared to contain fill material.
- The western portion of the site appears to be generally undeveloped with the exception of cleared vegetation and suspected planted trees along the boundary.
 - Two small stockpiles comprised of cut tree branches were visible on the western portion of the site.
 - Vegetation comprised primarily of grass or mature wooded trees.
 - The western portion forms the highest elevation of the site.
- The southern boundary of the site appeared undeveloped and comprised primarily wooded and grass vegetation. A sewer main was observed on the central portion of the southern boundary.
- An incinerator was observed immediately west of the school. It was of brick construction and had what appeared to be ash material present at its base.
- The eastern portion of the site is primarily undeveloped land, which is understood to form part of a flood plain for the Mittagong Creek which cuts through the land.
 - A sewer main was observed in this location; however, is understood to be unrelated to the main observed along the southern boundary.
 - A suspected cricket pitch was observed in disrepair in this area.
- The northern portion of the site comprises the NPF and MO, in the center and eastern sides of the site respectively. The north-western corner was vacant land bounded by a residential property.
- The central portion of the site contained the majority of the observed infrastructure (refer to Table 4.1 below).
 - A large bitumen covered driveway extended from Centennial Road to the north to the School Building in the central southern portion of the site. The driveway tracked around the School Building to the east (entrance) and west (service access road).
 - The driveway appeared to have been cut into the landscape, with the western side observed to be bounded by raised topography, with the eastern side generally level or lower. Intrusive investigations during the PSI have identified these to be fill mounds.
- The banks of the Mittagong Creek appeared highly vegetated. The creek appeared stagnant at the time of the site walkover.

Detailed Site Investigation

- Some minor rubbish and waste (predominantly cans and plastic) were observed in the Mittagong Creek (where visible through the thick vegetation).
- Large retaining walls were noted on the eastern and western sides of the School Building (likely to be associated with cutting and filling operations during construction).
- Unlined surface water drains were observed throughout the site. Various crossing areas were noted to contain concrete culverts generally covered in earth.
 - The unlined surface water drains would direct surface water into Mittagong Creek.
- Suspected fill material was observed immediately north west of the school building (observed to be a large grass covered mound, of higher elevation than the surrounding area).
 - This area was intrusively investigated by the formation of test pit 2 (TP02). TP02 encountered fill material up to 1.9 metres below ground level (m bgl), and observed ACM at a depth of 1.5m bgl.
- A number of buildings and/or former buildings (demolished) were observed on the site. An extensive summary of these buildings is provided in section 4 of the Arcadis (2018) PSI. Review of the summary indicated that Site Building conditions remain the same. A brief summary is provided in Table 4.1 below.

Table 4.1: Buildings/former buildings observed

Building Name	Description
School Building Also known as the 'Main Building' (EI, 18 July 2018)	• The School Building is observed to be primarily constructed from brick materials and is 2-3 story's in height. • Access into the School Building was restricted due to the presence of boarded up access points, damaged entrances, and signs restricting access due to the presence of asbestos containing material (ACM). • The building was observed to contain two boiler units. • The presence of the retaining wall indicated cutting and filling operations had occurred during the construction of the School Building. • Potentially asbestos containing material (PACM) was observed on the ground surface surrounding the School Building during the PSI site walkover. The EI (19 July 2018) report noted asbestos in various locations throughout the School Building.
Chapel	• The Chapel was located immediately north of the School Building. No access was available. • The Chapel is comprised of bricks and a tiled roof. • The EI (19 July 2018) report indicated that the Chapel contained "<i>Possible hazardous material</i>".
The Priest's cottage	• Access to the Priest's cottage was not completed during the site walkover during the PSI. • Electricity and telecommunications was observed to enter the Priest's cottage from the west. Water and

Detailed Site Investigation

Building Name	Description
	sewer was not observed; however, Liquid Petroleum Gas (LPG) bottles were observed on the western side of the cottage. - The garage contained a small work bench with small quantities of fuel and oils understood to be associated with lawn mowing equipment. A detailed inventory of the chemicals inside the cottage was not taken during the site walkover for the PSI. - It is noted that the Priest's cottage was not included in the EI (19 July 2018) assessment.
Amenities Block	- The Amenities Block is located south of the MO. - It has a flat metal roof and brick walls and a concrete slab. - The Amenities Block was locked at the time of the site walkover; however, it is understood to have contained bathroom facilities and a canteen. - The ground surface around the Amenities Block was leveled compared to the surrounding topography, indicating some cutting, filling or both had occurred. - Arcadis notes the TP12 sample collected during the Arcadis (2018) PSI was completed immediately east of the amenities block and reported fill material to a depth of 0.8m bgl. PACM was observed within the fill material at a depth of 0.1m bgl. This PACM sample collected from TP12 at a depth of 0.1m bgl tested positive for asbestos. No w/w% were calculated during the PSI assessment.
Outbuilding 1 Also known as the 'diary' (EI, 18 July 2018)	- Outbuilding 1 was observed to be in a state of disrepair and covered in vegetation. - The floor appeared to be constructed on a concrete slab, and the walls of asbestos clad material. - The EI (19 July 2018) report described Outbuilding 1 as: <i>"... an asbestos clad structure with a metal roof".</i>
Outbuilding 2	- Outbuilding 2 was a former building noted on review of the historical aerial photographs to have been demolished between 2014 and 2016. - The remains of Outbuilding 2 were a concrete slab with various building material on top likely to be associated with its demolition. This included, wood, PACM, roof tiles, PVC pipes, and corrugated iron sheeting. - Arcadis collected a sample of the PACM at Outbuilding 2 for analysis (PACM Surface 2) during the 2018 PSI. This sample was reported by the laboratory to not contain asbestos. - A stockpile of timber, an empty 44 Gallon drum, and a composting bin were observed immediately north of Outbuilding 2.
Outbuilding 3 Also known as:	Outbuilding 3 was observed to be in a state of disrepair and covered in vegetation.

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Building Name	Description
- a 'large storage shed' (EI, 18 July 2018) - Outbuilding 5 (PD, December 2012)	- The roof of the driveway appeared to be corrugated iron, whilst the roof above the workshop appeared to be asbestos sheeting. - Various waste material was observed through the windows of the building as access to the room was sealed. - Paint containers and various timber waste were observed on the concrete driveway. - PACM, likely sourced from the roof material above the workshop, was observed on the concrete driveway. - Arcadis collected a sample of the PACM at Outbuilding 3 for analysis (PACM Surface 3) as part of the 2018 PSI. This sample reported the presence of asbestos. - Arcadis note that the EI (19 July 2018) did not observe the asbestos sheeting roof and therefore have not documented this on the asbestos register.
Outbuilding 4 Also known as a 'small storage shed' (EI, 18 July 2018)	Outbuilding 4 appeared to be in a state of disrepair. No walls were present on the eastern side of the building.
Outbuilding 5	- Outbuilding 5 was a former building noted on review of the historical aerial photographs to have been demolished between 2008 and 2014. - Grass was observed to cover the footprint of the former building. The area was observed to be level in comparison with the surrounding topography, indicating some filling has occurred in this location.
Outbuilding 6 Also known as the 'dairy & garage' (EI, 18 July 2018)	Outbuilding 6 was in a state of disrepair, comprised of timber and corrugated iron walls and a metal roof.
Outbuilding 7 Also known as: - the 'storage shed' (EI, 18 July 2018) - Outbuilding 1 (PD, December 2012)	- Outbuilding 7 appeared to be a former garage with a roller door present on the northern side. - The walls were comprised of asbestos clad sheeting which has been damaged. - Outbuilding 7 has a concrete slab, with the following items observed: - Old washing machine and parts; - Miscellaneous spare parts; and 2 x 20L empty drums of AMERON 265 Lacquer Thinner. - The EI (19 July 2018) report described Outbuilding 7 as: “... an asbestos clad structure with a metal roof...”
Outbuilding 8	Outbuilding 8 was a former building noted on review of the historical aerial photographs to have been demolished between 2014 and 2018.

Detailed Site Investigation

Building Name	Description
	• PACM, wood, bricks plastic, corrugated iron and concrete are scattered around the area (presumed to the result of demolition of the Outbuilding 8. – Arcadis collected a sample of the PACM at Outbuilding 8 (PACM Surface 1) as part of the 2018 PSI; however, this was not analysed. The PACM in this area is likely to contain asbestos. • This Outbuilding was not noted in the EI (18 July 2018) report.
Outbuilding 9 Also known as the 'small machinery store' (EI, 18 July 2018)	• Outbuilding 9 was in a state of disrepair. • It was constructed of metal and timber and contained approximately 14 tyres. • What appeared to be a garden bed extended from immediately north of Outbuilding 9 to the east towards the service road. – The garden bed contained thick vegetation, with some bricks, rubble and metal observed throughout.

Suspected and known fill material was observed in the locations noted in Table 4.2 below.

Table 4.2: Suspected and known fill material locations

Location	Description / PSI Observations	Intrusively investigated during Arcadis (2018) PSI	Intrusively investigated during Arcadis (2019) DSI
School Building and Chapel	Cutting and filling were reported in the PD (December 2012) <i>Heritage Assessment Report</i> as having occurred during the construction of the School Building. Arcadis PSI observations of retaining walls, and topography which differed from the surrounding area, confirmed this statement.	Test Pits: • TP01; and • TP02 Hand Augers: • HA02; and • HA03.	Area to be assessed post-demolition.
Priest Cottage	The area immediately surrounding the cottage was generally more level than the surrounding landscape, which indicated cutting, filling or both had occurred in the area.	No sampling was conducted in this area due to the cottage being occupied at the time of intrusive works.	Area to be assessed post-demolition.
Amenities Block	The ground surface around the Amenities Block was leveled compared to the surrounding topography, indicating some cutting, filling or both had occurred.	Test Pit: • TP12	Test-pits • TP218; • TP219; and • TP220. Footprint to be assessed post-demolition.
Tennis Court	The tennis court was located on a mound which was raised higher than the surrounding topography, which indicated cutting, filling or both had occurred in the area. A suspected wombat burrow was observed on the eastern side of the tennis court. The exposed soils	Test Pit: • TP05	Test Pits: • TP224; and • TP225.

Detailed Site Investigation

Location	Description / PSI Observations	Intrusively investigated during Arcadis (2018) PSI	Intrusively investigated during Arcadis (2019) DSI
	around the burrow entrance appeared to contain fill material.		Tennis Court itself to be assessed post-demolition as access was unavailable due to fencing.
Outbuildings 1 and 2	The area around Outbuilding 1 and 2 was generally more level than the surrounding area, which indicated cutting, filling or both had occurred in the area. Furthermore, fill material on the surface was observed near Outbuilding 2 during the 2018 PSI.	Hand Augers: HA05	Area to be assessed post-demolition.
Outbuildings 3, 4, 5, and 6	The area around Outbuildings 3, 4, 5, and 6 was generally more level than the surrounding area, which indicated cutting, filling or both had occurred in the area. Furthermore, fill material on the surface was observed near Outbuilding 5.	Test Pit: - TP03. Hand Auger: - HA05; and - HA07.	Area to be assessed post-demolition.
Outbuilding 7	The area around Outbuilding 7 was generally more level than the surrounding area, which indicated cutting, filling or both had occurred in the area.	Hand Auger: HA04.	Area to be assessed post-demolition.
Outbuilding 8	The area around Outbuilding 8 was generally more level than the surrounding area, which indicated cutting, filling or both had occurred in the area. Furthermore, fill material on the surface was observed.	Test Pit: TP11.	Area to be assessed post-demolition.
Outbuilding 9	The area was heavily covered in vegetated and generally followed the topography of the land; however, bricks, metal and rubble were noted in	Hand Auger: HA06.	Area to be assessed post-demolition.

Detailed Site Investigation

Location	Description / PSI Observations	Intrusively investigated during Arcadis (2018) PSI	Intrusively investigated during Arcadis (2019) DSI
	some areas of the garden which potentially indicated the presence of fill material.		
NPF	Fill was initially suspected to be present within the NPF because: - The eastern side of the NPF comprised a large berm wall approximately 4-5m above the driveway entrance below. - The NPF was leveled flat compared to the surrounding area. - Historical reports indicate the infilling of a former dam in the NPF.	Test Pits: - TP07; - TP08; - TP22; and - TP27.	Test Pits: - TP204; - TP205; - TP206; - TP207; - TP208; - TP209; and - TP210.
MO	Fill was initially suspected to be present within the MO because: - The eastern side of the MO comprised a large berm wall approximately 3-4m above the open space area below. - The MO was leveled flat compared to the surrounding area.	Test Pits: - TP09; - TP10; and - TP16.	Test Pits: - TP212; - TP214; - TP215; - TP216; and - TP217.
Vegetated fill mound	An anomalous grassed mound was observed on the slope 60m south-west of the Amenities Building and was investigated for due diligence. Upon investigation the mound was observed to contain both anthropogenic fill material and PACM.	Area identified during Arcadis 2019 DSI.	Test Pit: TP246.

Detailed Site Investigation

Location	Description / PSI Observations	Intrusively investigated during Arcadis (2018) PSI	Intrusively investigated during Arcadis (2019) DSI
North-eastern corner	Undulating vegetation areas towards the north-eastern corner of the Site were theorized to contain fill considering the relative location to the NPF and MO where cut and fill activities have taken place.	Area identified during Arcadis 2019 DSI.	Test Pits: • TP243; and • TP244.

- Conditions at the site boundaries were similar to those observed during the Arcadis (2018) PSI:
 - **North:** a wire fence divided the site from Centennial Road to the north. The wire fence showed some signs of deterioration. The main entrance was a brick façade with a cattle grate.
 - **South:** a wire fence divides the site from residential properties and Mount Road to the south. The wire fence showed some signs of deterioration.
 - **East:** a wire fence divided the site from Kirkham Road to the east. The wire fence showed some signs of deterioration.
 - **West:** a wire fence divided the site from residential property to the west. The wire fence showed some signs of deterioration and was divided in sections by wooded vegetation/trees.
- With the exception of PACM observed on the surface, or within fill material at the site, no other obvious signs of contamination were noted during the site walkover during the Arcadis (2018) PSI and during the intrusive works for the 2019 DSI.
- No obvious signs of plant stress were observed at the Site.
- Drums and waste (predominately related to material demolished from former buildings) were observed primarily around the Outbuildings during the 2018 PSI. Refer to Table 4.1 above for further details.
 - Four timber/tree/wood stockpiles were observed on the site. These appeared to be result of tree loping activities.
 - One stockpile was observed to contain an empty 44-gallon drum, metal and timber. This stockpile was located north west of Outbuilding 6.
- No discernible odours were observed at the Site.

4.2 2019 Site Walkover Observations

Site conditions were observed to be generally consistent with the observations noted within the Arcadis (2018) DSI. Additional items noted during intrusive works at the Site include:

- A vegetated fill mound was observed south-west of the amenities building and intrusively investigated for due diligence (TP246).

5 GEOLOGY AND HYDROGEOLOGY

5.1 Summary of Observations

A summary of the geology encountered during intrusive works by Arcadis on the 12th September 2018 and 5th/6th March 2019 is provided in Table 5.1 below.

Table 5.1: Geology and Hydrogeology

Item	Description
Soil Landscape	Western Portion of the site: ERlm - Lower Mittagong. - Landscape - Rises and low hills on Wianamatta Group Shale (shale) in the Moss Vale Tablelands, Wanganderry Tablelands and Woronora Plateau. - Local relief 5-90 m; altitude 534-820 m; slopes 0-25%; rock outcrop nil. Extensively cleared open forest. - Soils - Brown Kurosols (Yellow and Brown Podzolic Soils), Red Kurosols (red Podzolic Soils), Brown Dermosols (Yellow Earths) and Red and Brown Kandosols (Red Earths and Brown Earths), with Yellow Natric Kurosols (Soloths) in drainage lines. Eastern Portion of the site: TRkl - Kangaloon - Landscape - Footslopes within plain on Wianamatta Group Shale (alluvium, colluvium and shale) in the Moss Vale Tablelands and Woronora Plateau. - Local relief 0-9 m; altitude 531-745 m; slopes 1-3%; rock outcrop nil. Extensively cleared open grassland. - Soils - Brown Kurosols (Yellow Podzolic Soils) and Hydrosols (Humic Gleys). South-eastern corner of the site: ERmv - Moss Vale - Landscape - Rises on Wianamatta Group Shale (shale) in the Moss Vale Tablelands and Woronora Plateau. - Local relief 5-30 m; altitude 544-740 m; slopes 0-5%; rock outcrop nil. Extensively cleared open forest. - Soils - Yellow Kurosols (Yellow Podzolic Soils), Red Kurosols (Red Podzolic Soils), Brown Kurosols (Yellow Podzolic Soils) and Yellow Kandosols (Yellow Earths).
Geological description	The 1:250,000 Statewide Geology indicates that the site is underlain by the Wianamatta Group, which is comprised of mid grey and dark grey mudrocks and interbedded lithic sandstone.
Location and extent of imported and locally derived fill	Fill was observed during intrusive investigations for the Arcadis (2018) PSI in the following locations:

Detailed Site Investigation

Item	Description
	• NPF; • MO; • Amenities Block; • School Building; • Outbuilding 1 and 2; • Outbuilding 3, 4, 5, and 6; and • Outbuilding 8. The largest extent of fill observed was at TP08, located within the NPF 2.1 metres below ground level (m bgl). Fill material was observed in the following additional locations during the intrusive works conducted for the DSI: • Fill mound 60m south-west of the amenities block; and • South-western corner of the Site near DP978826 Lot 11. The largest extent of fill was observed within TP210, where fill was present to approximately 4.0m bgl, which was the physical limit of the excavator arm. Natural material was not encountered within this test pit.
Historical Geotechnical Investigations	Arcadis were provided with a copy of the Douglas Partners Pty Ltd (DP, 22nd April 2008) <i>Report on Preliminary Geotechnical Investigation</i>. This investigation included the drilling of six (6) boreholes using a mini excavator fitted with a 150mm diameter power auger at the site. The location of the boreholes is unknown as "Drawing 1" in the report was not included. The generalized geological description for the site, as reported by DP (22nd April 2008) were: <i>"FILLING: comprising gravelly clay (associated with playing field construction) to a depth of 1.1m in Bore 1;</i> <i>TOPSOIL: to 0.4m depth in Bores 3 and 4;</i> <i>CLAY: firm to very stiff (but generally stiff) clay, silty clay and gravelly clay to refusal on weathered shale at depths of 1.4 – 2.2 m and to the termination depth of 3m in Bores 1 and 2."</i> <i>No free groundwater was observed in any of the bores for the short time that they were left open."</i> This DSI does not make recommendations on geotechnical suitability of the site for the proposed development. This DSI is limited to contamination only.
Site borehole logs or test pit logs showing stratigraphy	A description of the soil encountered during test pitting at the site is provided in Appendix D.
Acid Sulfate Soils	The Office of Environment and Heritage (OEH, 2011) acid sulfate soil (ASS) risk maps indicate the site is in an area not identified as ASS.

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Item	Description
	The Australian Soil Resource Information System (ASRIS) Atlas of Australian Sulfate Soils classifies the site as: Bn(p4): ASS in inland lakes, waterways, wetlands and riparian zones. Low Probability of occurrence.
Detailed description of the location, design and construction of on-site wells	No groundwater wells were installed by Arcadis during intrusive works undertaken for both the PSI and DSI. A historical well reportedly located on Lot 9, could not be identified during intrusive works.
Depth to groundwater table	Groundwater was not encountered by Arcadis during intrusive works undertaken for the PSI and DSI.
Direction and rate of groundwater flow	Groundwater flow is expected to follow local topography to the east.
Direction of surface water run-off	Surface water run-off from the site is expected to follow local topography to the east and eventually drain into the Mittagong Creek.
Background surface water quality	Background groundwater quality is currently unknown. Arcadis understands that the proposed development does not extend to riparian areas surrounding the creek.
Preferential water courses	Unlined drainage channels appear across the site. These are designed to transport surface water into Mittagong Creek.
Summary of local meteorology	The following average meteorological data taken from the Bowral Bureau of Meteorology station (068102), located approximately 1.5 km south of the site: • Average maximum temperatures range from 11.6°C in July to 25.5°C in January • Average minimum temperatures range from 2.1°C in July to 13.5°C in February • The wettest month on average is February with 98.4mm of rain. • The driest month on average is July with 45.3mm of rain.

6 HISTORICAL REPORTS

The following section presents summaries of environmental, geotechnical and hazardous materials reports historically prepared for the Site. Arcadis has access to the following reports:

- Douglas Partners (DP, 2008a) *Report on Preliminary Geotechnical Investigation*, April 2008;
- Douglas Partners (DP, 2008b) *Report on Geotechnical Investigation*, August 2008;
- Paul Davies Pty Ltd (PD, 2012) *Heritage Assessment Report*, December 2012;
- EI Australia (EI, 2018) *Hazardous Materials Survey*, 19th July 2018;
- Arcadis Australia Pacific Pty Ltd (Arcadis, 2018) *Preliminary Site Investigation with Limited Soil Sampling*, October 2018; and
- Douglas Partners (DP, 2019) *Report on Geotechnical Assessment, 2-18 Centennial Road, Bowral*, February 2019.

Arcadis is unaware of any other environmental reports for the Site.

6.1 DP (2008a) Report on Preliminary Geotechnical Investigation

DP conducted a preliminary geotechnical investigation for the Site in April 2008. The investigation involved the drilling of six indicative boreholes across the Site. Fill material was encountered to a maximum depth of 1.1m in BH01.

The DP report included one (1) sample of fill material in the MO (BH01) submitted to a NATA accredited laboratory for the analysis of contaminants including asbestos, heavy metals, TRH, BTEX, PAHs, OCP/OPP and PCBs. Analytical results for all analytes (excluding heavy metals) were observed to be below laboratory LOR and hence below the NSW DECC (1994) assessment criteria. Concentrations of heavy metals were above laboratory LOR however also observed to be below the NSW DECC (1994) assessment criteria. Groundwater was not encountered during the investigation.

6.2 DP (2008b) Report on Geotechnical Investigation

An additional report was prepared for the Site by Douglas Partners in August 2008 entitled Report on Geotechnical Investigation. Arcadis does not have access to this report but understands that the DP (2019) report covers the findings of the unsighted report. This brief summary is hence derived from the Douglas Partners (2019) geotechnical assessment.

Twelve (12) geotechnical test pits were dug around the Site during the investigation (TP101 to TP112) including in the NPF and MO. Fill material was encountered in one (1) borehole (BH01) and three (3) test pits (TP102, TP104, TP107) and was observed to be variable in composition and consistency to depths of 0.3 – 2.8m bgl. Filling in TP104 was observed to be likely associated with MO construction.

A sample of fibreboard sheeting from TP102 (depth 0.7 m) was tested by Envirolab Pty Ltd for asbestos identification and confirmed that the sample comprised "chrysotile asbestos". This sample location was noted to be in the north-eastern corner of the NPF (NPF Berm).

6.3 PD (2012) Heritage Assessment Report

PD performed a heritage assessment report for the Site in December 2012. The report provides a detailed history of the ownership of the Site, which is summarised in the Site History in Section 3. The heritage investigation was commissioned to assess the development potential of the Site.

6.4 EI (2018) Hazardous Materials Survey

EI was engaged to conduct a hazardous materials survey at the Site in July 2018 to satisfy conditions of the development application of proposed works, which include the demolition/refurbishment of buildings. The report details the findings of potential hazardous materials sampling and laboratory analysis. Hazardous material around the Site included both bonded and friable asbestos and extended to:

- Friable asbestos lagging, including around pipework;
- Corrugated and non-corrugated asbestos cement sheeting;
- Asbestos cement pipe;
- Electrical backing board
- Sealant;
- Vinyl floor tiles;
- Insulation material;
- Asbestos adhesive;
- Lead based paint; and
- Fluorescent light fittings.

Areas which were not able to be assessed and inspected include:

- Wall cavities and set ceilings;
- Areas concealed within the building structure;
- Within voids or internal areas of plant, equipment, air-conditioning ducts;
- Energized services, gas, electrical and pressurized vessels;
- Areas deemed unsafe or hazardous at the time of inspection;
- Within totally inaccessible areas such as voids and cavities created and intimately concealed within the building structure. These voids are only accessible during major demolition works; and
- Height restricted areas, including building roof areas.

The report details that these areas which were unable to be accessed should be assessed for hazardous materials post-demolition.

6.5 Arcadis (2018) Preliminary Site Investigation with Limited Soil Sampling

Arcadis was commissioned to prepare a PSI with limited targeted environmental soil sampling at the Site. Sample locations were targeted based on historical reports for the Site and the Site walkover which identified areas of potential cut and fill. Intrusive sampling was undertaken across the

Site and included hand augering and test pitting at twenty-seven (27) locations.

- Fill was observed to extend to a maximum depth of 2.1m bgl in TP08 within the NPF, and 1.9m bgl in TP02 immediately north of the school building.
 - Foreign materials observed within the fill included; brick; gravels; ash; potential asbestos containing material; ceramics; concrete; plastic; metal; tiles; and glass.
- Fill material beneath site buildings is likely to be re-worked natural material from cutting and filling operations.
- Asbestos containing materials (ACM) were observed at the Site (associated with building construction materials). All soil samples (identification and bulk) did not detect/report asbestos; however, two of the three fragment samples (TP12 PACM and PACM Surface 3), reported asbestos within material samples.
- Heavy metal exceedances to human health criteria (HIL-A and HIL-C) for lead and arsenic, and ecological criteria (EIL) for arsenic and zinc, were reported in shallow surface/fill material at the site.
 - Two locations, TP05 (0.5m bgl) and TP11 (0.1m bgl), reported exceedances to human health criteria for lead and arsenic respectively. TP05 (0.5m bgl) also exceeded the zinc EIL, whilst TP11 (0.7m bgl) exceeded the zinc and arsenic EILs.
 - Five other sampling locations exceeded the zinc EIL. These were collected from shallow surface soils around buildings or beneath stockpile 01.

The results indicate that the site is suitable for the proposed residential development; however, the sampling density completed is less than that recommended in the NSW EPA (1995) *Sampling Design Guidelines*.

The PSI recommended further assessment of fill material post demolition of the building structures to ensure it is suitable for the proposed development.

It is noted that the finding of the DP (2008b) Report on Geotechnical Investigation, which discussed an asbestos find in fill material located within the NPF, was not known during the Arcadis (2018) PSI. Hence the CSM identified in this 2019 DSI differs from the CSM derived during the 2018 PSI.

6.6 DP (2019) Report on Geotechnical Assessment

Douglas Partners were engaged to provide a geotechnical assessment for the Site. Works undertaken for the assessment included a site inspection by a geotechnical engineer on 12th February 2019 to gauge and compare current site conditions to those identified during the 2008 geotechnical reports.

7 AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

Based on the historical reports, site walkover and results of the intrusive investigation conducted during the Arcadis (2018) PSI, the following Areas of Potential Environmental Concern are identified for further assessment during the Detailed Site Investigation are detailed below. Note that the APEC numbering is continued from that which was developed during the Arcadis (2018) PSI. The stage of development that the APEC falls within has been added.

- APEC 05: Fill material beneath the Tennis Court, where a lead hotspot was observed – Stage 1.
- APEC 07: Potentially impacted soils within the former 'Garden & Orchard area, and proximal to stockpiled material – Stage 1.
- APEC 08: Potentially impacted soils within an area formerly used for agricultural purposes – Stage 1.
- APEC 09: Potentially impacted fill material from an unknown source within the NPF – Stage 1.
- APEC 10: Potentially impacted fill material from an unknown source within the MO – Stage 3.

It is noted that the Stage 2 development footprint and Stage 3 development footprints are to be assessed as a part of this investigation.

Refer to Figure 3, **Appendix A** for the location of the APECs listed above, and those which are proposed to be assessed post-demolition.

8 TARGETED SOIL SAMPLING

To achieve the objective of further understanding and delineating the presence of fill material, and to conduct expanded environmental testing of the greater Site, Arcadis completed a targeted soil investigation at the Site on 5th and 6th March 2019.

Environmental Scientists, Tom Keatley and Jack Palma, completed test pitting (TP) at the site. Test pitting was completed in areas of known and suspected fill material, and in a predetermined pattern across the Site for coverage using a 14 tonne excavator.

The nomenclature for sampling locations was as follows:

- TP201 = Test Pit, second round of intrusive works (2), number one (01).

Refer to Table 4, **Appendix C** for the rationale for completing each test pit sampling location.

Refer to Figure 4, **Appendix A** for the location of all test pits completed at the site.

8.1 Contaminants of Potential Concern

The contaminants of potential concern (CoPC) considered appropriate for the site were:

- Total recoverable hydrocarbons (TRH);
- Benzene, toluene, ethyl benzene, xylenes and naphthalene (BTEXN);
- Polycyclic aromatic hydrocarbons (PAHs);
- 8 metals (Arsenic As, Cadmium Cd, Chromium (total) Cr, Copper Cu, Nickel Ni, Lead Pb, Zinc Zn and Mercury Hg);
- Polychlorinated biphenyls (PCBs);
- Asbestos;
- Phenols; and
- Organochlorine pesticides (OCP) and organophosphorus pesticides (OPP).

Samples were selectively analysed for the above CoPC.

8.2 Sampling methodology

8.2.1 Test Pitting

The following methodology was undertaken during test pitting works:

- Clearance of all locations by a registered service locator (SureSearch Pty Ltd.) using ground penetrating radar (GPR).
- Mobilisation of 14-tonne excavator to each test pit sampling location and completing a visual inspection of the area for potential hazards.
- Using a 900mm bucket, soils layers were excavated progressively. The lithology was recorded on field log templates, noting:

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- Descriptions and depths of encountered lithology, inclusive of fill and natural material;
- Photo-ionisation detector (PID) recordings;
- Observations of note; and
- Sample Identification names and corresponding depths.
- Test pits were extended 0.5m into the underlying natural material (where possible), and samples collected.
- Soil samples were collected directly from the 900mm bucket at regular intervals; changes in lithology; or signs of contamination (if any). Soil samples were collected using new/fresh nitrile gloves (which were replaced between sampling intervals and locations).
- Where fill material was encountered, sieved soil samples using the WA Asbestos method were collected.
- Any PACM encountered during sieving or excavating was collected and noted in the test-pit logs.
- 6kg bulk bag samples were collected for potential rubble analysis where fill material was encountered.
- The soil samples were placed into new 250ml laboratory supplied glass jars with Teflon sealed lids.
 - Sample jars were clearly labelled in indelible ink with the job number, sampler details, sample ID and time and date of sampling.
 - Samples were placed directly into ice chilled eskies following sampling.
- Test pits were backfilled and compacted with the bucket and excavator tracks.
- Any remaining material in the excavator bucket was removed before traveling to the next sampling location.
- A chain-of-custody (CoC) form was filled out with the required details including project number, project manager and sampler details, turn-around time required, sample IDs, time and date of sampling, required analysis, limit of reporting required, name and signature of person relinquishing the samples and date of submission, name and date of person from the laboratory accepting the samples. The CoC accompanied the samples to the laboratory.
- The samples were delivered by Arcadis to the primary laboratory (Envirolab Services Pty Ltd.).

8.3 Assessment Criteria

To determine if the CoPC have the potential to pose an unacceptable risk to human health or the environment for the proposed development, the following guidelines were adopted to form the Soil Assessment Criteria (SAC).

- National Environment Protection Council (NEPC, 1999) *as amended 2013, National Environment Protection (Assessment of Site Contamination) Measure (NEPM) Health Investigation Level 'A' (HIL-A)* – Standard residential land use with garden;
- NEPC (1999) *as amended 2013, NEPM Health Screening Levels (HSL-A)*;

- NEPC (1999) as amended 2013, *NEPM Ecological Investigation Levels (EIL-A)*; and
- NEPC (1999) as amended 2013, *NEPM Ecological Screening Levels (ESL-A)*.

The rationale for the selection of the above criteria is explained in Table 8.1 below

Table 8.1: Rationale for selection of assessment criteria

Assessment Criteria	Rationale
NEPM HIL-A	Residential criteria is considered by Arcadis to be appropriate for the proposed development of the site which will include residential properties with gardens and accessible soils.
NEPM HSLs	Considered by Arcadis to be appropriate for assessing potential petroleum hydrocarbon impact at the site.
NEPM EILs and ESLs	Considered by Arcadis to be appropriate for assessing the potential ecological risks posed to the site.

Refer to the tabulated analytical results table (Table 2, Appendix C) for a list of the relevant criteria for each CoPC.

8.4 Analytical Results

This section summaries the reported analytical results of soil samples collected on 5th/6th March 2019.

Refer to Table 2, Appendix C for tabulated analytical results compared to the adopted guidelines.

8.4.1 TRH/TPH

The reported concentrations of TRH/TPH were reported to be either below the adopted soil assessment criteria (SAC) or the Laboratory limit of reporting (LOR).

One (1) detection of TRH was noted in the following sample:

- TP225 – 0.1: TRH >C₁₀ – C₄₀ of 270 mg/kg.

This detection did not exceed the adopted health or ecological SAC.

8.4.2 BTEX

The reported concentrations of BTEX for all samples submitted for analysis were observed to be below the laboratory LOR and hence below adopted ecological and health SAC.

8.4.3 Heavy Metals

Heavy metals were detected in each soil sample submitted for analysis. The following samples exceed adopted site specific EIL-A ecological criteria for Nickel (20 mg/kg):

- TP208 – 0.1 (62 mg/kg);

- TP208 – 1.5 (51 mg/kg);
- TP209 – 0.1 (68 mg/kg);
- TP210 – 0.1 (59 mg/kg);
- TP210 – 0.5 (58 mg/kg);
- TP210 – 2 (43 mg/kg); and
- TP210 – 4 (53 mg/kg).

It is noted that all of these nickel exceedances occur within fill material within the NPF (TP208 and TP209) and NPF Berm (TP210). It is also noted that ACM was observed with TP210.

No other exceedances of health or ecological criteria for the Site were observed for heavy metals.

8.4.4 PAHs

The reported concentrations of PAHs were reported to be either below the laboratory LOR with the exception of the following samples:

- TP208 – 1.5: Total positive PAHs of 2.2 mg/kg.
- TP246 – 0.1: Total positive PAHs of 2.6 mg/kg.

Total PAHs results for these samples fall below the adopted health and ecological SAC.

It is also noted that concentrations of Benzo(a)pyrene TEQ (LOR) for these samples is below laboratory LOR and are hence below adopted SAC. Benzo(a)pyrene in these samples also falls within the NSW EPA Waste Classification Criteria for General Solid Waste (GSW - CT1).

8.4.5 PCBs, OCP/OPPs, Phenols

The reported concentrations of PCBs, OCP/OPPs and phenols in all samples submitted for analysis were reported to be below the laboratory LOR and hence below adopted SAC.

8.4.6 Asbestos

Asbestos is known to be present within the school building and a number of Outbuildings at the site, as reported in the EI (19 July 2018) report, and observed during the Arcadis (2018) PSI site walkover.

- Thirty-five (35) soil samples were analysed for asbestos identification (presence/absence);
- Five (5) sieved samples were analysed for asbestos fines/fibrous asbestos. These samples were collected from testpits where PACM was observed. Samples were supplied to the laboratory in individual zip-lock bags; and
- Five (5) PACM cemented fragment samples were analysed for asbestos identification in materials.

All five field-sieved soil samples submitted for asbestos fines/fibrous asbestos analysis were reported as non-detect, including those where ACM fragment samples were found. Additionally, the thirty-five (35) soil samples submitted for asbestos ID reported results below laboratory LOR.

All five (5) PACM fragment samples submitted for asbestos ID confirmed the presence of bonded asbestos.

See Table 8.2 below for a summary of the asbestos reported for these material samples.

Table 8.2: Asbestos reported in material samples

Sample	Asbestos ID
TP207 - 0.5 - PACM	Chrysotile asbestos detected.
TP210 - Surface - PACM	Chrysotile asbestos detected.
TP210 - 2.5 - PACM	Chrysotile asbestos detected.
TP219 - 0.1 - PACM	Chrysotile asbestos detected.
TP246 - 0.1 - PACM	Chrysotile asbestos detected.

8.4.7 Ecological Investigation Levels

8.4.7.1 Soil Characteristics

Soil characteristics were measured from five (5) locations across the Site to determine the site-specific Ecological Investigation Levels (EILs), including one (1) sample from the Arcadis (2018) PSI (HA10). The following samples were selected for EIL calculation and averaged to calculate EIL inputs:

- HA10 – 0.1;
- TP202 – 0.8;
- TP212 – 0.5;
- TP222 – 0.5; and
- TP234 – 1.0.

The soil characteristics measured were; potential of hydrogen (pH); Cation Exchange Capacity (CEC); Total Organic Carbon (TOC); and percentage clay in soils (% clay).

Table 8.3: Soil characteristic summary

Soil Characteristic	Reported Result (average)
pH	4.7 pH
CEC	3.5 meq/100g
TOC	0.912% (reported average result of 9,120 mg/kg divided by 10,000).
% Clay	36%

8.4.7.2 Derived criteria

The derived EIL criteria for the site is listed in Table 8.5.

Table 8.4: Derived EIL Criteria using soil characteristics

Analyte	Derived Criteria (mg/kg)
Arsenic	100
Chromium (III)	620
Copper	80
Lead	1,100
Nickel	20
Zinc	160
Naphthalene	170
DDT	180

Refer to Appendix D for the calculations used to derive site specific EIL criteria.

8.4.8 DP (2008a) Analytical Results

The DP (22nd April 2008) report analysed one soil sample from BH01, collected from a depth of 0.5m bgl in the MO, for laboratory analysis.

See below a summary of the reported analytical results from the DP (22nd April 2008) report:

- Heavy Metals:
 - Arsenic: <4 mg/kg;
 - Cadmium: <1 mg/kg;
 - Chromium: 22 mg/kg;
 - Copper: 8.4 mg/kg;
 - Lead: 14 mg/kg;
 - Mercury: <0.1 mg/kg;
 - Nickel: 5 mg/kg; and
 - Zinc 12 mg/kg.
- Total Petroleum Hydrocarbons (TPH) noted to be reported by DP as TRH in the report (but TPH in the accompanying laboratory certificate) were reported below laboratory LOR.
- BTEX, PAHs, OCP/OPP, PCB, Phenols were reported below laboratory LOR.
- No asbestos was reported within the sample submitted for asbestos ID.

Hence, the analytical results in the DP (22nd April 2008) report were reported to be below the adopted criteria.

8.4.9 DP (2008b) Analytical Results

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One fibreboard sheeting sample was submitted to Envirolab for asbestos ID, TP102 – 0.7. Analytical results for this sample indicate that chrysotile asbestos was present within the material. This piece of ACM was present within fill material in the NPF berm.

9 QUALITY ANALYSIS / QUALITY CONTROL

Refer to Appendix G for a summary of the Quality Analysis/Quality Control (QA/QC) assessment completed for the intrusive assessment.

The results of the QA/QC generally indicate that the data is reliable for the purposes of this assessment.

10 DISCUSSION

10.1 Fill locations

The fill material at the site was observed to be primarily re-worked natural material associated with cutting and filling operations at the Site. Some anthropogenic fill material was observed during the intrusive investigation. The following locations were observed to contain anthropogenic fill material:

Table 5: Anthropogenic fill material locations

Area	Sample Location	Fill Thickness	Material Encountered
NPF	TP204	0.4	Plastic, glass, tile at 0.2m bgl.
	TP207	1.5	Bonded ACM encountered at 0.5m bgl. Bricks, sandstone, plastic present.
	TP209	0.4	Foreign residual clays encountered.
NPF Berm	TP210	≥4.0	Bonded ACM was encountered at both surface and 2.5m bgl. Natural material was not encountered. Bricks, concrete slab encountered.
MO	TP217	0.2	Glass, plastic encountered.
Amenities Building	TP218	0.3	-
	TP219	0.3	Bonded ACM sample encountered at 0.1m bgl. Bottlecap, coin, roots.
	TP220	0.15	-
Tennis Court	TP224	0.6	Concrete slab and terracotta pipe encountered at 0.1m bgl.
	TP225	0.5	-
North-west corner of Site near gully	TP227	0.4	Red bricks present at 0.2m bgl.
60m south-west of Amenities Building - Small vegetated fill mound surrounded by natural material.	TP246	0.2	Bonded ACM encountered at 0.1m bgl. Bricks, terracotta pipe present at 0.1m bgl.

Foreign materials observed within the fill included red bricks, glass, tile, fibreboard (including ACM), foreign crushed sandstone, glass and plastic.

Fill was observed to extend to a maximum depth of 4.0m bgl within TP210, which is located in the NPF Berm, which is in line with observations from the

Arcadis (2018) PSI which encountered fill material in TP08 in the NPF to a depth of 2.1m bgl.

Additional fill material was encountered at TP227 to a depth of 0.4m bgl near Lot 11 DP1109214, and within a small vegetated mound (TP246) near the centre of the Site, 60m south-west of the amenities building. The former dam was located within the NPF, and the infilling material used to level the ground was observed to be reworked natural material. The base of the dam was observed to be a medium-plasticity blue/grey to grey silty clay.

Fill material beneath site buildings is likely to be re-worked natural material from cutting and filling operations. Further assessment of this material is required post demolition of the building structures to ensure it is suitable for the proposed development.

10.2 Asbestos

Potential bonded asbestos was observed in cement fragment material samples in the following locations:

- TP207 at 0.5m bgl, south-western corner of NPF;
- TP210 at surface, NPF Berm;
- TP210 at 2.5m bgl, NPF Berm;
- TP219 at 0.1m bgl, east of the amenities building; and
- TP246 at 0.1m bgl, within a vegetated fill mound near the centre of the site and south-west of the amenities building.

Analytical results reported that these PACM samples all detected positive for the presence of bonded Chrysotile asbestos, which is noted to be the least toxic form of asbestos (EnHealth 2005).

Analytical results for asbestos analysed in accordance with AS 4964 – 2004 report asbestos fines/fibrous asbestos as below laboratory limit of reporting (LOR). All soil asbestos ID results were also reported as below laboratory LOR. No friable asbestos was visually observed during the intrusive soil investigation.

The WA Asbestos sampling method (DoH 2009) was utilized for this investigation, and a %w/w value was calculated for each of the soil samples where ACM fragment samples were collected and later confirmed to contain asbestos. The following table lists the %w/w asbestos values for the soils where asbestos was encountered, with exceedances shaded in red.

Table 6: %w/w for bonded ACM in soil

Sample ID	Area	%w/w Bonded ACM in Soil	HIL-A HSL Criteria Value for Bonded ACM (%)
TP207 – 0.5	NPF	0.031	0.01
TP210 – 0	NPF Berm	0.012	
TP210 – 2.5	NPF Berm	0.024	
TP219 – 0.1	Amenities Building	0.003	

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Sample ID	Area	%w/w Bonded ACM in Soil	HIL-A HSL Criteria Value for Bonded ACM (%)
TP246 – 0.1	Fill mound 60m south-west of amenities building	0.013	

Hence, concentrations of bonded asbestos in the NPF, NPF Berm and the fill mound exceed the adopted HIL-A SAC for the Site.

The asbestos observed was likely to be sourced from materials used to construct the various buildings at the Site, as documented in the EI (19 July 2018) *Hazardous Materials Survey* report. Arcadis recommends that the proposed demolition of the buildings at the Site are conducted by appropriately trained and experienced individuals that hold a Class A asbestos removal licence under the Work Health and Safety Regulation 2011 (WHS Regulation).

Furthermore more, following demolition and removal of wastes, the site requires clearance by a licenced asbestos assessor with suitable experience and training under the WHS Regulation.

An Asbestos Management Plan needs to be prepared and implemented during construction phase. Arcadis understands that the proposed footprint for the development design (as of writing this DSI) includes cutting and filling of fill material where bonded asbestos was present. Specifically, these areas include the:

- NPF;
- NPF Berm; and
- Amenities Building.

10.3 Sampling Density

Arcadis has completed, during the DSI, a total of thirty-seven (37) sampling locations at the 16.988-hectare site, with thirty-six (36) of these locations undergoing laboratory analysis for at least one CoPC. The sampling locations were primarily targeted at suspected filling locations at the site based on historical reports, site observations and delineation performed as part of the Arcadis (2018) PSI, with the majority of the samples falling within the proposed Stage 1 Development Area (~5.5 hectares) and Stage 2 Development Area (2.26 hectares).

Table 7: Current sampling densities of each Development Stage

Development Stage	Area (Ha)	Recommended Number of Investigation Locations	Number of Investigation Locations	Comment
Stage 1	5.5	55+	34	Insufficient, however, sampling density will increase following sampling of building footprints to be conducted post-demolition.
Stage 2	2.19	35	9	Sufficient based on the low reported concentrations of CoPC in soil, the homogenous

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Development Stage	Area (Ha)	Recommended Number of Investigation Locations	Number of Investigation Locations	Comment
				nature of the soil material encountered during intrusive works and the minimal development that has historically occurred in this portion of the Site.
Stage 3	2.26	35	21	Sufficient. Arcadis considers that in-situ fill materials within the stage 3 development area have been sufficiently delineated.

Arcadis notes that the sampling density completed at the Site during this DSI, the 2018 PSI and DP 2008a report is less than the NSW EPA (1995) *Sampling Design Guidelines*; however, Arcadis believes that it is sufficient to generally characterise the accessible locations of fill at the site, in accordance with WSC condition 21.

10.4 Heavy Metals

No heavy metal exceedances to human health SAC (HIL-A) were observed within analytical results.

Exceedances of ecological criteria for nickel, however, were observed within fill materials in the NPF (TP208 and TP209) and the NPF Berm (TP210). It is also noted that asbestos was found within TP210, and asbestos was also found within TP207, which is in close proximity to TP209.

It is noted that heavy metal exceedances of human health and ecological criteria that were observed within the Arcadis (2018) PSI were not observed within this DSI due primarily to spatial differences in sample locations, with noted heavy metals exceedances in the PSI being present in the areas that are proposed to be re-sampled post demolition.

Additionally, significant exceedances of lead observed in the Arcadis (2018) PSI in TP05 (720 mg/kg at 0.5m bgl) within fill material are significantly higher than those observed within fill material in TP225, which was located approximately 5 metres from TP05. Additionally, lead results within fill materials in TP224 (southern edge of tennis court) are reported significantly below the concentrations encountered in TP05. This may be an indication that the purported lead hotspot is limited to fill material close to the north-eastern edge of the tennis court.

Arcadis also notes that no obvious signs of plant stress were noted at the site during the intrusive works.

11 CONCEPTUAL SITE MODEL

The NEPC (1999) as amended 2013, *NEPM* defines a conceptual site model (CSM) as:

“a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors”.

The essential elements of the CSM as required by the NEPC (1999) as amended 2013, *NEPM* include an understanding of:

- Known and potential sources of contamination and contaminants of concern including the mechanism(s) of contamination (e.g. ‘top down’ spill or sub-surface release from corroded tank or pipe).
- Potentially affected media (soil, sediment, groundwater, surface water, indoor and ambient air) human and ecological receptors.
- Potential and complete exposure pathways.

Based on the information available for the Site as summarised in Section 1 to Section 8, the following preliminary conceptual site model (CSM) has been prepared. The CSM identifies complete and potential pathways between the known or potential source(s) and the receptor(s).

Arcadis notes that the CSM provided in this DSI is amended from the Arcadis (2018) PSI due to additional information from the DP (2008b) Geotechnical Investigation being available. This information, which included an ACM find in the NPF Berm, was not available at the time of reporting for the Arcadis (2018) PSI and was hence not integrated.

11.1 Source

Potential sources of contamination at the Site and the associated contaminants of potential concern (CoPC) include:

Table 11.1: Potential Contaminant Sources.

Source	CoPC
Surface soils around and beneath buildings and demolished buildings observed to contain asbestos containing material (ACM)	Asbestos Heavy Metals TRH BTEX PAHs PCBs OCP/OPPs
Fill material observed to contain ACM	Asbestos
Hazardous materials within buildings identified in the EI (19 July 2018) <i>Hazardous Materials Survey</i>	Asbestos Lead PCBs
Fill material with reported concentrations of nickel above the SAC within the NPF and NPF Berm	Nickel

Source	CoPC
Surface soils affected by herbicides and pesticides	OCP/OPPs

11.2 Potentially Affected Media

Potentially affected media at the site include:

- Soil (noted exceedances to the SAC including asbestos);
- Groundwater (potential as not assessed); and
- Indoor air (potential as not assessed).

11.3 Pathways

Pathways or transport mechanisms by which receptors may be exposed to contamination on and offsite include:

- Direct contact with contaminated soil/groundwater;
- Inhalation of vapours;
- Vertical migration of spills/leaks to groundwater;
- Ingestion of dust/abstracted groundwater; and
- Inhalation of asbestos fibres.

All these pathways are conservatively considered to be potentially complete at the site due to the lack of groundwater assessment, and lack of information from beneath the building footprints.

11.4 Receptors

Potential receptors to contamination at the site were identified to include:

- Site caretaker;
- Future site workers;
- Intrusive maintenance workers;
- Demolition/construction workers;
- Future site users;
- Surrounding residents;
- Groundwater users (off-site).

11.5 Exposure Assessment

The potential for human health risks due to soil contamination to be present at the site is considered to be low to moderate based on the:

- CSM discussed in Section 11.1 to Section 11.4;
- The review of historical site investigations including the 2018 PSI; and
- The results of this DSI.

12 SITE SUMMARY

Based on the information obtained for the Site, the following summary is provided:

- The Site has been historically used for primarily agricultural (prior to 1904) and educational purposes (post 1904).
- The School Building and Outbuildings (with the exception of the occupied Priest's cottage) are in a state of disrepair, having been vandalised during the time the Site was unoccupied.
- Cutting and filling activities have occurred on the site primarily in areas of development (such as buildings, driveways and ovals/playing fields, including the NPF Berm where the greatest extent of fill material was observed).
- A groundwater bore and a dam were reportedly historically present on the site. The dam location was delineated based on intrusive investigation, where clays resembling a dam base were observed in TP208. Arcadis did not complete a groundwater investigation on the site since no USTs were installed onsite and no industrial activities were undertaken onsite nor in the immediate surroundings of the site.
- Stockpiles of waste, associated primarily with Outbuilding demolition activities, were noted on the Site during the Arcadis (2018) PSI. These stockpiles were observed to contain a variety of materials including PACM, wood/timber, plastic, bricks, and rubble. These stockpiles were observed to be unchanged from the PSI.
 - A number of timber/tree/wood stockpiles (presumed to be generated as a result of tree loping activities) were observed on the site.
 - One stockpile in the center of the site, away from any infrastructure was observed to contain a 44-gallon drum and various metal and wood.
- Fill material beneath site buildings is likely to be re-worked natural material from cutting and filling operations. Further assessment of this material is required post demolition of the building structures to ensure it is suitable for the proposed development.
- Except for PACM observed on and below surface soils, no other obvious signs of contamination were noted.
- The EI (19 July 2018) report identified friable and bonded asbestos, PCBs and lead within building materials used in the School Building and various Outbuildings at the site.
 - Arcadis notes that not all Outbuildings were assessed by EI; however, it is likely that these contain similar hazardous materials.
- Friable asbestos has not been observed within soil during intrusive works at the Site, however this material may exist within the building footprints of existing on-site structures. Only bonded asbestos was observed during the intrusive works.
- Chrysotile asbestos was reported to be present in all five (5) of five (5) PACM samples submitted to the primary laboratory.
- A total of fifty-two (52) test pits and twelve hand augers have been completed at the Site by Arcadis to determine the presence (if any) and quality of fill material at the site.

Detailed Site Investigation

- Nickel was reported in concentrations within fill material collected from the NPF and NPF berm that exceed ecological SAC (EILs).

13 DATA GAP REVIEW

Table 13.1 below outlines the data gaps known to be present at the Site.

Table 13.1: Data gap review

Data Gap	Comment
Lateral extent of asbestos within identified locations.	The lateral extent of asbestos impacts are not currently known. However, based on the PSI and DSI assessments we can conclude that the extent of ACM present in fill material is minimal and predominantly present in the NPF and NPF berm. Some minor exceedances of the HIL-A for asbestos were observed in these locations.
Lateral extent of lead and arsenic identified within site soils above the SAC.	Elevated concentrations of lead and arsenic at the Site have been vertically delineated where identified. The lateral extent of these impacts are not currently known. The extent of lead within fill soils near the tennis court is further understood but the extent will not be known for this area, and those within areas to be assessed post-demolition, until further sampling is undertaken.
Depth and quality of groundwater.	Groundwater was not encountered during the intrusive works, nor during the DP (22nd April 2008) investigation. Arcadis is unaware of the depth or the quality of groundwater at the Site. Arcadis considers that this is acceptable considering that there are no SafeWork NSW records or observations of USTs/UST infrastructure, and no industrial activities onsite/upgradient of the Site. Leaching of fill contaminants to levels exceeding ANZG (2018) groundwater criteria is unlikely, and hence the risk is considered by Arcadis to be negligible. Additionally, Arcadis considers the likelihood of encountering groundwater as part of the development to be low, and hence unlikely to impact the proposed development/future site use.
Quality of soils beneath the existing building footprints.	Soil samples were unable to be collected from beneath the building footprints. This should be conducted following demolition and waste removal activities.
Sampling Density.	The sampling density is less than recommended in the NSW EPA (1995) <i>Sampling Design Guidelines</i>, however, sampling density will increase with proposed further sampling underneath building footprints. In addition to this, Arcadis can conclude that the chemical quality of the fill materials appears to be consistent in concentrations and also similar to the natural background concentrations. An exemption to this is the material from the NPF and NPF berm which have higher levels of Nickel, Chromium and Copper and lower levels of Lead (all below HIL-A criteria) compared to the other fill materials.
Proposed Cutting and Filling operations at the site.	It is not understood if areas of fill with identified asbestos, nickel, lead or arsenic concentrations above the SAC are proposed to be relocated around the site.

Detailed Site Investigation

Data Gap	Comment
Extent of hazardous materials within all outbuildings at the site.	The EI (19 July 2018) Hazardous Materials Survey did not inspect all buildings on the site Therefore the extent of hazardous materials at the site is not known.

14 CONCLUSIONS AND RECOMMENDATIONS

14.1 Conclusions

Based on the findings of this DSI, the following conclusions are made:

- Soils within the Stage 1 Development Footprint were variable depending on location, though observations included:
 - Reworked natural materials and imported fill likely emplaced during construction of the NPF;
 - No evidence of agricultural use including detections of pesticides and herbicides were observed within analytical results in the north-western portion of the Site including Lots 10 and 11 DP1109214.
 - Anthropogenic fill materials (including ACM) within the NPF to a maximum depth of 2.7m bgl;
 - Large thickness of fill (>4m) located within the NPF Berm including ACM at surface and 2.5m bgl;
 - Exceedances of ecological SAC for nickel were observed within the NPF Berm and NPF. No exceedances of health SAC were observed for Nickel in the NPF and NPF Berm. Hence, Arcadis does not consider that these nickel concentrations pose a risk to human health. It is also noted that the Site is not located in a significant ecological habitat;
 - It should be noted that soils within the Stage 1 Development Footprint towards the south-western portion are yet to be fully characterized due to existing onsite structures blocking access for intrusive works;
 - Arcadis considers that, due to comparably elevated heavy metal species in fill within the NPF and NPF Berm (APEC 09), this fill material is different to the fill on the rest of the Site. Arcadis also notes that this material is likely to be disturbed, based on supplied cut and fill plans;
- Soils within the Stage 2 Development Footprint are generally observed to be:
 - Natural soils or reworked natural fill materials used for levelling purposes and characterized sufficiently;
 - Some anthropogenic fill including red bricks was encountered within TP227, likely emplaced for levelling purposes. Arcadis notes that this area was vegetated. Arcadis understands that, based on the cut and fill plans supplied, this area will not undergo cutting and filling. Based on the analytical results this material does not pose a human health risk. If this material is to be exposed/excavated, offsite disposal should be considered from an aesthetic viewpoint.
- Soils within the Stage 3 Development Footprint generally consisted of:
 - Reworked natural fill materials overlying natural materials within the MO, which increase with thickness towards the east of the Site.
 - Anthropogenic fill was present around (and likely underlying) the Amenities Building. ACM was located within this fill material in TP219. Bonded ACM in soil %w/w calculations indicate that the ACM in soil content falls below adopted HIL-A criteria.
- The former location infilled dam within the NPF was observed during intrusive works (TP208) and the sample of fill at 1.5m above the former

dam base was noted to have PAH concentrations above detection limits, however below adopted SAC.

- A vegetated fill mound was observed south-west of the Amenities Building and was observed to contain both ACM (TP246) and detections of PAHs below adopted SAC. It is noted that this location is outside the staged development footprint including the cut and fill areas.
- Arcadis considers it likely that fill mounds of this nature will be present at other portions of the Site, however, notes that these are difficult to recognize due to the undulating nature of the Site and the fact they may be vegetated. Such fill locations should be addressed with a UFP during construction works.
- Arcadis notes that given the low reported concentration of CoPC in soils in staged development locations, the risks to current and future site occupants is likely to be low, lending more confidence what was established within the Arcadis (2018) PSI. Further sampling of fill materials including those within building footprints is necessary to more wholly characterise and assess the nature of fill material at the Site.
- The remaining reported results indicate that, apart from areas where noted exceedances of SAC were identified during the PSI and DSI, the Site is suitable for the proposed residential development. Whilst, the sampling density completed is less than that recommended in the NSW EPA (1995) *Sampling Design Guidelines*, Arcadis considers the sampling density conducted for Stage 2 and Stage 3 development footprints is sufficient. The sampling density in the Stage 1 development footprint will increase post-demolition.
- Stockpiles of waste associated primarily with Outbuilding demolition activities should be removed from Site.

14.2 Recommendations

Based on the conclusions of the DSI, which utilizes the findings of intrusive works conducted for both the PSI and DSI, the following recommendations are made (**supplemental to recommendations made in the PSI**):

- Completion of activities under a Construction Environmental Management Plan (CEMP) and an Asbestos Management Plan (AMP). The CEMP should include an unexpected finds protocol in the event that additional fill material, waste etc. is identified during construction/civil activities, which Arcadis considers likely. This recommendation is reiterated from the PSI;
- Arcadis considers that, due to the presence of bonded ACM above criteria, the fill material within the NPF berm should be either disposed of off-site, capped on-site or additional assessment undertaken to further understand the volume of asbestos. On-site capping will require the preparation of an EMP that will sit with the property title; and
- Arcadis considers that the Site can be made suitable for the proposed landuse should the recommendations outlined within this DSI report and those outstanding within the Arcadis (2018) PSI be adopted.

15 LIMITATIONS

The findings of this report are based on the scope of work outlined in Section 1.3. Arcadis performed its services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties, expressed or implied are made.

Subject to the scope of work, Arcadis' assessment was limited strictly to identifying the environmental conditions associated with the subject property and does not include evaluation of any other issues. The absence of any identified hazardous or toxic materials should not be interpreted as a guarantee that such materials do not exist on the subject property.

This report does not comment on any regulatory obligations based on the findings. This report relates only to the objectives stated and does not relate to any other work undertaken for the Client. It is a report based on the results and conclusions for the concentrations of contaminants observed in soil at the time of the sample collection. These conditions may change with time and space.

All conclusions and recommendations regarding the property are the professional opinions of the Arcadis personnel involved with the project, subject to the qualifications made above. While normal assessments of data reliability have been made, Arcadis assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements or sources outside of Arcadis, or developments resulting from situations outside the scope of this project.

Arcadis is not engaged in environmental assessment and reporting for the purpose of advertising sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes. The client acknowledges that this report is for the exclusive use of the client.

REFERENCES

- Arcadis Australia Pacific Pty Ltd (Arcadis, 2018) *Preliminary Site Investigation with Limited Soil Sampling*, October 2018;
- AS 4482.1-2005 *Guide to the investigation and sampling of sites with potentially contaminated soil - Non-volatile substances*;
- AS 4482.2-1999 *Guide to the sampling and investigation of potentially contaminated soil - Volatile substances*;
- ASTM D4547 – 15 *Standard guide for sampling waste and soils for volatile organic compounds*;
- Douglas Partners (2008a) *Report on Preliminary Geotechnical Investigation*, April 2008;
- Douglas Partners (2008b) *Report on Geotechnical Investigation*, August 2008;
- Douglas Partners (DP, 2019) *Report on Geotechnical Assessment, 2-18 Centennial Road, Bowral*, February 2019;
- EI Australia (EI, 19 July 2018) *Hazardous Materials Survey*;
- EnHealth (2005) *Management of Asbestos in the Non-occupational Environment*;
- Land Insight and Resources (LI Resources, 7 September 2018) *Enviro-Screen. 2-18 Centennial Road, Bowral NSW*.
- NEPC (2013) *National Environment Protection (Assessment of Site Characterisation) Measure*;
- Office of Environment and Heritage (OEH, 2011) *Guidelines for Consultants Reporting on Contaminated Sites*;
- NSW EPA (1995) *Sampling Design Guidelines*;
- Paul Davies Pty Ltd (2012) *Heritage Assessment Report*, December 2012;
- WSC website: <https://www.wsc.nsw.gov.au/services/environment/get-involved/rivercare/mittagongcreek>

APPENDIX A FIGURES

Figure 1: Site Location

Figure 2: Site Layout

Figure 3: Areas of Potential Environmental Concern

Figure 4a: Detailed Site Investigation Sample Locations

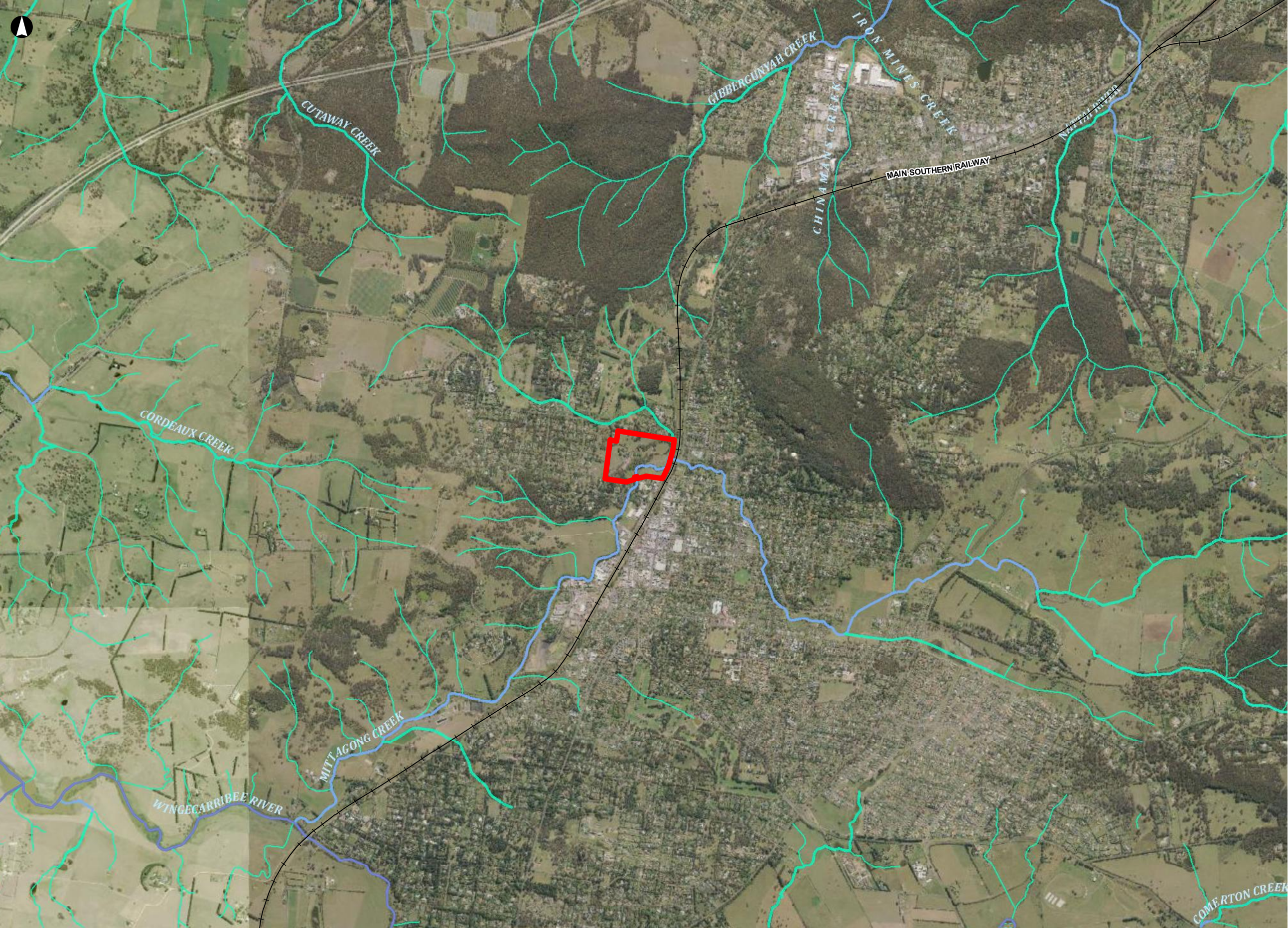
Figure 4b: Historical Sample Locations

Figure 4c: All Sample Locations and Proposed Design Stages

Figure 5a: DSI Fill Depths and ACM Locations

Figure 5b: ACM Exceedances

Figure 6: Cut and Fill Locations



Legend

 Site Boundary

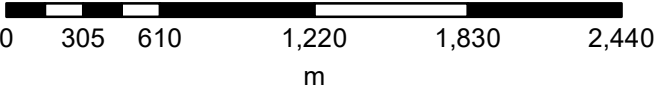
1:8,000,000 at A3



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Date issued: October 8, 2018



Figure 1 - Site Location



DETAILED SITE INVESTIGATION. 2 - 18 Centennial Road, Bowral NSW



Legend

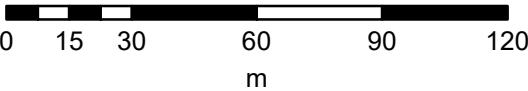
- Approximate Location of former Well
- Approximate Location of former Dam
- Site Driveway
- Site Boundary
- Approximate Stage 1 Development Area

1:1,812 at A3

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Figure 2 - Site Layout



This aerial map displays a residential area with various planning overlays and property boundaries. A large red-outlined area contains several hatched regions labeled APEC 02 through APEC 12. Two specific areas are marked 'Area to be assessed post-demolition'. Surrounding properties are labeled with DP numbers (e.g., DP 751282, DP 860365, DP 1160069, DP 20797, DP 1101892, DP 667524, DP 910353, DP 85220) and SP numbers (e.g., SP 61654, SP 88855). Lot numbers are shown in purple. A black dashed line runs through the center of the red-outlined area. A north arrow is in the top left corner.

Site Driveway

Areas of Potential Environmental Concern (APEC)

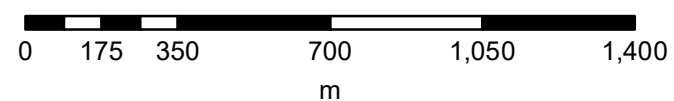
Site Boundary

Area Excluded From March 2019 Assessment

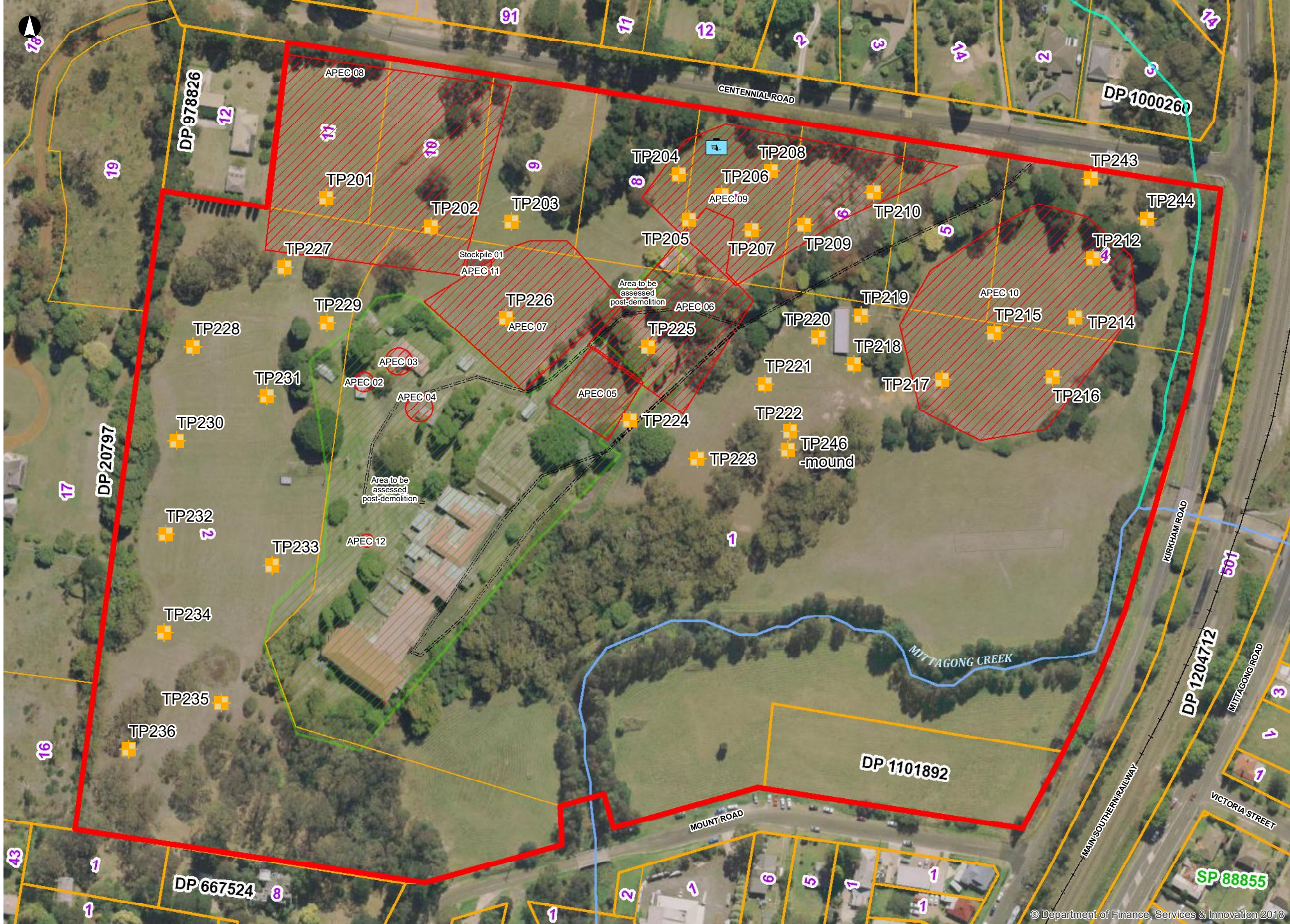
1:2,429 at A3



Figure 3 - Areas of Potential Environmental Concern (APEC)



DETAILED SITE INVESTIGATION. 2 - 18 Centennial Road, Bowral NSW



Legend

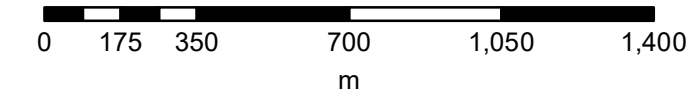
- March_2019_Sampling_Points
- Approximate Location of former Dam
- Site Driveway
- Areas of Potential Environmental Concern (APEC)
- Site Boundary

1:1,811 at A3

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Figure 4a - Sampling Locations (March 2019)



DETAILED SITE INVESTIGATION. 2 - 18 Centennial Road, Bowral NSW



Legend

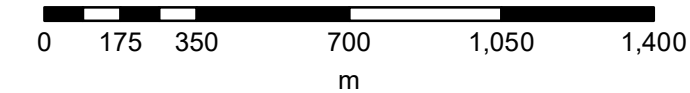
- Previous Test Pit Location (DP August 2008)
- Previous Borehole Location (DP May 2008)
- PACM Surface Samples (Arcadis 2018)
- Stockpile Sampling Locations (Arcadis 2018)
- Hand Auger Locations (Arcadis 2018)
- Test Pit Locations (Arcadis 2018)
- Approximate Location of former Well
- Approximate Location of former Dam
- Site Driveway
- Areas of Potential Environmental Concern (APEC)
- Site Boundary

1:1,811 at A3

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Figure 4b - Sampling Locations (Historical)



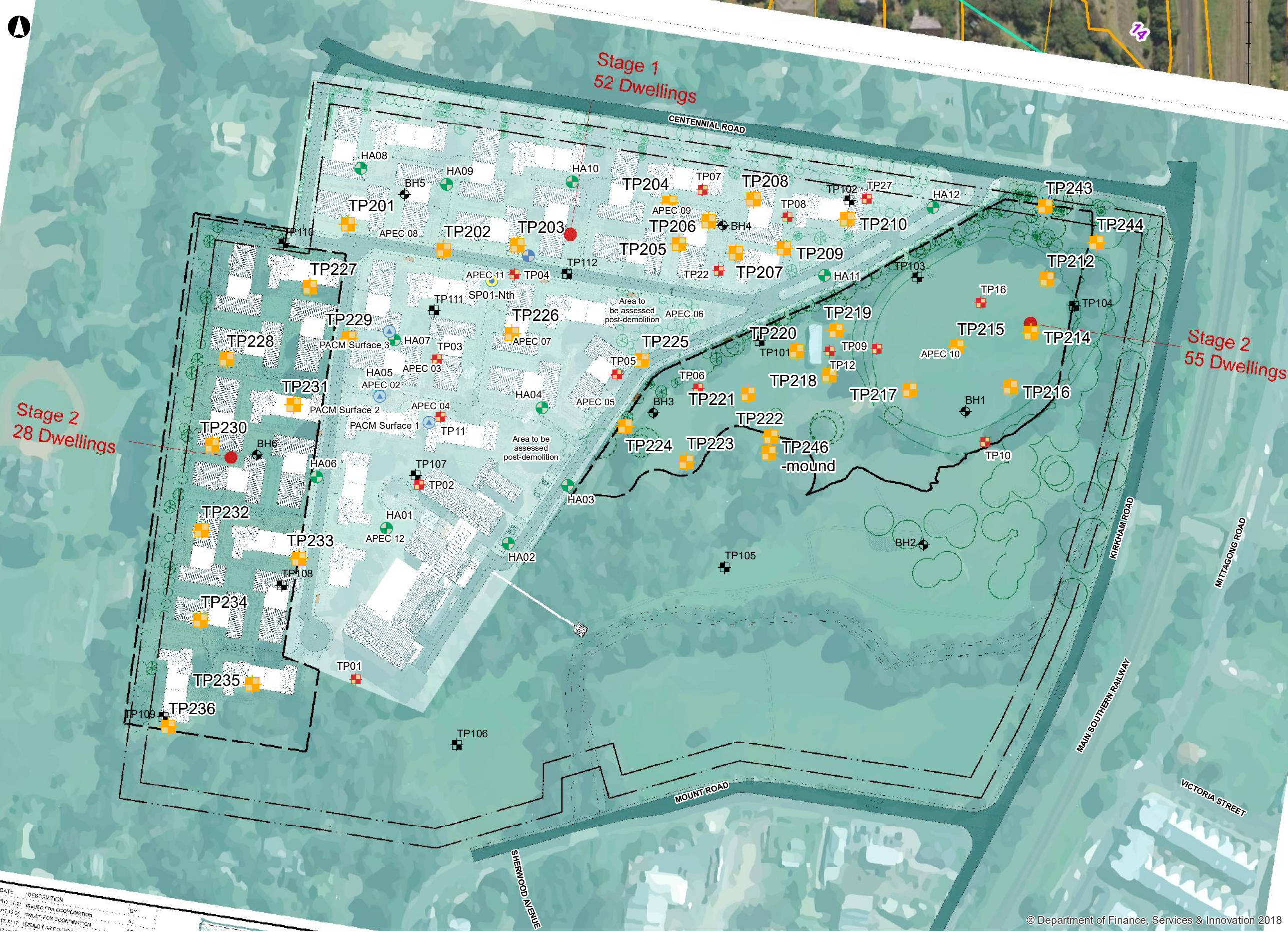
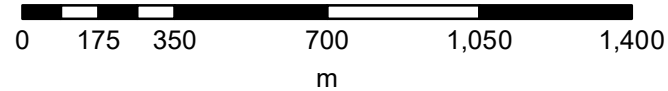


Figure 4c- Sampling Locations and Proposed Design Stages



DETAILED SITE INVESTIGATION. 2 - 18 Centennial Road, Bowral NSW



Legend

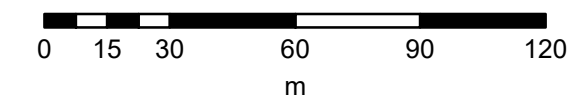
- March 2019 Sampling Points (Arcadis)
 - Previous Test Pit Location (DP August 2008)
 - Previous Borehole Location (DP May 2008)
 - PACM Surface Samples (Arcadis 2018)
 - Stockpile Sampling Locations (Arcadis 2018)
 - Hand Auger Locations (Arcadis 2018)
 - Test Pit Locations (Arcadis 2018)
 - Approximate Location of former Well
 - Approximate Location of former Dam
 - Site Driveway
 - Site Boundary
- Note: DP August/May 2008 Geo-technical sampling only and limited contamination analysis in BH1
(R) = Reworked Material

1:1,811 at A3

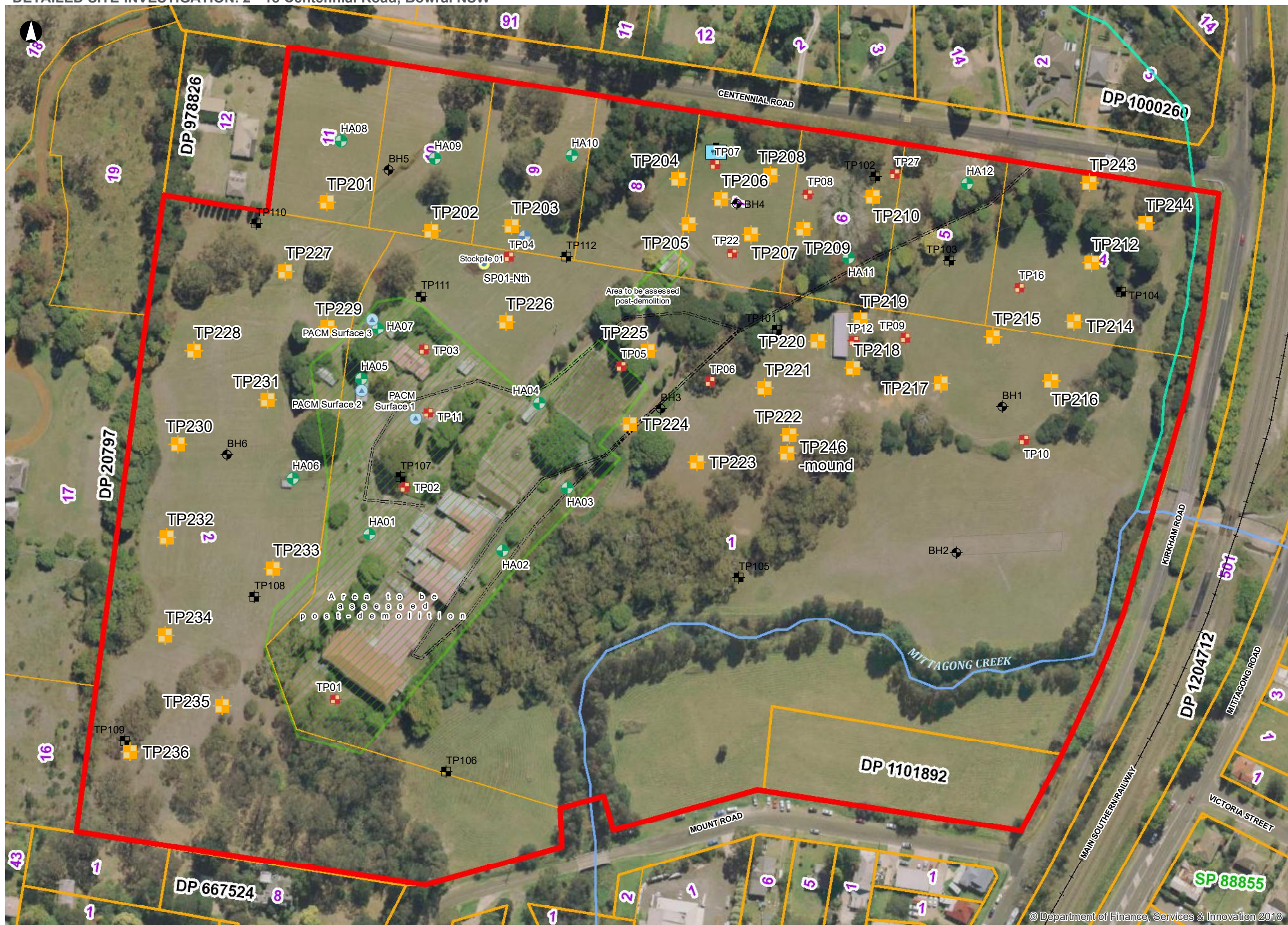
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Figure 5a - Fill Depth and PACM (March 2019 only)



DETAILED SITE INVESTIGATION. 2 - 18 Centennial Road, Bowral NSW



HIL-A HSL
Criteria Value for
Bonded ACM (%)
0.010 %w/w

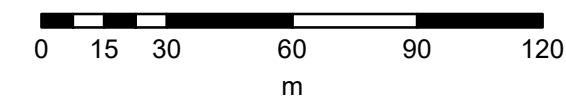
Legend

- March 2019 Sampling Points (Arcadis)
 - Previous Test Pit Location (DP August 2008)
 - Previous Borehole Location (DP May 2008)
 - PACM Surface Samples (Arcadis 2018)
 - Stockpile Sampling Locations (Arcadis 2018)
 - Hand Auger Locations (Arcadis 2018)
 - Test Pit Locations (Arcadis 2018)
 - Approximate Location of former Well
 - Approximate Location of former Dam
 - Site Driveway
 - Site Boundary
- Note: DP August/May 2008 Geo-technical sampling only and limited contamination analysis in BH1
(R) = Reworked Material
- 1:1,811 at A3

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Figure 5b - ACM Exceedances



DP 751282

DP 860365

DP 1160069

DP 1101892

DP 667524

DP 910353

DP 20797

DP 85220

SP 61654

SP 88855

MAIN SOUTHERN RAILWAY

Area to be assessed post-demolition

Area to be assessed post-demolition

TP001, TP002, TP003, TP004, TP005, TP006, TP007, TP008, TP009, TP010, TP011, TP012, TP013, TP014, TP015, TP016, TP017, TP018, TP019, TP020, TP021, TP022, TP023, TP024, TP025, TP026, TP027, TP028, TP029, TP030, TP031, TP032, TP033, TP034, TP035, TP036, TP037, TP038, TP039, TP040, TP041, TP042, TP043, TP044, TP045, TP046, TP047, TP048, TP049, TP050, TP051, TP052, TP053, TP054, TP055, TP056, TP057, TP058, TP059, TP060, TP061, TP062, TP063, TP064, TP065, TP066, TP067, TP068, TP069, TP070, TP071, TP072, TP073, TP074, TP075, TP076, TP077, TP078, TP079, TP080, TP081, TP082, TP083, TP084, TP085, TP086, TP087, TP088, TP089, TP090, TP091, TP092, TP093, TP094, TP095, TP096, TP097, TP098, TP099, TP100, TP101, TP102, TP103, TP104, TP105, TP106, TP107, TP108, TP109, TP110, TP111, TP112, TP113, TP114, TP115, TP116, TP117, TP118, TP119, TP120, TP121, TP122, TP123, TP124, TP125, TP126, TP127, TP128, TP129, TP130, TP131, TP132, TP133, TP134, TP135, TP136, TP137, TP138, TP139, TP140, TP141, TP142, TP143, 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	March 2019 Sampling Points
	Previous Test Pit Location (DP August 2008)
	Previous Borehole Location (DP May 2008)
	PACM Surface Samples (Arcadis 2018)
	Stockpile Sampling Locations (Arcadis 2018)
	Hand Auger Locations (Arcadis 2018)
	Test Pit Locations (Arcadis 2018)

==== Site Driveway

 Site Boundary

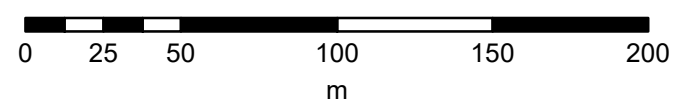
1:2,429 at A3



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 Coordinate System: GDA 1994 MGA Zone 56
 Date issued: March 15, 2019



Figure 6 - Cut/Fill Areas



Detailed Site Investigation

APPENDIX B SITE PHOTOGRAPHS

 ARCADIS		Design & Consultancy for natural and built assets	SITE PHOTOGRAPHS – Detailed Site Investigation	
Client Name Waterbrook Retirement Lifestyle Resorts	Site Location: 2 - 18 Centennial Road, Bowral NSW		Project No. 10025626 – Task 2	

Photo No.	Date			
1.	5/3/19			
Description: TP204 – Fill depth 0.4m Located on northern playing field (NPF) Fill material: Clayey Silty GRAVEL, brown / grey, moderately consolidated, shale and sandstone cobbles to 150mm. Anthropogenic Material Observed: Plastic, glass and tile				

Photo No.	Date			
2.	5/3/19			
Description: TP205 – Fill depth 0.3m Located on northern playing field (NPF) Clayey SILT - brown / grey, roots. and Gravelly Clayey SILT - brown, orange / red streaking, moderately consolidated, roots.				

 ARCADIS		Design & Consultancy for natural and built assets	SITE PHOTOGRAPHS – Detailed Site Investigation	
Client Name Waterbrook Retirement Lifestyle Resorts		Site Location: 2 - 18 Centennial Road, Bowral NSW		Project No. 10025626 – Task 2

Photo No.	Date			
3.	5/3/19			
Description: TP207 – Fill depth 1.5m Located on northern playing field (NPF) Fill Material - Clayey SILT, brown / grey and Clayey Silty GRAVEL, brown, loose, angular gravel. Anthropogenic Material Observed: Brick, sandstone, plastic PACM (see Photo 4.)				

Photo No.	Date			
4.	5/3/19			
Description: TP207 – PACM at 0.5m Located on northern playing field (NPF)				

 ARCADIS		Design & Consultancy for natural and built assets	SITE PHOTOGRAPHS – Detailed Site Investigation	
Client Name Waterbrook Retirement Lifestyle Resorts	Site Location: 2 - 18 Centennial Road, Bowral NSW		Project No. 10025626 – Task 2	

Photo No.	Date	
5.	5/3/19	
Description: TP208 –Reworked material to 2.7m Located on northern playing field (NPF) Reworked material: Silty Sandy GRAVEL - brown, shale boulders to 500mm and Silty CLAY - blue / grey to grey, orange / yellow streaking, medium plasticity, minor sand.		

Photo No.	Date	
6.	5/3/19	
Description: TP209 – Fill depth 0.4m Located on northern playing field (NPF) FILL - Silty Sandy GRAVEL, brown, loose, angular gravel, roots. - Foreign clumps of residual clay throughout Reworked depth: 0.4 – 1.5m Crushed SHALE - brown, extremely weak, structure apparent.		

 ARCADIS		Design & Consultancy for natural and built assets	SITE PHOTOGRAPHS – Detailed Site Investigation	
Client Name Waterbrook Retirement Lifestyle Resorts		Site Location: 2 - 18 Centennial Road, Bowral NSW		Project No. 10025626 – Task 2

Photo No.	Date	
7.	5/3/19	
Description: TP210 – Fill depth 4.0m Located on northern playing field (NPF) – Berm FILL - Silty Sandy GRAVEL, brown, foreign rounded cobbles >150mm, trace clay. Clay lens 0.4-0.6m. FILL - Crushed SHALE, grey, red / orange streaking, large foreign cobbles. Anthropogenic material including bricks <5%. Concrete slab at 1.5m. PACM at 0m (surface) and 2.5m.		

Photo No.	Date	
8.	6/3/19	
Description: TP210 – PACM at surface (0m) Located on northern playing field (NPF) - Berm		

 ARCADIS		Design & Consultancy for natural and built assets	SITE PHOTOGRAPHS – Detailed Site Investigation	
Client Name Waterbrook Retirement Lifestyle Resorts	Site Location: 2 - 18 Centennial Road, Bowral NSW		Project No. 10025626 – Task 2	

Photo No.	Date	
9.	6/3/19	
Description: TP210 – PACM at surface (2.5m) Located on northern playing field (NPF) - Berm		

Photo No.	Date	
10.	6/3/19	
Description: TP214 – Reworked material depth: 2.4m Located on Main Oval (MO) Clayey SILT - brown, roots. Gravelly Clayey SILT - brown / orange, shale gravels.		

 ARCADIS		Design & Consultancy for natural and built assets	SITE PHOTOGRAPHS – Detailed Site Investigation	
Client Name Waterbrook Retirement Lifestyle Resorts	Site Location: 2 - 18 Centennial Road, Bowral NSW		Project No. 10025626 – Task 2	

Photo No.	Date	
11.	6/3/19	
Description: TP215 – Reworked material depth 2.2m Located on Main Oval (MO) Clayey SILT - brown, clumpy, roots. Clayey SILT - brown / orange, red streaking, minor shale gravel, roots.		

Photo No.	Date	
12.	6/3/19	
Description: TP216 – Reworked material depth: 3.2m Located on Main Oval (MO) Clayey SILT - grey / brown, low consolidation, clumpy. Silty Clayey GRAVEL - orange / brown, low consolidation, rounded shale boulders to 300mm. Compacted reworked natural material, homogenous.		

 ARCADIS		Design & Consultancy for natural and built assets	SITE PHOTOGRAPHS – Detailed Site Investigation	
Client Name Waterbrook Retirement Lifestyle Resorts		Site Location: 2 - 18 Centennial Road, Bowral NSW		Project No. 10025626 – Task 2

Photo No.	Date	
13.	6/3/19	
Description: TP217 – Fill depth 0.2m Located on Main Oval (MO) FILL - Clayey SILT, light brown, low consolidation, clumpy, roots. Glass, plastic.		

Photo No.	Date	
14.	6/3/19	
Description: TP218 – Fill depth 0.3m Located on Main Oval (MO) FILL - Clayey SILT, grey / brown, clumpy, roots.		

 ARCADIS		Design & Consultancy for natural and built assets	SITE PHOTOGRAPHS – Detailed Site Investigation	
Client Name Waterbrook Retirement Lifestyle Resorts		Site Location: 2 - 18 Centennial Road, Bowral NSW		Project No. 10025626 – Task 2

Photo No.	Date	
15.	6/3/19	
Description: TP219 – Fill depth 0.3m Located near Amenities Block FILL - Clayey SILT, light brown, clumpy, minor sand / gravel, roots. PACM at 0.1m. Bottlecap, coin, roots.		

Photo No.	Date	
16.	6/3/19	
Description: TP219 – PACM at 0.1 Located near Amenities Block		

 ARCADIS		Design & Consultancy for natural and built assets	SITE PHOTOGRAPHS – Detailed Site Investigation	
Client Name Waterbrook Retirement Lifestyle Resorts	Site Location: 2 - 18 Centennial Road, Bowral NSW		Project No. 10025626 – Task 2	

Photo No.	Date	
17.	6/3/19	
Description: TP220 – Fill depth 0.15m Located near Amenities Block FILL - Clayey SILT, grey / brown, low plasticity, moderate consolidation, roots.		

Photo No.	Date	
18.	6/3/19	
Description: TP224 – Fill depth 0.6m Located Near tennis court FILL - Silty Sandy GRAVEL, brown, angular gravel (foreign and coal). Concrete slab & terracotta pipe encountered close to surface.		

 ARCADIS		Design & Consultancy for natural and built assets	SITE PHOTOGRAPHS – Detailed Site Investigation	
Client Name Waterbrook Retirement Lifestyle Resorts	Site Location: 2 - 18 Centennial Road, Bowral NSW		Project No. 10025626 – Task 2	

Photo No.	Date			
19.	6/3/19			
Description: TP225 – Fill depth 0.5m FILL - Silty GRAVEL, brown, low consolidation, angular shale gravel to 100mm, roots.				

Photo No.	Date			
20.	6/3/19			
Description: TP227 – Fill depth 0.4m Located near western boundary FILL - Sandy Silty GRAVEL, brown, loose. Red bricks present.				

 ARCADIS		Design & Consultancy for natural and built assets	SITE PHOTOGRAPHS – Detailed Site Investigation	
Client Name Waterbrook Retirement Lifestyle Resorts		Site Location: 2 - 18 Centennial Road, Bowral NSW		Project No. 10025626 – Task 2

Photo No.	Date	
21.	6/3/19	
Description: TP246 – Fill depth 0.2m Mound near timber/tree/wood stockpile. Raised approximately 0.1 – 0.2 m. FILL - Clayey SILT, brown, loose, roots. terracotta pipe. PACM at 0.1m		

APPENDIX C TABLES

Table 1: Soil Sampling Locations

Table 2: Rationale for Sampling locations

Table 3: Analytical Results – Health Criteria

Table 4: Analytical Results – Ecological Criteria

Table 5: Analytical Results – Fill Material

Table 6a: Analytical Results – AF/FA Samples

Table 6b: Analytical Results – ACM Samples

Detailed Site Investigation

Table 1: Approximate sampling location coordinates (GDA 1994 -MGA Zone 56)

Sampling Location	Easting	Northing
TP201	262566.4618	6182449.175
TP202	262617.1074	6182435.464
TP203	262656.0162	6182437.718
TP204	262736.594	6182460.441
TP205	262741.5648	6182438.545
TP206	262757.3202	6182450.708
TP207	262771.7672	6182433.77
TP208	262781.066	6182462.216
TP209	262797.0899	6182436.201
TP210	262830.6671	6182451.746
TP212	262936.4672	6182419.939
TP214	262927.9612	6182391.578
TP215	262888.8626	6182383.997
TP216	262917.0114	6182362.858
TP217	262863.6803	6182361.528
TP218	262821.161	6182368.941
TP219	262824.7329	6182392.489
TP220	262804.0125	6182381.92
TP221	262778.1923	6182359.268
TP222	262790.2846	6182336.588
TP223	262745.5903	6182323.453
TP224	262713.0857	6182341.992
TP225	262721.8169	6182377.313
TP226	262653.2595	6182391.274
TP227	262546.3965	6182415.745
TP228	262502.1975	6182377.446
TP229	262566.7593	6182388.785
TP230	262494.436	6182331.998

Detailed Site Investigation

Sampling Location	Easting	Northing
TP231	262537.7624	6182353.669
TP232	262488.981	6182287.052
TP233	262540.4527	6182272.011

Table 2: Rationale for sampling locations.

Sampling Location	Rationale
TP201, TP202	To determine the presence or absence of fill material in a location which is currently vacant (APEC 08) but is understood to have been used for agricultural purposes.
TP227	To determine the presence or absence of fill material, and its quality (from a contamination perspective) to remain on site for the proposed development.
TP203	To determine the presence or absence of fill material in APEC 07, including targeting potential historical infilling material within the reported former well, as well as in a location which is currently vacant, but is understood to have been used for agricultural purposes.
TP204 to TP209	To determine the lateral and vertical extent of known fill material within the NPF (APEC 09), including the former infilled dam, and its quality (from a contamination perspective) to remain on site for the proposed development.
TP210	To determine the vertical extent of known fill material (including PACM with fill material) within the NPF Berm.
TP212, TP214 to TP217	To determine the lateral and vertical extent of known fill material within the MO (APEC 10) and its quality (from a contamination perspective) to remain on site for the proposed development.
TP218 to TP220	To determine the vertical and lateral extent of known fill material used during the construction and levelling of foundations for the Amenities Building.
TP221 to TP223	To determine the presence and extent of any fill material that may have been used for levelling purposes south-west of the Amenities Building.
TP224	To determine the vertical extent and condition of fill materials that have been mounded around the tennis court (APEC 05) during its construction and in the location of the former Merilbah house.
TP225	To determine the vertical extent and condition of fill materials potentially used within the 'Gardens and shrubs' area (APEC 06), as well as to assess fill materials that have been mounded around the tennis court (APEC 05) during its construction and in the location of the former Merilbah house.
TP226	To determine the absence of presence of potential fill materials within APEC 07.
TP228 to TP236	To determine general soil conditions including the presence or absence of fill material through the western portion of the Site, and to satisfy sampling density requirements for the investigation.
TP243 and TP244	To determine the presence or absence of fill materials used for levelling using immediately east of the Site entrance.
TP246	To determine the presence or absence of fill materials within a vegetated fill mound that was observed 60m south-west of the Amenities Building.

Table 3
Soil Analytical Data Table
Health Criteria

	Acid Extractable metals in soil									Asbestos ID - soils	Asbestos ID - soils NEPM - ASB-001				CEC					Clay 50-120g	Misc Inorg - Soil	
	Arsenic	Cadmium	Chromium (III+VI)	Copper	Iron	Lead	Mercury	Nickel	Zinc	Asbestos fibres	Asbestos fibres	Asbestos Detected	Asbestos in soil (<2mm AF/FA)	Asbestos in soil (>7mm ACM)	Exchangeable Calcium	Exchangeable Magnesium	Exchangeable Potassium	Exchangeable Sodium	CEC	Clay in soils <2um	pH (CaCl2)	TOC
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg				% (w/w)	% (w/w)	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	% (w/w)	pH Unit	mg/kg
EQL	4	0.4	1	1	1	1	0.1	1	1			0.1	0.001	0.01	0.1	0.1	0.1	0.1	1			1000
NEPM 2013 Table 1A(1) HILs Res A Soil	100 ^{#1}	20	100	6000		300 ^{#2}	40 ^{#3}	400	7400													
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand																						
0-1m																						
1-2m																						
2-4m																						
>4m																						

Sample ID	Sampled_Date_Time	Matrix_Description	Report	5	<0.4	24	3	-	14	<0.1	3	7	-	-	-	-	-	-	-	-	-	-	-	-
TP201 - 0.1	05-Mar-19	Natural	DSI	7	<0.4	20	4	-	10	<0.1	3	8	-	-	-	-	-	-	-	-	-	-	-	-
TP202 - 0.5	05-Mar-19	Natural	DSI	-	-	-	-	29,000	-	-	-	-	-	-	-	-	0.6	2.6	<0.1	<0.1	3.3	35	4.2	2300
TP203 - 0.1	05-Mar-19	Natural	DSI	<4	<0.4	18	5	-	23	<0.1	4	76	0	-	-	-	-	-	-	-	-	-	-	-
TP203 - 0.8	05-Mar-19	Natural	DSI	<4	<0.4	9	5	-	6	<0.1	2	11	-	-	-	-	-	-	-	-	-	-	-	-
TP204 - 0.1	05-Mar-19	Fill	DSI	<4	<0.4	18	6	-	28	<0.1	5	20	0	-	-	-	-	-	-	-	-	-	-	-
TP204 - 0.5	05-Mar-19	Natural	DSI	7	<0.4	25	11	-	12	0.1	4	13	-	-	-	-	-	-	-	-	-	-	-	-
TP205 - 0.9	05-Mar-19	Natural	DSI	<4	<0.4	5	12	-	14	0.1	<1	5	-	-	-	-	-	-	-	-	-	-	-	-
TP207 - 0.1	05-Mar-19	Fill	DSI	4	<0.4	22	15	-	26	<0.1	14	31	0	-	-	-	-	-	-	-	-	-	-	-
TP207 - 0.5	05-Mar-19	Fill	DSI	<4	<0.4	22	6	-	17	<0.1	5	13	-	0	<0.1	<0.001	<0.01	-	-	-	-	-	-	-
TP207 - 1.6	05-Mar-19	Natural	DSI	5	<0.4	19	6	-	10	<0.1	3	15	-	-	-	-	-	-	-	-	-	-	-	-
TP208 - 0.1	05-Mar-19	Fill (reworked natural)	DSI	<4	<0.4	70	33	-	5	<0.1	62	43	0	-	-	-	-	-	-	-	-	-	-	-
TP208 - 1.5	05-Mar-19	Fill (reworked natural)	DSI	<4	<0.4	53	26	-	16	<0.1	51	40	0	-	-	-	-	-	-	-	-	-	-	-
TP208 - 2.5	05-Mar-19	Fill (reworked natural)	DSI	7	<0.4	12	15	-	23	<0.1	2	10	-	-	-	-	-	-	-	-	-	-	-	-
TP209 - 0.1	05-Mar-19	Fill	DSI	<4	<0.4	71	32	-	7	<0.1	68	43	0	-	-	-	-	-	-	-	-	-	-	-
TP209 - 0.5	05-Mar-19	Fill (reworked natural)	DSI	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-
TP210 - 0.1	06-Mar-19	Fill	DSI	<4	<0.4	77	30	-	6	<0.1	59	41	0	-	-	-	-	-	-	-	-	-	-	-
TP210 - 0.1-0.5	06-Mar-19	Fill	DSI	-	-	-	-	-	-	-	-	-	-	0	<0.1	<0.001	<0.01	-	-	-	-	-	-	-
TP210 - 0.5	06-Mar-19	Fill	DSI	<4	<0.4	93	29	-	7	<0.1	58	46	0	-	-	-	-	-	-	-	-	-	-	-
TP210 - 2	06-Mar-19	Fill	DSI	<4	<0.4	38	24	-	7	<0.1	43	33	0	-	-	-	-	-	-	-	-	-	-	-
TP210 - 2.5	06-Mar-19	Fill	DSI	-	-	-	-	-	-	-	-	-	-	0	<0.1	<0.001	<0.01	-	-	-	-	-	-	-
TP210 - 4	06-Mar-19	Fill	DSI	<4	<0.4	75	27	-	7	<0.1	53	43	0	-	-	-	-	-	-	-	-	-	-	-
TP212 - 0.1	06-Mar-19	Natural	DSI	<4	<0.4	24	6	-	17	<0.1	5	11	-	-	-	-	-	-	-	-	-	-	-	-
TP212 - 0.5	06-Mar-19	Natural	DSI	-	-	-	-	58,000	-	-	-	-	-	-	-	-	0.6	2.7	<0.1	<0.1	3.5	42	4.3	2500
TP214 - 0.1	06-Mar-19	Fill (reworked natural)	DSI	<4	<0.4	16	7	-	17	<0.1	4	16	0	-	-	-	-	-	-	-	-	-	-	-
TP214 - 1	06-Mar-19	Fill (reworked natural)	DSI	<4	<0.4	22	7	-	10	<0.1	4	10	0	-	-	-	-	-	-	-	-	-	-	-
TP214 - 2	06-Mar-19	Fill (reworked natural)	DSI	<4	<0.4	26	9	-	11	<0.1	4	13	0	-	-	-	-	-	-	-	-	-	-	-
TP214 - 2.5	06-Mar-19	Natural	DSI	<4	<0.4	19	9	-	9	<0.1	3	11	-	-	-	-	-	-	-	-	-	-	-	-
TP215 - 0.1	06-Mar-19	Fill (reworked natural)	DSI	<4	<0.4	22	8	-	17	<0.1	9	17	0	-	-	-	-	-	-	-	-	-	-	-
TP215 - 0.5	06-Mar-19	Fill (reworked natural)	DSI	<4	<0.4	24	7	-	12	<0.1	6	16	0	-	-	-	-	-	-	-	-	-	-	-
TP215 - 2.7	06-Mar-19	Natural	DSI	<4	<0.4	25	9	-	11	<0.1	5	11	-	-	-	-	-	-	-	-	-	-	-	-
TP216 - 0.1	06-Mar-19	Fill (reworked natural)	DSI	<4	<0.4	18	7	-	15	<0.1	4	15	0	-	-	-	-	-	-	-	-	-	-	-
TP216 - 1	06-Mar-19	Fill (reworked natural)	DSI	<4	<0.4	25	7	-	11	<0.1	5	10	0	-	-	-	-	-	-	-	-	-	-	-
TP216 - 3	06-Mar-19	Fill (reworked natural)	DSI	5	<0.4	30	9	-	9	<0.1	4	13	0	-	-	-	-	-	-	-	-	-	-	-
TP216 - 3.7	06-Mar-19	Natural	DSI	6	<0.4	26	8	-	10	<0.1	5	15	-	-	-	-	-	-	-	-	-	-	-	-
TP217 - 0.1	06-Mar-19	Fill	DSI	5	<0.4	21	16	-	51	<0.1	7	47	0	-	-	-	-	-	-	-	-	-	-	-
TP217 - 0.5	06-Mar-19	Natural	DSI	<4	<0.4	47	7	-	23	<0.1	6	13	-	-	-	-	-	-	-	-	-	-	-	-
TP218 - 0.1	06-Mar-19	Fill	DSI	<4	<0.4	15	5	-	18	<0.1	4	31	0	-	-	-	-	-	-	-	-	-	-	-
TP218 - 0.5	06-Mar-19	Natural	DSI	<4	<0.4	23	4	-	12	<0.1	5	9	-	-	-	-	-	-	-	-	-	-	-	-
TP219 - 0.1	06-Mar-19	Fill	DSI	<4	<0.4	19	5	-	28	<0.1	4	22	-	0	<0.1	<0.001	<0.01	-	-	-	-	-	-	-
TP219 - 0.5	06-Mar-19	Natural	DSI	<4	<0.4	27	6	-	19	<0.1	7	19	-	-	-	-	-	-	-	-	-	-	-	-
TP220 - 0.1	06-Mar-19	Fill	DSI	<4	<0.4	12	4	-	14	<0.1	3	12	0	-	-	-	-	-	-	-	-	-	-	-
TP221 - 0.1	06-Mar-19	Natural	DSI	<4	<0.4	22	4	-	15	<0.1	4	8	-	-	-	-	-	-	-	-	-	-	-	-
TP222 - 0.1	06-Mar-19	Natural	DSI	<4	<0.4	13	3	-	15	<0.1	3	10	-	-	-	-	-	-	-	-	-	-	-	-
TP222 - 0.5	06-Mar-19	Natural	DSI	-	-	-	-	27,000	-	-	-	-	-	-	-	-	0.1	2.4	0.1	0.18	2.8	37	4.3	2300
TP223 - 0.1	06-Mar-19	Natural	DSI	4	<0.4	12	6	-	18	<0.1	4	13	-	-	-	-	-	-	-	-	-	-	-	-
TP224 - 0.1	06-Mar-19	Fill	DSI	7	<0.4	17	12	-	67	<0.1	5	75	0	-	-	-	-	-	-	-	-	-	-	-
TP224 - 1	06-Mar-19	Natural	DSI	6	<0.4	13	10	-	22	<0.1	2	21	-	-	-	-	-	-	-	-	-	-	-	-
TP225 - 0.1	06-Mar-19	Fill	DSI	<4	<0.4	8	16	-	49	<0.1	4	43	0	-	-	-	-	-	-	-	-	-	-	-
TP226 - 0.1	05-Mar-19	Fill	DSI	6	<0.4	19	14	-	40	0.2	3	32	0	-	-	-	-	-	-	-	-	-	-	-
TP227 - 0.1	05-Mar-19	Fill	DSI	<4	<0.4	12	10	-	17	<0.1	5	42	0	-	-	-	-	-	-	-	-	-	-	-
TP227 - 0.5	05-Mar-19	Natural	DSI	12	<0.4	20	12	-	13	<0.1	2	4	-	-	-	-	-	-	-	-	-	-	-	-
TP228 - 0.5	05-Mar-19	Natural	DSI	<4	<0.4	17	3	-	9	<0.1	3	5	-	-	-	-	-	-	-	-	-	-	-	-
TP229 - 0.1	05-Mar-19	Natural	DSI	<4	<0.4	24	6	-	31	<0.1	5	25	-	-	-	-	-	-	-	-	-	-	-	-
TP229 - 1.0	05-Mar-19	Natural	DSI	6	<0.4	25	6	-	32	<0.1	4	21	-	-	-	-	-	-	-	-	-	-	-	-
TP230 - 0.1	05-Mar-19	Natural	DSI	<4	<0.4	26	5	-	14	<0.1	5	15	0	-	-	-	-	-	-	-	-	-	-	-
TP231 - 0.1	05-Mar-19	Natural	DSI	<4	<0.4	28	5	-	43	<0.1	6	16	-	-	-	-	-	-	-	-	-	-	-	-
TP232 - 0.1	05-Mar-19	Natural	DSI	<4	<0.4	13	5	-	12	<0.1	4	5	-	-	-	-	-	-	-	-	-	-	-	-

Table 3
Soil Analytical Data Table
Health Criteria

	Acid Extractable metals in soil									Asbestos ID - soils	Asbestos ID - soils NEPM - ASB-001				CEC					Clay 50-120g	Misc Inorg - Soil	
	Arsenic	Cadmium	Chromium (III+VI)	Copper	Iron	Lead	Mercury	Nickel	Zinc	Asbestos fibres	Asbestos fibres	Asbestos Detected	Asbestos in soil (<2mm AF/FA)	Asbestos in soil (>7mm ACM)	Exchangeable Calcium	Exchangeable Magnesium	Exchangeable Potassium	Exchangeable Sodium	CEC	Clay in soils <2um	pH (CaCl2)	TOC
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-	-	-	%(w/w)	%(w/w)	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	% (w/w)	pH Unit	mg/kg
EQL	4	0.4	1	1	1	1	0.1	1	1			0.1	0.001	0.01	0.1	0.1	0.1	0.1	1			1000
NEPM 2013 Table 1A(1) HILs Res A Soil	100 ^{#1}	20	100	6000		300 ^{#2}	40 ^{#3}	400	7400													
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand																						
0-1m																						
1-2m																						
2-4m																						
>4m																						

Sample ID	Sampled Date Time	Matrix Description	Report	Arsenic	Cadmium	Chromium (III+VI)	Copper	Iron	Lead	Mercury	Nickel	Zinc	Asbestos fibres	Asbestos fibres	Asbestos Detected	Asbestos in soil (<2mm AF/FA)	Asbestos in soil (>7mm ACM)	Exchangeable Calcium	Exchangeable Magnesium	Exchangeable Potassium	Exchangeable Sodium	CEC	Clay in soils <2um	pH (CaCl2)	TOC
TP233 - 0.5	05-Mar-19	Natural	DSI	5	<0.4	12	15	-	13	<0.1	6	11	-	-	-	-	-	-	-	-	-	-	-	-	-
TP234 - 0.5	05-Mar-19	Natural	DSI	4	<0.4	15	10	-	13	<0.1	5	13	-	-	-	-	-	-	-	-	-	-	-	-	-
TP234 - 1	05-Mar-19	Natural	DSI	-	-	-	-	19,000	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<1	52	4	2500
TP235 - 0.5	05-Mar-19	Natural	DSI	7	<0.4	11	13	-	13	<0.1	4	23	-	-	-	-	-	-	-	-	-	-	-	-	-
TP236 - 0.1	06-Mar-19	Natural	DSI	<4	<0.4	11	8	-	14	<0.1	5	9	0	-	-	-	-	-	-	-	-	-	-	-	-
TP236 - 0.5	06-Mar-19	Natural	DSI	6	<0.4	8	12	-	13	<0.1	1	8	-	-	-	-	-	-	-	-	-	-	-	-	-
TP243 - 0.1	06-Mar-19	Natural	DSI	<4	<0.4	18	6	-	75	<0.1	3	24	0	-	-	-	-	-	-	-	-	-	-	-	-
TP243 - 0.5	06-Mar-19	Natural	DSI	<4	<0.4	28	7	-	14	<0.1	4	9	0	-	-	-	-	-	-	-	-	-	-	-	-
TP244 - 0.1	06-Mar-19	Natural	DSI	<4	<0.4	35	7	-	16	<0.1	4	21	0	-	-	-	-	-	-	-	-	-	-	-	-
TP244 - 0.5	06-Mar-19	Natural	DSI	<4	<0.4	33	10	-	11	<0.1	6	15	0	-	-	-	-	-	-	-	-	-	-	-	-
TP246 - 0.1	06-Mar-19	Fill	DSI	5	<0.4	19	9	-	72	<0.1	8	50	-	0	<0.1	<0.001	<0.01	-	-	-	-	-	-	-	-
TP246 - 0.3	06-Mar-19	Natural	DSI	7	<0.4	22	6	-	19	<0.1	4	12	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary																							
Number of Results	63	63	63	63	4	63	63	63	63	32	5	5	5	5	4	4	4	4	4	4	4	4	
Number of Detects	21	0	63	63	4	63	3	62	63	32	5	0	0	0	3	3	1	1	3	4	4	4	
Minimum Concentration	<4	<0.4	5	3	19000	5	<0.1	<1	4	0	0	<0.1	<0.001	<0.01	<0.1	<0.1	<0.1	<0.1	<1	35	4	2300	
Minimum Detect	4	ND	5	3	19000	5	0.1	1	4	ND	ND	ND	ND	ND	0.1	2.4	0.1	0.18	2.8	35	4	2300	
Maximum Concentration	12	<0.4	93	33	58000	75	0.2	68	76	0	0	<0.1	<0.001	<0.01	0.6	2.7	0.1	0.18	3.5	52	4.3	2500	
Maximum Detect	12	ND	93	33	58000	75	0.2	68	76	ND	ND	ND	ND	ND	0.6	2.7	0.1	0.18	3.5	52	4.3	2500	
Average Concentration	3.3	0.2	25	10	33250	19	0.054	10	21	0	0	0.05	0.0005	0.005	0.34	1.9	0.063	0.083	2.5	42	4.2	2400	
Median Concentration	2	0.2	22	7	28000	14	0.05	4	15	0	0	0.05	0.0005	0.005	0.35	2.5	0.05	0.05	3.05	39.5	4.25	2400	
Standard Deviation	2.1	0	18	7.4	17056	15	0.021	17	16	0	0	0	0	0	0.3	1.3	0.025	0.065	1.4	7.6	0.14	115	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Env Stds Comments

#1: Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe important and should be considered where appropriate (refer Shedule B7).

#2: Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for where 50% bioavailability considered. Site-specific bioavailability should be considered where appropriate.

#3: 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.

#4: PCBs: HIL refers to non-dioxin like PCBs only. Where PCB source is known, or suspected at a site, a site-specific assessment of exposure to all PCBs (inc dioxin like PCBs) should be undertaken

#5: To obtain F2 subtract naphthalene from the >C10 - C16 fraction.

#6: To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.

#7: Derived soil HSL exceeds soil saturation concentraiton

Chromium guidelines correspond to CrVI.

[illegible]

Table 3
Soil Analytical Data Table
Health Criteria



	Misc Soil - Inorg	Moisture	Organochlorine Pesticides in soil																				Organophosphorus Pesticides									
	Phenolics Total	Moisture %	a-BHC	Aldrin	Dieldrin	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	4,4-DDE	DDT	DDT+DDE+DDD	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenitrothion
			mg/kg	% w/wet w	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	5	0.1	100	100	100	100	100	100	100	100	100	100	240000	100	100	100	100	100	100	100	100	100	100	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1A(1) HILs Res A Soil																	10000			6000		10000	300000			160						
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand																																
0-1m																																
1-2m																																
2-4m																																
>4m																																

Sample ID	Sampled_Date_Time	Matrix_Description	Report																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															</

Statistical Summary																																
Number of Results	16	67	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	
Number of Detects	0	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<5	4.5	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Minimum Detect	ND	4.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Maximum Concentration	<5	28	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Maximum Detect	ND	28	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Average Concentration	2.5	13	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Median Concentration	2.5	12	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Standard Deviation	0	4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Env Stds Comments

#1:Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe important and st

#2:Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for where 50% k

#3:Elemental mercury: HIL does not address elemental mercury. a site specific assessment should be

#4:PCBs: HIL refers to non-dioxin like PCBs only. Where PCB source is known, or suspected at a site, i

#5:To obtain F2 subtract napthalene from the >C10 - C16 fraction.

#6:To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.

#7:Derived soil HSL exceeds soil saturation concentraton

Chromium guidelines correspond to CrVI.

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[illegible]

19/03/2019

Table 3
Soil Analytical Data Table
Health Criteria

	-C40) in Soil				vTRH(C6-C10)/BTEXN in Soil									
	C10-C14	C15-C28	C29-C36	>C10 - C40 (sum of total)	C6-C10	>C6-C10 less BTEX (F1)	C6- C9	Benzene	Naphthalene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	50	100	100	50	25	25	25	0.2	1	0.5	1	2	1	1
NEPM 2013 Table 1A(1) HILs Res A Soil														
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand														
0-1m						45 ^{#6}		0.5	3	160	55			40
1-2m						70 ^{#6}		0.5	NL ^{#7}	220	NL ^{#7}			60
2-4m						110 ^{#6}		0.5	NL ^{#7}	310	NL ^{#7}			95
>4m						200 ^{#6}		0.5	NL ^{#7}	540	NL ^{#7}			170

Sample ID	Sampled Date Time	Matrix Description	Report													
TP201 - 0.1	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP202 - 0.5	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP202 - 0.8	05-Mar-19	Natural	DSI	-	-	-	-	-	-	-	-	-	-	-	-	-
TP203 - 0.1	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP203 - 0.8	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP204 - 0.1	05-Mar-19	Fill	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP204 - 0.5	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP205 - 0.9	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP207 - 0.1	05-Mar-19	Fill	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP207 - 0.5	05-Mar-19	Fill	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP207 - 1.6	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP208 - 0.1	05-Mar-19	Fill (reworked natural)	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP208 - 1.5	05-Mar-19	Fill (reworked natural)	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP208 - 2.5	05-Mar-19	Fill (reworked natural)	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP209 - 0.1	05-Mar-19	Fill	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP209 - 0.5	05-Mar-19	Fill (reworked natural)	DSI	-	-	-	-	-	-	-	-	-	-	-	-	-
TP210 - 0.1	06-Mar-19	Fill	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP210 - 0.1-0.5	06-Mar-19	Fill	DSI	-	-	-	-	-	-	-	-	-	-	-	-	-
TP210 - 0.5	06-Mar-19	Fill	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP210 - 2	06-Mar-19	Fill	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP210 - 2.5	06-Mar-19	Fill	DSI	-	-	-	-	-	-	-	-	-	-	-	-	-
TP210 - 4	06-Mar-19	Fill	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP212 - 0.1	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP212 - 0.5	06-Mar-19	Natural	DSI	-	-	-	-	-	-	-	-	-	-	-	-	-
TP214 - 0.1	06-Mar-19	Fill (reworked natural)	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP214 - 1	06-Mar-19	Fill (reworked natural)	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP214 - 2	06-Mar-19	Fill (reworked natural)	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP214 - 2.5	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP215 - 0.1	06-Mar-19	Fill (reworked natural)	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP215 - 0.5	06-Mar-19	Fill (reworked natural)	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP215 - 2.7	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP216 - 0.1	06-Mar-19	Fill (reworked natural)	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP216 - 1	06-Mar-19	Fill (reworked natural)	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP216 - 3	06-Mar-19	Fill (reworked natural)	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP216 - 3.7	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP217 - 0.1	06-Mar-19	Fill	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP217 - 0.5	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP218 - 0.1	06-Mar-19	Fill	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP218 - 0.5	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP219 - 0.1	06-Mar-19	Fill	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP219 - 0.5	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP220 - 0.1	06-Mar-19	Fill	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP221 - 0.1	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP222 - 0.1	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP222 - 0.5	06-Mar-19	Natural	DSI	-	-	-	-	-	-	-	-	-	-	-	-	-
TP223 - 0.1	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP224 - 0.1	06-Mar-19	Fill	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP224 - 1	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP225 - 0.1	06-Mar-19	Fill	DSI	<50	210	<100	270	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP226 - 0.1	05-Mar-19	Fill	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP227 - 0.1	05-Mar-19	Fill	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP227 - 0.5	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP228 - 0.5	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP229 - 0.1	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP229 - 1.0	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP230 - 0.1	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP231 - 0.1	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP232 - 0.1	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1

Table 3
Soil Analytical Data Table
Health Criteria

	-C40) in Soil				vTRH(C6-C10)/BTEXN in Soil									
	C10-C14	C15-C28	C29-C36	>C10 - C40 (Sum of total)	C6-C10	>C6-C10 less BTEX (F1)	C6- C9	Benzene	Naphthalene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	50	100	100	50	25	25	25	0.2	1	0.5	1	2	1	1
NEPM 2013 Table 1A(1) HILs Res A Soil														
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand														
0-1m						45 ^{#6}		0.5	3	160	55			40
1-2m						70 ^{#6}		0.5	NL ^{#7}	220	NL ^{#7}			60
2-4m						110 ^{#6}		0.5	NL ^{#7}	310	NL ^{#7}			95
>4m						200 ^{#6}		0.5	NL ^{#7}	540	NL ^{#7}			170

Sample ID	Sampled Date Time	Matrix Description	Report													
TP233 - 0.5	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP234 - 0.5	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP234 - 1	05-Mar-19	Natural	DSI	-	-	-	-	-	-	-	-	-	-	-	-	-
TP235 - 0.5	05-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP236 - 0.1	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP236 - 0.5	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP243 - 0.1	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP243 - 0.5	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP244 - 0.1	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP244 - 0.5	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP246 - 0.1	06-Mar-19	Fill	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1
TP246 - 0.3	06-Mar-19	Natural	DSI	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1

Statistical Summary																
Number of Results	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Number of Detects	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1	<1	<1
Minimum Detect	ND	210	ND	270	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<50	210	<100	270	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1	<1	<1
Maximum Detect	ND	210	ND	270	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	25	53	50	29	13	13	13	0.1	0.5	0.25	0.5	1	0.5	0.5	0.5	0.5
Median Concentration	25	50	50	25	12.5	12.5	12.5	0.1	0.5	0.25	0.5	1	0.5	0.5	0.5	0.5
Standard Deviation	0	20	0	31	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments
#1:Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe important and sh
#2:Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for where 50% t
#3:Elemental mercury: HIL does not address elemental mercury. a site specific assessment should be
#4:PCBs: HIL refers to non-dioxin like PCBs only. Where PCB source is known, or suspected at a site, i
#5:To obtain F2 subtract napthalene from the >C10 - C16 fraction.
#6:To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.
#7:Derived soil HSL exceeds soil saturation concentraton
Chromium guidelines correspond to CrVI.

[illegible]



ARCADIS	Design & Consultancy for natural and built assets	Acid Extractable metals in soil									CEC					Clay 50-120g	Misc Inorg - Soil		Moisture	Organochlorine Pesticides in soil														
		Arsenic	Cadmium	Chromium (III+VI)	Copper	Iron	Lead	Mercury	Nickel	Zinc	Exchangeable Calcium	Exchangeable Magnesium	Exchangeable Potassium	Exchangeable Sodium	CEC	Clay in soils <2um	pH (CaCl2)	TOC	Moisture %	a-BHC	Aldrin	Dieldrin	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	4,4-DDE	DDT	DDT+DDE+DDD	Endosulfan I	Endosulfan II	Endosulfan sulphate	
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	% (w/w)	pH Unit	mg/kg	% w/wet w	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	
EQL		4	0.4	1	1	1	1	0.1	1	1	0.1	0.1	0.1	0.1	1			1000	0.1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
NEPM 2013 EILs, aged soil, urban residential and public open spaces																																		
0-2m		100		620	80		1100		20	160																		180						
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																																		
0-2m																																		

Location_Code	Sampled_Date_Time	Field_ID	Matrix_Description	SampleComments	-	-	-	-	19,000	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<1	52	4	2500	16	-	-	-	-	-	-	-	-	-	-	-	-	-
TP234 - 1	05-Mar-19	TP234 - 1	Natural	DSI																															
TP235 - 0.5	05-Mar-19	TP235 - 0.5	Natural	DSI	7	<0.4	11	13	-	13	<0.1	4	23	-	-	-	-	-	-	-	-	9.9	-	-	-	-	-	-	-	-	-	-	-	-	-
TP236 - 0.1	06-Mar-19	TP236 - 0.1	Natural	DSI	<4	<0.4	11	8	-	14	<0.1	5	9	-	-	-	-	-	-	-	-	8.9	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TP236 - 0.5	06-Mar-19	TP236 - 0.5	Natural	DSI	6	<0.4	8	12	-	13	<0.1	1	8	-	-	-	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-
TP243 - 0.1	06-Mar-19	TP243 - 0.1	Natural	DSI	<4	<0.4	18	6	-	75	<0.1	3	24	-	-	-	-	-	-	-	-	10	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TP243 - 0.5	06-Mar-19	TP243 - 0.5	Natural	DSI	<4	<0.4	28	7	-	14	<0.1	4	9	-	-	-	-	-	-	-	-	13	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TP244 - 0.1	06-Mar-19	TP244 - 0.1	Natural	DSI	<4	<0.4	35	7	-	16	<0.1	4	21	-	-	-	-	-	-	-	-	7.6	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TP244 - 0.5	06-Mar-19	TP244 - 0.5	Natural	DSI	<4	<0.4	33	10	-	11	<0.1	6	15	-	-	-	-	-	-	-	-	13	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TP246 - 0.1	06-Mar-19	TP246 - 0.1	Fill	DSI	5	<0.4	19	9	-	72	<0.1	8	50	-	-	-	-	-	-	-	-	4.5	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TP246 - 0.3	06-Mar-19	TP246 - 0.3	Natural	DSI	7	<0.4	22	6	-	19	<0.1	4	12	-	-	-	-	-	-	-	-	8.6	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistical Summary																																		
Number of Results	63	63	63	63	4	63	63	63	63	4	4	4	4	4	4	4	4	4	67	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Number of Detects	21	0	63	63	4	63	3	62	63	3	3	1	1	3	4	4	4	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<4	<0.4	5	3	19000	5	<0.1	<1	4	<0.1	<0.1	<0.1	<0.1	<1	35	4	2300	4.5	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
Minimum Detect	4	ND	5	3	19000	5	0.1	1	4	0.1	2.4	0.1	0.18	2.8	35	4	2300	4.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	12	<0.4	93	33	58000	75	0.2	68	76	0.6	2.7	0.1	0.18	3.5	52	4.3	2500	28	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
Maximum Detect	12	ND	93	33	58000	75	0.2	68	76	0.6	2.7	0.1	0.18	3.5	52	4.3	2500	28	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	3.3	0.2	25	10	33250	19	0.054	10	21	0.34	1.9	0.063	0.083	2.5	42	4.2	2400	13	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	
Median Concentration	2	0.2	22	7	28000	14	0.05	4	15	0.35	2.5	0.05	0.05	3.05	39.5	4.25	2400	12	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	
Standard Deviation	2.1	0	18	7.4	17056	15	0.021	17	16	0.3	1.3	0.025	0.065	1.4	7.6	0.14	115	4.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Env Stds Comments

#1:Moderate reliability. To obtain F2 subtract napthalene from the >C10 - C16 fraction.

#2:Moderate reliability. To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.

#3:To obtain F2 subtract napthalene from the >C10 - C16 fraction.

#4:To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.

Chromium EIL criteria applies to CrIII

[illegible]

											Organophosphorus Pesticides										PAHs in Soil															
	Endrin	Endrin aldehyde	γ-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenitrothion	Malathion	Parathion	Ronnel	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ calc (Zero)	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ (LOR)	Benzo(g,h,i)perylene	Benzo(b+j+k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene
	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	100	100	100	100	100	100	100	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.5	0.5	0.5	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 EILs, aged soil, urban residential and public open spaces 0-2m																																				
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil 0-2m																								0.7												

Location_Code	Sampled_Date_Time	Field_ID	Matrix_Description	SampleComments																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													

Statistical Summary																																			
Number of Results	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	2	2	2	0	2	0	2	0	2
Minimum Concentration	<100	<100	<100	<100	<100	<100	<100	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.1	0.4	0.3	ND	0.2	ND	0.1	ND	0.1	
Maximum Concentration	<100	<100	<100	<100	<100	<100	<100	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	0.3	<0.5	<0.5	<0.5	0.3	0.4	0.3	<0.1	0.4	<0.1	0.2	<0.1	
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.3	0.3	ND	ND	ND	0.3	0.4	0.3	ND	0.2
Average Concentration	50	50	50	50	50	50	50	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.056	0.032	0.25	0.25	0.25	0.055	0.11	0.058	0.05	0.058	0.05	0.053	0.05	0.055
Median Concentration	50	50	50	50	50	50	50	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.025	0.25	0.25	0.25	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.036	0.041	0	0	0	0.032	0.053	0.044	0	0.048	0	0.02	0	0.032
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Env Stds Comments

#1:Moderate reliability. To obtain F2 subtract napthalene from the >C10 - C16 fraction.

#2:Moderate reliability. To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.

#3:To obtain F2 subtract napthalene from the >C10 - C16 fraction.

#4:To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.

Chromium EIL criteria applies to CrIII

Soil Analytical Data Table
Ecological Criteria

					svTRH (C10-C40) in Soil										vTRH(C6-C10)/BTEXN in Soil									
					Pyrene	PAHs (Sum of positives)	C10-C16	>C10-C16 less Naphthalene (F2)	C16-C34	C34-C40	C10-C14	C15-C28	C29-C36	>C10 - C40 (Sum of total)	C6-C10	>C6-C10 less BTEX (F1)	C6-C9	Benzene	Naphthalene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.1	0.05	50	50	100	100	50	100	100	50	25	25	25	0.2	1	0.5	1	2	1	1
NEPM 2013 EILs, aged soil, urban residential and public open spaces																			170					
0-2m																								
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																								
0-2m								120 ^{#3}	300	2800						180 ^{#4}		50		85	70			105

Location Code	Sampled Date Time	Field ID	Matrix Description	SampleComments	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP201 - 0.1	05-Mar-19	TP201 - 0.1	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP202 - 0.5	05-Mar-19	TP202 - 0.5	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP202 - 0.8	05-Mar-19	TP202 - 0.8	Natural	DSI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP203 - 0.1	05-Mar-19	TP203 - 0.1	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP203 - 0.8	05-Mar-19	TP203 - 0.8	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP204 - 0.1	05-Mar-19	TP204 - 0.1	Fill	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP204 - 0.5	05-Mar-19	TP204 - 0.5	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP205 - 0.9	05-Mar-19	TP205 - 0.9	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP207 - 0.1	05-Mar-19	TP207 - 0.1	Fill	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP207 - 0.5	05-Mar-19	TP207 - 0.5	Fill	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP207 - 1.6	05-Mar-19	TP207 - 1.6	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP208 - 0.1	05-Mar-19	TP208 - 0.1	Fill (reworked natural)	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP208 - 1.5	05-Mar-19	TP208 - 1.5	Fill (reworked natural)	DSI	0.2	2.2	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP208 - 2.5	05-Mar-19	TP208 - 2.5	Fill (reworked natural)	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP209 - 0.1	05-Mar-19	TP209 - 0.1	Fill	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP209 - 0.5	05-Mar-19	TP209 - 0.5	Fill (reworked natural)	DSI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP210 - 0.1	06-Mar-19	TP210 - 0.1	Fill	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP210 - 0.1-0.5	06-Mar-19	TP210 - 0.1-0.5	Fill	DSI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP210 - 0.5	06-Mar-19	TP210 - 0.5	Fill	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP210 - 2	06-Mar-19	TP210 - 2	Fill	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP210 - 2.5	06-Mar-19	TP210 - 2.5	Fill	DSI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP210 - 4	06-Mar-19	TP210 - 4	Fill	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP212 - 0.1	06-Mar-19	TP212 - 0.1	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP212 - 0.5	06-Mar-19	TP212 - 0.5	Natural	DSI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP214 - 0.1	06-Mar-19	TP214 - 0.1	Fill (reworked natural)	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP214 - 1	06-Mar-19	TP214 - 1	Fill (reworked natural)	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP214 - 2	06-Mar-19	TP214 - 2	Fill (reworked natural)	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP214 - 2.5	06-Mar-19	TP214 - 2.5	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP215 - 0.1	06-Mar-19	TP215 - 0.1	Fill (reworked natural)	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP215 - 0.5	06-Mar-19	TP215 - 0.5	Fill (reworked natural)	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP215 - 2.7	06-Mar-19	TP215 - 2.7	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP216 - 0.1	06-Mar-19	TP216 - 0.1	Fill (reworked natural)	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP216 - 1	06-Mar-19	TP216 - 1	Fill (reworked natural)	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP216 - 3	06-Mar-19	TP216 - 3	Fill (reworked natural)	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP216 - 3.7	06-Mar-19	TP216 - 3.7	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP217 - 0.1	06-Mar-19	TP217 - 0.1	Fill	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1
TP217 - 0.5	06-Mar-19	TP217 - 0.5	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	&												



Design & Consultancy
for natural and
built assets

					svTRH (C10-C40) in Soil										vTRH(C6-C10)/BTEXN in Soil									
	Pyrene	PAHs (Sum of positives)	C10-C16	>C10-C16 less Naphthalene (F2)	C16-C34	C34-C40	C10-C14	C15-C28	C29-C36	>C10 - C40 (Sum of total)	C6-C10	>C6-C10 less BTEX (F1)	C6-C9	Benzene	Naphthalene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total				
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg			
EQL	0.1	0.05	50	50	100	100	50	100	100	50	25	25	25	0.2	1	0.5	1	2	1	1				
NEPM 2013 EILs, aged soil, urban residential and public open spaces																170								
0-2m																								
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil																								
0-2m				120 ^{#3}	300	2800						180 ^{#4}		50		85	70			105				

Location_Code	Sampled_Date_Time	Field_ID	Matrix_Description	SampleComments																	
TP234 - 1	05-Mar-19	TP234 - 1	Natural	DSI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP235 - 0.5	05-Mar-19	TP235 - 0.5	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1
TP236 - 0.1	06-Mar-19	TP236 - 0.1	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1
TP236 - 0.5	06-Mar-19	TP236 - 0.5	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1
TP243 - 0.1	06-Mar-19	TP243 - 0.1	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1
TP243 - 0.5	06-Mar-19	TP243 - 0.5	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1
TP244 - 0.1	06-Mar-19	TP244 - 0.1	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1
TP244 - 0.5	06-Mar-19	TP244 - 0.5	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1
TP246 - 0.1	06-Mar-19	TP246 - 0.1	Fill	DSI	0.4	2.6	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1
TP246 - 0.3	06-Mar-19	TP246 - 0.3	Natural	DSI	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1

Statistical Summary																					
Number of Results	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Number of Detects	2	2	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.1	<0.05	<50	<50	<100	<100	<50	<100	<100	<50	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1	<1
Minimum Detect	0.2	2.2	ND	ND	270	ND	ND	210	ND	270	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	0.4	2.6	<50	<50	270	<100	<50	210	<100	270	<25	<25	<25	<0.2	<1	<0.5	<1	<2	<1	<1	<1
Maximum Detect	0.4	2.6	ND	ND	270	ND	ND	210	ND	270	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.058	0.1	25	25	53	50	25	53	50	29	13	13	13	0.1	0.5	0.25	0.5	1	0.5	0.5	0.5
Median Concentration	0.05	0.025	25	25	50	50	25	50	50	25	12.5	12.5	12.5	0.1	0.5	0.25	0.5	1	0.5	0.5	0.5
Standard Deviation	0.048	0.42	0	0	28	0	0	20	0	31	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments

#1:Moderate reliability. To obtain F2 subtract naphthalene from the >C10 - C16 fraction.

#2:Moderate reliability. To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.

#3:To obtain F2 subtract napthalene from the >C10 - C16 fraction.

#4:To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.

Chromium EIL criteria applies to CrIII

Env Stds Comments

#1: Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe important and should be considered where appropriate (refer Shedule B7).

#2: Lead: HILs A, B, C based on blood lead models (IEUBK & HIL D on adult lead model for where 50% bioavailability considered. Site-specific bioavailability should be considered where appropriate.

#3: 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.

#4: PCBs: HIL refers to non-dioxin like PCBs only. Where PCB source is known, or suspected at a site, a site-specific assessment of exposure to all PCBs (inc dioxin like PCBs) should be undertaken

#5: To obtain F2 subtract naphthalene from the >C10 - C16 fraction.

#6: To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.

#7: Derived soil HSL exceeds soil saturation concentraiton

Env Stds Comments

[illegible]

20/03/2019

Table 5
Soil Analytical Data Table
Fill and Reworked Natural Samples only

	Xylene (m & p)	Xylene (o)	Xylene Total
	mg/kg	mg/kg	mg/kg
EQL	2	1	1
NEPM 2013 Table 1A(1) HILs Res A Soil			
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand			
0-1m			40
1-2m			60
2-4m			95
>4m			170
NEPM 2013 EILs, aged soil, urban residential and public open spaces			
0-2m			
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil			
0-2m			105

Location_Code	Sampled_Date_Time	Field_ID	Matrix_Description	SampleComments			
TP204 - 0.1	05-Mar-19	TP204 - 0.1	Fill	DSI	<2	<1	<1
TP207 - 0.1	05-Mar-19	TP207 - 0.1	Fill	DSI	<2	<1	<1
TP207 - 0.5	05-Mar-19	TP207 - 0.5	Fill	DSI	<2	<1	<1
TP209 - 0.1	05-Mar-19	TP209 - 0.1	Fill	DSI	<2	<1	<1
TP210 - 0.1	06-Mar-19	TP210 - 0.1	Fill	DSI	<2	<1	<1
TP210 - 0.1-0.5	06-Mar-19	TP210 - 0.1-0.5	Fill	DSI	-	-	-
TP210 - 0.5	06-Mar-19	TP210 - 0.5	Fill	DSI	<2	<1	<1
TP210 - 2	06-Mar-19	TP210 - 2	Fill	DSI	<2	<1	<1
TP210 - 2.5	06-Mar-19	TP210 - 2.5	Fill	DSI	-	-	-
TP210 - 4	06-Mar-19	TP210 - 4	Fill	DSI	<2	<1	<1
TP217 - 0.1	06-Mar-19	TP217 - 0.1	Fill	DSI	<2	<1	<1
TP218 - 0.1	06-Mar-19	TP218 - 0.1	Fill	DSI	<2	<1	<1
TP219 - 0.1	06-Mar-19	TP219 - 0.1	Fill	DSI	<2	<1	<1
TP220 - 0.1	06-Mar-19	TP220 - 0.1	Fill	DSI	<2	<1	<1
TP224 - 0.1	06-Mar-19	TP224 - 0.1	Fill	DSI	<2	<1	<1
TP225 - 0.1	06-Mar-19	TP225 - 0.1	Fill	DSI	<2	<1	<1
TP226 - 0.1	05-Mar-19	TP226 - 0.1	Fill	DSI	<2	<1	<1
TP227 - 0.1	05-Mar-19	TP227 - 0.1	Fill	DSI	<2	<1	<1
TP246 - 0.1	06-Mar-19	TP246 - 0.1	Fill	DSI	<2	<1	<1
TP208 - 0.1	05-Mar-19	TP208 - 0.1	Fill (reworked natural)	DSI	<2	<1	<1
TP208 - 1.5	05-Mar-19	TP208 - 1.5	Fill (reworked natural)	DSI	<2	<1	<1
TP208 - 2.5	05-Mar-19	TP208 - 2.5	Fill (reworked natural)	DSI	<2	<1	<1
TP209 - 0.5	05-Mar-19	TP209 - 0.5	Fill (reworked natural)	DSI	-	-	-
TP214 - 0.1	06-Mar-19	TP214 - 0.1	Fill (reworked natural)	DSI	<2	<1	<1
TP214 - 1	06-Mar-19	TP214 - 1	Fill (reworked natural)	DSI	<2	<1	<1
TP214 - 2	06-Mar-19	TP214 - 2	Fill (reworked natural)	DSI	<2	<1	<1
TP215 - 0.1	06-Mar-19	TP215 - 0.1	Fill (reworked natural)	DSI	<2	<1	<1
TP215 - 0.5	06-Mar-19	TP215 - 0.5	Fill (reworked natural)	DSI	<2	<1	<1
TP216 - 0.1	06-Mar-19	TP216 - 0.1	Fill (reworked natural)	DSI	<2	<1	<1
TP216 - 1	06-Mar-19	TP216 - 1	Fill (reworked natural)	DSI	<2	<1	<1
TP216 - 3	06-Mar-19	TP216 - 3	Fill (reworked natural)	DSI	<2	<1	<1

Statistical Summary			
Number of Results	28	28	28
Number of Detects	0	0	0
Minimum Concentration	<2	<1	<1
Minimum Detect	ND	ND	ND
Maximum Concentration	<2	<1	<1
Maximum Detect	ND	ND	ND
Average Concentration	1	0.5	0.5
Median Concentration	1	0.5	0.5
Standard Deviation	0	0	0
Number of Guideline Exceedances	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0

Env Stds Comments
#1:Arsenic: HIL assumes 70% oral bioavailability. Site-specific bioavailability maybe important and should be
#2:Lead: HILs A,B,C based on blood lead models (IEUBK & HIL D on adult lead model for where 50% bioavaila
#3:Elemental mercury: HIL does not address elemental mercury. a site specific assessment should be conside
#4:PCBs: HIL refers to non-dioxin like PCBs only. Where PCB source is known, or suspected at a site, a site-spe
#5:To obtain F2 subtract napthalene from the >C10 - C16 fraction.
#6:To obtain F1 subtract the sum of BTEX concentrations from the C6 - C10 fraction.
#7:Derived soil HSL exceeds soil saturation concentratton

Table 6b
Soil Analytical Data Table
Sieved Samples - WA Method

Asbestos ID - soils NEPM - ASB-001				
	Asbestos fibres	Asbestos Detected	Asbestos in soil (<2mm AF/FA)	Asbestos in soil (>7mm ACM)
	-	-	%(w/w)	%(w/w)
EQL		0.1	0.001	0.01

Report	Sample ID	Sampled_Date_Time	Matrix_Description				
DSI	TP207 - 0.5	05-Mar-19	Fill	0	<0.1	<0.001	<0.01
DSI	TP210 - 0.1-0.5	06-Mar-19	Fill	0	<0.1	<0.001	<0.01
DSI	TP210 - 2.5	06-Mar-19	Fill	0	<0.1	<0.001	<0.01
DSI	TP219 - 0.1	06-Mar-19	Fill	0	<0.1	<0.001	<0.01
DSI	TP246 - 0.1	06-Mar-19	Fill	0	<0.1	<0.001	<0.01

Statistical Summary				
Number of Results	5	5	5	5
Number of Detects	5	0	0	0
Minimum Concentration	0	<0.1	<0.001	<0.01
Minimum Detect	ND	ND	ND	ND
Maximum Concentration	0	<0.1	<0.001	<0.01
Maximum Detect	ND	ND	ND	ND
Average Concentration	0	0.05	0.0005	0.005
Median Concentration	0	0.05	0.0005	0.005
Standard Deviation	0	0	0	0
Number of Guideline Exceedances	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0

Table 6b
Bonded ACM Analytical Data Table

				Asbestos ID - materials
				Asbestos fibres
				-
EQL				

Report	Sample ID	Sampled_Date_Time	Matrix_Description	
DSI	TP207 - 0.5 - PACM	05-Mar-19	Cemented ACM	1 ^{#1}
DSI	TP210 - 0 - PACM	06-Mar-19	Cemented ACM	1 ^{#1}
DSI	TP210 - 2.5 - PACM	06-Mar-19	Cemented ACM	1 ^{#1}
DSI	TP219 - 0.1 - PACM	06-Mar-19	Cemented ACM	1 ^{#1}
DSI	TP246 - 0.1 - PACM	06-Mar-19	Cemented ACM	1 ^{#1}

Statistical Summary

Number of Results	5
Number of Detects	5
Minimum Concentration	1
Minimum Detect	1
Maximum Concentration	1
Maximum Detect	1
Average Concentration	1
Median Concentration	1
Standard Deviation	0
Number of Guideline Exceedances	-
Number of Guideline Exceedances(Detects Only)	-

Data Comments

#1 Chrysotile asbestos detected

APPENDIX D EIL CALCULATIONS



	CEC					Miscellaneous Inorganics		
	Exchangeable Calcium	Exchangeable Magnesium	Exchangeable Potassium	Exchangeable Sodium	CEC	Clay in soils <2um	pH (CaCl2)	TOC
	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	% (w/w)	pH Unit	mg/kg
EQL	0.1	0.1	0.1	0.1	1			1000

Report	Sample ID	Sampled_Date_Time	Matrix_Description								
PSI	HA10 - 0.1	12-Sep-18		5.8	1.3	0.4	<0.1	7.5	15	6.5	36,000
DSI	TP202 - 0.8	05-Mar-19	Natural	0.6	2.6	<0.1	<0.1	3.3	35	4.2	2300
DSI	TP212 - 0.5	06-Mar-19	Natural	0.6	2.7	<0.1	<0.1	3.5	42	4.3	2500
DSI	TP222 - 0.5	06-Mar-19	Natural	0.1	2.4	0.1	0.18	2.8	37	4.3	2300
DSI	TP234 - 1	05-Mar-19	Natural	<0.1	<0.1	<0.1	<0.1	<1	52	4	2500

Statistical Summary

Number of Results	5	5	5	5	5	5	5	5
Number of Detects	4	4	2	1	4	5	5	5
Minimum Concentration	<0.1	<0.1	<0.1	<0.1	<1	15	4	2300
Minimum Detect	0.1	1.3	0.1	0.18	2.8	15	4	2300
Maximum Concentration	5.8	2.7	0.4	0.18	7.5	52	6.5	36000
Maximum Detect	5.8	2.7	0.4	0.18	7.5	52	6.5	36000
Average Concentration	1.4	1.8	0.13	0.076	3.5	36	4.7	9120
Median Concentration	0.6	2.4	0.05	0.05	3.3	37	4.3	2500
Standard Deviation	2.5	1.1	0.15	0.058	2.5	14	1	15027
Number of Guideline Exceedances	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0

Inputs
Select contaminant from list below
As
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	Arsenic generic EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	20	40
Urban residential and open public spaces	50	100
Commercial and industrial	80	160

Inputs
Select contaminant from list below
Cr_III
Below needed to calculate fresh and aged ACLs
Enter % clay (values from 0 to 100%)
36
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
(values from 0 to 50%) to obtain estimate of
7
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
low

Outputs		
Land use	Cr III soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	150	200
Urban residential and open public spaces	320	620
Commercial and industrial	480	1000

Inputs
Select contaminant from list below
Cu
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
3.5
Enter soil pH (calcium chloride method) (values from 1 to 14)
4.7
Enter organic carbon content (%OC) (values from 0 to 50%)
0.912
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
(values from 0 to 50%) to obtain estimate of
7
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
low

Outputs		
Land use	Cu soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	35	40
Urban residential and open public spaces	55	80
Commercial and industrial	70	110

Inputs
Select contaminant from list below
DDT
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	DDT generic EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	3	3
Urban residential and open public spaces	180	180
Commercial and industrial	640	640

Inputs
Select contaminant from list below
Naphthalene
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	Naphthalene generic EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	10	10
Urban residential and open public spaces	170	170
Commercial and industrial	370	370

Inputs
Select contaminant from list below
Ni
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
3.5
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only (values from 0 to 50%) to obtain estimate of
7
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
low

Outputs		
Land use	Ni soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	25	7
Urban residential and open public spaces	30	20
Commercial and industrial	35	30

Inputs
Select contaminant from list below
Pb
Below needed to calculate fresh and aged ACLs
Below needed to calculate fresh and aged ABCs
or for fresh ABCs only
or for aged ABCs only

Outputs		
Land use	Lead generic EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	110	470
Urban residential and open public spaces	270	1100
Commercial and industrial	440	1800

Inputs
Select contaminant from list below
Zn
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
3.5
Enter soil pH (calcium chloride method) (values from 1 to 14)
4.7
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only (values from 0 to 50%) to obtain estimate of
7
or for aged ABCs only
Enter State (or closest State)
NSW
Enter traffic volume (high or low)
low

Outputs		
Land use	Zn soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	40	95
Urban residential and open public spaces	65	160
Commercial and industrial	85	210

Detailed Site Investigation

APPENDIX E TEST PIT LOGS

Test Pit Log



Hole ID. **TP201**
 Project Number: **10025626**
 Hole Depth: **0.70 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262566.46**
 Northing: **6182449.17**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample			Observations / Comments
									PID ppm	ID No.	DUP TRIP	
							<i>Grass surface</i>					
EX		0.1			ML		Clayey SILT - brown, roots.	dry	0.0	TP201_0.1	QA3 QA4	No odour. No staining. No PACM.
		0.2										
		0.300			Natural		Clayey SILT - orange / brown, angular cobble >100-150mm.	dry				No odour. No staining. No PACM.
		0.4			ML				0.0	TP201_0.5		
		0.5										
		0.600			CL		Silty Sandy CLAY - grey streaked red / orange / yellow.	slightly moist				No odour. No staining. No PACM.
		0.7					End of Hole at 0.700 m Target depth.		0.0	TP201_0.7		
		0.8										
		0.9										
		1.0										
		1.1										
		1.2										
		1.3										
		1.4										
		1.5										
		1.6										
		1.7										
		1.8										
		1.9										
		2.0										

Additional Comments

Method

Strike Groundwater Level
 Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



Test Pit Log



Hole ID. **TP202**
 Project Number: **10025626**
 Hole Depth: **0.80 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262617.10**
 Northing: **6182435.46**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1			ML		Clayey SILT - grey / brown, roots.	dry	0.0	TP202_0.1	No odour. No staining. No PACM.
		0.150					Clayey SILT - light brown, orange iron staining, loose, weak rock fragments.	dry			No odour. No staining. No PACM.
		0.2			ML						
		0.3									
		0.4									
		0.5							0.0	TP202_0.5	
		0.600					Sandy SHALE - grey streaked orange / red / yellow, weak rock.	slightly moist			No odour. No staining. No PACM.
		0.7									
		0.8					End of Hole at 0.800 m Target depth.		0.0	TP202_0.8	
		0.9									
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



Log Drawn By: Laurie White
 Contact: laurie.white@reumad.com.au

Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **05/03/2019**
 Date: **12/03/2019**

Test Pit Log



Hole ID. **TP203**
 Project Number: **10025626**
 Hole Depth: **0.80 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262656.01**
 Northing: **6182437.71**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1			ML		Clayey SILT - brown, moderate consolidation, roots, gravels.	dry	0.0	TP203_0.1	No odour. No staining. No PACM.
		0.200					Clayey Sandy SILT - orange / brown, small black angular gravel.	slightly moist			No odour. No staining. No PACM.
		0.3									
		0.4			ML				0.0	TP203_0.5	
		0.5									
		0.6									
		0.700			CL		Sandy Silty CLAY - bleached grey, red / orange / yellow streaking.	slightly moist	0.0	TP203_0.8	No odour. No staining. No PACM.
		0.9					End of Hole at 0.800 m Target depth.				
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



Log Drawn By: Laurie White
 Contact: laurie.white@reumad.com.au

Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **05/03/2019**
 Date: **12/03/2019**

Test Pit Log



Hole ID. **TP204**
 Project Number: **10025626**
 Hole Depth: **0.70 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **6182460.44**
 Northing: **262736.59**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1				Fill	FILL - Clayey Silty GRAVEL, brown / grey, moderately consolidated, shale and sandstone cobbles to 150mm.	dry	0.0	TP204_0.1	No odour. No staining. No PACM. Plastic, glass tile observed at 0.2m.
		0.2							0.0	TP204_0.2	
		0.3									
		0.400									
		0.5			CL	Natural	Silty CLAY - grey, red / orange streaking, low plasticity.	slightly moist	0.0	TP204_0.5	No odour. No staining. No PACM.
		0.600			CL		Sandy Silty CLAY - bleached white, red / orange / brown streaking, fine grained sand.	slightly moist			No odour. No staining. No PACM.
		0.7					End of Hole at 0.700 m Target depth.		0.0	TP204_0.7	
		0.8									
		0.9									
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



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Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **05/03/2019**
 Date: **12/03/2019**

Test Pit Log



Hole ID. **TP205**
 Project Number: **10025626**
 Hole Depth: **0.90 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262741.56**
 Northing: **6182438.54**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.050			ML	Reworked Natural	Clayey SILT - brown / grey, roots.	dry	0.0	TP205_0.1	No odour. No staining. No PACM.
		0.1			ML		Gravelly Clayey SILT - brown, orange / red streaking, moderately consolidated, roots.	dry			No odour. No staining. No PACM.
		0.2				Natural	SHALE - brown / orange, weak shale / gravels.	dry		TP205_0.5	No odour. No staining. No PACM.
		0.300									
		0.4									
		0.5				CL	Silty CLAY - grey, orange red / streaking, minor fine grained sand.	slightly moist		TP205_0.9	No odour. No staining. No PACM.
		0.6									
		0.7									
		0.800									
		1.0					End of Hole at 0.900 m Target depth.				
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



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Logged By: Jack Palma
 Checked By: Tom Keatley

Date: 05/03/2019
 Date: 12/03/2019

Test Pit Log



Hole ID. **TP206**
 Project Number: **10025626**
 Hole Depth: **0.80 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262757.32**
 Northing: **6182450.70**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1			ML		Clayey SILT - grey / brown, roots.	dry	0.0	TP206_0.1	No odour. No staining. No PACM.
		0.150					SHALE - orange / brown, extremely weak, gravels.	dry			No odour. No staining. No PACM.
		0.2									
		0.3									
		0.4									
		0.5									
		0.600							0.0	TP206_0.5	
		0.7			CL		Sandy Silty CLAY - bleached grey, red / orange / yellow streaked.	slightly moist			No odour. No staining. No PACM.
		0.9					End of Hole at 0.800 m Target depth.				
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		

ARCADIS 10025626 BOWRAL.GPJ ES.GDT 12/3/19 12:10:58 PM - drawn by laurie white at www.reumad.com.au



Log Drawn By: Laurie White
 Contact: laurie.white@reumad.com.au

Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **05/03/2019**
 Date: **12/03/2019**

Test Pit Log



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Hole ID. **TP207**
Project Number: **10025626**
Hole Depth: **2.20 m**
Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
Location / Site: **2-18 Centennial Road, Bowral NSW**
Client: **Waterbrook Sim Trust**
Drilling Company: **Ken Coles Excavations Pty Ltd**
Drill Method: **Excavation**

Date: **05/03/2019**
Ground Level : **N/A**
Top of Casing : **N/A**
Easting: **262771.76**
Northing: **6182433.77**
Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							Grass surface				
		0.100					FILL - Clayey SILT, brown / grey.	dry	0.0	TP207_0.1	No odour. No staining. No PACM. Brick.
		0.2					FILL - Clayey Silty GRAVEL, brown, loose, angular gravel.	slightly moist			No odour. No staining. PACM, bricks, sandstone, plastic.
		0.3									
		0.4									
		0.5							0.0	TP207_0.5 TP207_0.5_PACM	
		0.6									
		0.7									
		0.8									
		0.9									
		1.0							0.0	TP207_1.0	
		1.1									
		1.2									
		1.3									
		1.4									
		1.500									
		1.6					Silty CLAY - grey / brown, orange streaked, some black mottling.	slightly moist to wet	0.0	TP207_1.6	No odour. No staining. No PACM.
		1.7									
		1.8									
		1.9									
		2.0									
		2.1									
		2.3					End of Hole at 2.200 m Target depth.				
		2.4									
		2.5									
		2.6									
		2.7									
		2.8									
		2.9									
		3.0									

Additional Comments

Method

▽ Strike Groundwater Level
▽ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		

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Contact: laurie.white@reumad.com.au

Logged By: Jack Palma
Checked By: Tom Keatley

Date: 05/03/2019
Date: 12/03/2019

Test Pit Log



Hole ID. **TP208**
 Project Number: **10025626**
 Hole Depth: **2.70 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262781.06**
 Northing: **6182462.21**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample			Observations / Comments
									PID ppm	ID No.	DUP TRIP	
							<i>Grass surface</i>					
		0.1					Silty Sandy GRAVEL - brown, shale boulders to 500mm.	dry	0.0	TP208_0.1	QA5 QA6	No odour. No staining. No PACM.
		0.2										
		0.3										
		0.4										
		0.5							0.0	TP208_0.5		
		0.6										
		0.7										
		0.8										
		0.9										
		1.0										
		1.1										
		1.2										
		1.3										
		1.4										
		1.5							0.0	TP208_1.5		
		1.6										
		1.7					Silty CLAY - blue / grey to grey, orange / yellow streaking, medium plasticity, minor sand.	wet				Mineral clay odour. No staining. No PACM. Potential old dam base, resembling residual.
		1.8										
		1.9										
		2.0										
		2.1										
		2.2										
		2.3										
		2.4										
		2.5										
		2.6										
		2.7							0.0	TP208_2.5		
		2.8					End of Hole at 2.700 m Target depth.					
		2.9										
		3.0										

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



Log Drawn By: Laurie White
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Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **05/03/2019**
 Date: **12/03/2019**

Test Pit Log



Hole ID. **TP209**
 Project Number: **10025626**
 Hole Depth: **1.60 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262797.08**
 Northing: **6182436.20**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
		0.1				Fill	FILL - Silty Sandy GRAVEL, brown, loose, angular gravel, roots.	dry	0.1	TP209_0.1	No odour. No staining. No PACM. Foreign clumps of residual clay throughout.
		0.2									
		0.3									
		0.400									
		0.5					Crushed SHALE - brown, extremely weak, structure apparent.	dry	0.1	TP209_0.5	No odour. No staining. No PACM.
		0.6									
		0.7									
		0.8									
		0.9									
		1.0							0.1	TP209_1.0	
		1.1									
		1.2									
		1.3									
		1.4									
		1.500									
						CL Nat.	Silty CLAY - dark grey / brown, maroon / orange streaking, extremely weathered gravels throughout.	slightly moist	0.0	TP209_1.5	No odour. No staining. No PACM.
							End of Hole at 1.600 m Target depth.				
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		

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Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **05/03/2019**
 Date: **12/03/2019**

Test Pit Log



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Hole ID. **TP210**
Project Number: **10025626**
Hole Depth: **4.00 m**
Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
Location / Site: **2-18 Centennial Road, Bowral NSW**
Client: **Waterbrook Sim Trust**
Drilling Company: **Ken Coles Excavations Pty Ltd**
Drill Method: **Excavation**

Date: **06/03/2019**
Ground Level : **N/A**
Top of Casing : **N/A**
Easting: **262830.66**
Northing: **6182451.74**
Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							Grass surface			TP210 Surface_PACM	
		0.5					FILL - Silty Sandy GRAVEL, brown, foreign rounded cobbles >150mm, trace clay.	dry	0.1	TP210_0.1	No odour. No staining. PACM. Anthropogenic material including bricks <5%.
		0.700					Clay lens 0.4-0.6m.		0.1	TP210_0.5	
		1.0					FILL - Crushed SHALE, grey, red / orange streaking, large foreign cobbles.		0.0	TP210_1.0	No odour. No staining.
		1.5									
		2.0							0.0	TP210_2.0	Concrete slab at 1.5m.
		2.5									
		3.0							0.0	TP210_2.5 TP210_2.5_PACM	PACM at 2.5m.
		3.5									
							End of Hole at 4.000 m Limit of excavator. Sandstone lens at 4m.		0.0	TP210_4.0	

Additional Comments

Method

▽ Strike Groundwater Level
▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



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Logged By: Jack Palma
Checked By:

Date: 06/03/2019
Date:

Test Pit Log



Hole ID. **TP212**
 Project Number: **10025626**
 Hole Depth: **0.70 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **06/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262936.46**
 Northing: **6182419.93**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							Grass surface				
EX		0.1			ML		Clayey SILT - brown, roots.	dry	0.0	TP212_0.0-0.15 TP212_0.1	No odour. No staining. No PACM.
		0.150									
		0.2			CL	Natural	Silty Sandy CLAY - brown / orange, orange streaked, fine grained sand, becoming bleached with depth.	moist	0.1	TP212_0.5	No odour. No staining. No PACM.
		0.3									
		0.4									
		0.5									
		0.6									
		0.8					End of Hole at 0.700 m Target depth.				
		0.9									
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▼ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



Test Pit Log



Hole ID. **TP214**
 Project Number: **10025626**
 Hole Depth: **2.60 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **06/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262927.96**
 Northing: **6182391.57**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
		0.1			ML		Clayey SILT - brown, roots.	dry	0.0	TP214_0.1	No odour. No staining. No PACM.
		0.2									
		0.300									
		0.4					Gravelly Clayey SILT - brown / orange, shale gravels.	dry	0.0	TP214_0.5	No odour. No staining. No PACM.
		0.5									
		0.6									
		0.7									
		0.8									
		0.9									
		1.0							0.0	TP214_1.0	
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0							0.0	TP214_2.0	
		2.1									
		2.2									
		2.3									
		2.400									
		2.5			GP	Nat.	Sandy Silty GRAVEL - bleached grey, red / orange streaking, fine grained sand.	moist	0.0	TP214_2.5	No odour. No staining. No PACM.
		2.7					End of Hole at 2.600 m Target depth.				
		2.8									
		2.9									
		3.0									

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		

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Log Drawn By: Laurie White
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Logged By: **Jack Palma**
 Checked By:

Date: **06/03/2019**
 Date:

Test Pit Log



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Hole ID. **TP215**
Project Number: **10025626**
Hole Depth: **2.70 m**
Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
Location / Site: **2-18 Centennial Road, Bowral NSW**
Client: **Waterbrook Sim Trust**
Drilling Company: **Ken Coles Excavations Pty Ltd**
Drill Method: **Excavation**

Date: **06/03/2019**
Ground Level : **N/A**
Top of Casing : **N/A**
Easting: **262888.86**
Northing: **6182383.99**
Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							Grass surface				
		0.1			ML		Clayey SILT - brown, clumpy, roots.	dry	0.0	TP215_0.1	No odour. No staining. No PACM.
		0.2									
		0.3									
		0.400									
		0.5					Clayey SILT - brown / orange, red streaking, minor shale gravel, roots.	dry	0.0	TP215_0.5	No odour. No staining. No PACM.
		0.6									
		0.7									
		0.8									
		0.9									
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									
		2.1									
		2.2									
		2.300									
		2.4									
		2.5					Silty Sandy CLAY - bleached grey, red / orange streaking, fine grained sand.	moist			No odour. No staining. No PACM.
		2.6									
		2.7									
		2.8					End of Hole at 2.700 m Target depth.		0.0	TP215_2.7	
		2.9									
		3.0									

Additional Comments

Method

▽ Strike Groundwater Level
▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



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Logged By: Jack Palma
Checked By:

Date: 06/03/2019
Date:

Test Pit Log



Hole ID. **TP216**
 Project Number: **10025626**
 Hole Depth: **3.70 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **06/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262917.01**
 Northing: **6182362.85**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
		0.300			ML		Clayey SILT - grey / brown, low consolidation, clumpy.	dry	0.0	TP216_0.1 TP216_0-0.2	No odour. No staining. No PACM.
		0.5					Silty Clayey GRAVEL - orange / brown, low consolidation, rounded shale boulders to 300mm.	dry to slightly moist	0.0	TP216_0.5	No odour. No staining. No PACM.
		1.0					Compacted reworked natural material, homogenous.		0.0	TP216_1.0	
		1.5									
		2.0							0.0	TP216_2.0	
		2.5									
		3.0							0.0	TP216_3.0	
		3.200									
		3.5			CL	Natural	Silty Sandy CLAY - brown, orange streaked, low plasticity.	dry to slightly moist			No odour. No staining. No PACM.
		4.0					End of Hole at 3.700 m Target depth.		0.0	TP216_3.7	

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		

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Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **06/03/2019**
 Date: **12/03/2019**

Test Pit Log



Hole ID. **TP217**
 Project Number: **10025626**
 Hole Depth: **0.70 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **06/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262863.68**
 Northing: **6182361.52**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample			Observations / Comments
									PID ppm	ID No.	DUP TRIP	
							<i>Grass surface</i>					
EX		0.1				Fill	FILL - Clayey SILT, light brown, low consolidation, clumpy, roots.	dry	0.0	TP217_0.1	QA9 QA10	No odour. No staining. No PACM. Glass, plastic.
		0.200										
		0.3				Natural	SHALE - orange / grey, minor black iron nodules, roots.	dry	0.0	TP217_0.5		No odour. No staining. No PACM.
		0.4										
		0.5										
		0.6										
		0.8					End of Hole at 0.700 m Target depth.					
		0.9										
		1.0										
		1.1										
		1.2										
		1.3										
		1.4										
		1.5										
		1.6										
		1.7										
		1.8										
		1.9										
		2.0										

Additional Comments

Method

Strike Groundwater Level
 Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



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Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **06/03/2019**
 Date: **12/03/2019**

Test Pit Log



Hole ID. **TP218**
 Project Number: **10025626**
 Hole Depth: **0.75 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **06/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262821.16**
 Northing: **6182368.94**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							Grass surface				
Electric Drill Hammer		0.1				Fill	FILL - Clayey SILT, grey / brown, clumpy, roots.	dry	0.0	TP218_0.1 TP218_0.0-0.3	No odour. No staining. No PACM.
		0.2									
		0.300									
		0.4				ML	Clayey SILT - orange / brown, low plasticity, minor sand.	slightly moist	0.0	TP218_0.5	No odour. No staining. No PACM.
		0.5									
		0.6									
		0.700				CL	Sandy Silty CLAY - bleached grey, red / orange streaking, medium plasticity.	slightly moist			No odour. No staining. No PACM.
		0.8					End of Hole at 0.750 m Target depth.				
		0.9									
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



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Logged By: Jack Palma
 Checked By: Tom Keatley

Date: 06/03/2019
 Date: 12/03/2019

Test Pit Log



Hole ID. **TP219**
 Project Number: **10025626**
 Hole Depth: **1.00 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **06/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262824.73**
 Northing: **6182392.48**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
		0.1				FILL	FILL - Clayey SILT, light brown, clumpy, minor sand / gravel, roots.	dry	0.0	TP219_0.1 TP2019_0.1_PACM	No odour. No staining. PACM at 0.1m. Bottlecap, coin, roots.
		0.2									
		0.300									
		0.4				ML	Clayey SILT - orange / brown, low plasticity, low consolidation.	dry	0.0	TP219_0.5	No odour. No staining. No PACM.
		0.5									
		0.6									
		0.7									
		0.8									
		0.9									
		1.0					End of Hole at 1.000 m Target depth.		0.0	TP219_1.0	
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

Strike Groundwater Level
 Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		

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Log Drawn By: **Laurie White**
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Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **06/03/2019**
 Date: **12/03/2019**

Test Pit Log



Hole ID. **TP220**
 Project Number: **10025626**
 Hole Depth: **0.70 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **06/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262804.01**
 Northing: **6182381.92**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1									
		0.150				Fill	FILL - Clayey SILT, grey / brown, low plasticity, moderate consolidation, roots.	dry	0.0	TP220_0.0-0.15 TP220_0.1	No odour. No staining. No PACM.
		0.2					Clayey SILT - orange / brown, low plasticity, low consolidation.	dry to slightly moist			No odour. No staining. No PACM.
		0.3				ML					
		0.4									
		0.5									
		0.600							0.0	TP220_0.5	
						CL	Sandy Silty CLAY - bleached grey, red / orange streaking.	dry to slightly moist			No odour. No staining. No PACM.
							End of Hole at 0.700 m Target depth.				
		0.8									
		0.9									
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



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Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **06/03/2019**
 Date: **12/03/2019**

Test Pit Log



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Hole ID. **TP221**
Project Number: **10025626**
Hole Depth: **0.70 m**
Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
Location / Site: **2-18 Centennial Road, Bowral NSW**
Client: **Waterbrook Sim Trust**
Drilling Company: **Ken Coles Excavations Pty Ltd**
Drill Method: **Excavation**

Date: **06/03/2019**
Ground Level : **N/A**
Top of Casing : **N/A**
Easting: **262778.19**
Northing: **6182359.26**
Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1			ML	Natural	Clayey SILT - light brown, low plasticity, low consolidation, clumpy, roots.	dry	0.0	TP221_0.1	No odour. No staining. No PACM.
		0.200					Clayey SILT - yellow / brown, orange / red streaking, roots.	dry to slightly moist			No odour. No staining. No PACM.
		0.3			ML						
		0.4			ML						
		0.5							0.0	TP221_0.5	
		0.600			CL		Silty CLAY - bleached grey, red / orange streaking, rounded alluvial cobbles to 100mm throughout, minor fine grained sand, becoming shale grey with red / orange staining.	slightly moist			No odour. No staining. No PACM.
		0.8					End of Hole at 0.700 m Target depth.				
		0.9									
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▼ Strike Groundwater Level
▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		

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Logged By: **Jack Palma**
Checked By: **Tom Keatley**

Date: **06/03/2019**
Date: **12/03/2019**

Test Pit Log



Hole ID. **TP222**
 Project Number: **10025626**
 Hole Depth: **0.50 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **06/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262790.28**
 Northing: **6182336.58**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1			ML		Gravelly Clayey SILT - light brown, clumpy, shale gravels.	dry	0.0	TP222_0.1	No odour. No staining. No PACM.
		0.200					SHALE - yellow, extremely weak, minor orange staining, less weathered with depth.	dry			No odour. No staining. No PACM.
		0.3			Natural						
		0.4									
		0.6					End of Hole at 0.500 m Target depth.		0.0	TP222_0.5	
		0.7									
		0.8									
		0.9									
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

Strike Groundwater Level
 Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		

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Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **06/03/2019**
 Date: **12/03/2019**

Test Pit Log



Hole ID. **TP223**
 Project Number: **10025626**
 Hole Depth: **0.60 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **06/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262745.59**
 Northing: **6182323.45**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1			ML		Clayey SILT - light brown, low plasticity, low consolidation, clumpy, roots.	dry	2.8	TP223_0.1	Eucalyptus odour due to roots. No staining. No PACM.
		0.200									
		0.3					Clayey SILT / Weak SHALE - yellow / brown, orange / red streaking, minor fine grained sand.	dry			No odour. No staining. No PACM.
		0.4			ML						
		0.5									
		0.7					End of Hole at 0.600 m Target depth.				
		0.8									
		0.9									
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

Strike Groundwater Level
 Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



Test Pit Log



Hole ID. **TP224**
 Project Number: **10025626**
 Hole Depth: **1.00 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **06/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262713.08**
 Northing: **6182341.99**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample			Observations / Comments
									PID ppm	ID No.	DUP TRIP	
							<i>Grass surface</i>					
EX		0.1				Fill	FILL - Silty Sandy GRAVEL, brown, angular gravel (foreign and coal).	dry	0.0	TP224_0.1	QA7 QA8	No odour. No staining. No PACM. Concrete slab & terracotta pipe encountered close to surface.
		0.2								TP224_0.1-0.5		
		0.3										
		0.4										
		0.5										
		0.600				Natural	SHALE - grey, red / orange streaking, weak, minor fine grained grand.	dry	0.0	TP224_0.6		No odour. No staining. No PACM.
		0.7										
		0.8										
		0.9										
		1.0										
		1.1					End of Hole at 1.000 m Target depth.		0.0	TP224_1.0		
		1.2										
		1.3										
		1.4										
		1.5										
		1.6										
		1.7										
		1.8										
		1.9										
		2.0										

Additional Comments

Method

Strike Groundwater Level
 Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		

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Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **06/03/2019**
 Date: **12/03/2019**

Test Pit Log



Hole ID. **TP225**
 Project Number: **10025626**
 Hole Depth: **0.70 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **06/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262721.81**
 Northing: **6182377.31**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1				FILL	FILL - Silty GRAVEL, brown, low consolidation, angular shale gravel to 100mm, roots.	dry	0.0	TP225_0.1	No odour. No staining. No PACM.
		0.2									
		0.3									
		0.4									
		0.500									
		0.6				CL	CLAY - bleached grey, orange / red streaking, minor fine grained sand.	dry to slightly moist			No odour. No staining. No PACM.
						Natural					
		0.8					End of Hole at 0.700 m Target depth.		0.0	TP225_0.7	
		0.9									
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▼ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



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Logged By: Jack Palma
 Checked By: Tom Keatley

Date: 06/03/2019
 Date: 12/03/2019

Test Pit Log



Hole ID. **TP226**
 Project Number: **10025626**
 Hole Depth: **0.70 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262653.25**
 Northing: **6182391.27**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							Grass surface				
EX		0.1			ML		Gravelly SILT - brown / grey, loose.	dry	0.0	TP226_0.1	No odour. No staining. No PACM.
		0.150									
		0.2					Silty GRAVEL / SHALE - brown / grey, minor orange streaking, becoming brown / orange at 0.4m.	dry to slightly moist			No odour. No staining. No PACM.
		0.3			GP	Natural					
		0.4									
		0.5							0.0	TP226_0.5	
		0.600									
					CL		Silty CLAY - bleached grey, red / orange streaking, low plasticity, minor fine grained sand, weak rock.	dry to slightly moist	0.0	TP226_0.7	No odour. No staining. No PACM.
		0.8					End of Hole at 0.700 m Target depth.				
		0.9									
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



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Logged By: Jack Palma
 Checked By: Tom Keatley

Date: 05/03/2019
 Date: 12/03/2019

Test Pit Log



Hole ID. **TP227**
 Project Number: **10025626**
 Hole Depth: **1.00 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262546.39**
 Northing: **6182415.74**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1				Fill	FILL - Sandy Silty GRAVEL, brown, loose.	dry	0.0	TP227_0.1	No odour. No staining. No PACM. Red bricks present.
		0.2									
		0.3					Silty CLAY - grey, yellow streaking, slight black mottling, low to medium plasticity.	slightly moist	0.0	TP227_0.5	No odour. No staining. No PACM.
		0.400									
		0.5				CL Natural	Silty CLAY - grey, yellow streaking, slight black mottling, low to medium plasticity.	slightly moist	0.0	TP227_0.5	No odour. No staining. No PACM.
		0.6									
		0.7					Silty CLAY - grey, bleached red / orange / yellow streaking, low to medium plasticity.	slightly moist	0.0	TP227_1.0	No odour. No staining. No PACM.
		0.8									
		0.900				CL	Silty CLAY - grey, bleached red / orange / yellow streaking, low to medium plasticity.	slightly moist	0.0	TP227_1.0	No odour. No staining. No PACM.
		0.9									
		1.0					End of Hole at 1.000 m Target depth.				
		1.1									
		1.2					End of Hole at 1.000 m Target depth.				
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		

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Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **05/03/2019**
 Date: **12/03/2019**

Test Pit Log



Hole ID. **TP228**
 Project Number: **10025626**
 Hole Depth: **1.00 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262502.19**
 Northing: **6182377.44**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
		0.1			CL		Silty CLAY - brown, clumpy, roots.	dry	0.0	TP228_0.1	No odour. No staining. No PACM.
		0.150									
		0.2					SHALE in Clayey SILT matrix - brown / orange / red, weak shale.	dry			No odour. No staining. No PACM.
		0.3									
		0.4									
		0.5							0.0	TP228_0.5	
		0.6									
		0.650									
		0.7					Sandy Silty CLAY - grey, bleached, red / orange streaking.	slightly moist			No odour. No staining. No PACM.
		0.8									
		0.9									
		1.0					End of Hole at 1.000 m Target depth.		0.0	TP228_1.0	
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		

ARCADIS 10025626 BOWRAL.GPJ ES.GDT 12/3/19 12:11:21 PM - drawn by laurie white at www.reumad.com.au



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Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **05/03/2019**
 Date: **12/03/2019**

Test Pit Log



Hole ID. **TP229**
 Project Number: **10025626**
 Hole Depth: **1.00 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262566.75**
 Northing: **6182388.78**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							Grass surface				
		0.1			ML		Clayey SILT - brown.	dry	0.0	TP229_0.1	No odour. No staining. No PACM.
		0.150									
		0.2					Silty CLAY - brown, stiff.	dry			No odour. No staining. No PACM.
		0.3									
		0.4			CL						
		0.5							0.0	TP229_0.5	
		0.600									
		0.7					SHALE / Silty CLAY - yellow / white, weak shale, hard gravels.	dry			No odour. No staining. No PACM.
		0.8									
		0.9									
		1.0							0.0	TP229_1.0	
		1.1					End of Hole at 1.000 m Target depth.				
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		

ARCADIS 10025626 BOWRAL.GPJ ES.GDT 12/3/19 12:11:22 PM - drawn by laurie white at www.reumad.com.au



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Logged By: Jack Palma
 Checked By: Tom Keatley

Date: 05/03/2019
 Date: 12/03/2019

Test Pit Log



Hole ID. **TP230**
 Project Number: **10025626**
 Hole Depth: **1.00 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262494.43**
 Northing: **6182331.99**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1			CL	Natural	Silty CLAY - brown, clumpy, roots.	dry	0.0	TP230_0.1	No odour. No staining. No PACM.
		0.150					Sandy Silty CLAY - orange, low plasticity, lenses of high plasticity.	slightly moist			No odour. No staining. No PACM.
		0.2			CL						
		0.3			CL				0.0	TP230_0.5	
		0.4									
		0.5									
		0.6									
		0.700					Sandy Silty CLAY - grey, bleached, red / orange streaking.	slightly moist			No odour. No staining. No PACM.
		0.8			CL						
		0.9									
		1.1					End of Hole at 1.000 m Target depth.		0.0	TP230_1.0	
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		

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Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **05/03/2019**
 Date: **12/03/2019**

Test Pit Log



Hole ID. **TP231**
 Project Number: **10025626**
 Hole Depth: **1.00 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262537.76**
 Northing: **6182353.66**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
		0.1			CL		Silty CLAY - brown, clumpy, roots.	dry	0.0	TP231_0.1	No odour. No staining. No PACM.
		0.150									
		0.2					Silty Sandy CLAY - orange, low to medium plasticity.	dry			No odour. No staining. No PACM.
		0.3									
		0.4									
		0.5			CL	Natural			0.0	TP231_0.5	
		0.6									
		0.7									
		0.800									
		0.9			CL		Silty CLAY - grey, bleached, red / orange streaking.	slightly moist			No odour. No staining. No PACM.
		1.1					End of Hole at 1.000 m Target depth.		0.0	TP231_1.0	
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▼ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		

ARCADIS 10025626 BOWRAL.GPJ ES.GDT 12/3/19 12:11:24 PM - drawn by laurie white at www.reumad.com.au



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Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **05/03/2019**
 Date: **12/03/2019**

Test Pit Log



Hole ID. **TP232**
 Project Number: **10025626**
 Hole Depth: **0.80 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262488.98**
 Northing: **6182287.05**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample			Observations / Comments
									PID ppm	ID No.	DUP TRIP	
							<i>Grass surface</i>					
EX		0.1			CL	Natural	Silty CLAY - brown, clumpy, roots.	dry	0.0	TP232_0.1	QA1 QA2	No odour. No staining. No PACM.
		0.2										
		0.300										
		0.4			CL	Natural	Silty CLAY - brown / orange.	dry	0.0	TP232_0.5		No odour. No staining. No PACM.
		0.5										
		0.600										
		0.7			CL		Silty CLAY - grey, red / orange streaking.	slightly moist	0.0	TP232_0.8		No odour. No staining. No PACM.
		0.8					End of Hole at 0.800 m Target depth.					
		0.9										
		1.0										
		1.1										
		1.2										
		1.3										
		1.4										
		1.5										
		1.6										
		1.7										
		1.8										
		1.9										
		2.0										

Additional Comments

Method

▼ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



Log Drawn By: Laurie White
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Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **05/03/2019**
 Date: **12/03/2019**

Test Pit Log



Hole ID. **TP233**
 Project Number: **10025626**
 Hole Depth: **0.80 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **6182272.01**
 Northing: **262540.45**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1			CL	Natural	Silty CLAY - brown, clumpy, roots.	dry	0.0	TP233_0.1	No odour. No staining. No PACM.
		0.2									
		0.3									
		0.400									
		0.5			CL		Silty CLAY - brown / orange.	dry	0.0	TP233_0.5	No odour. No staining. No PACM.
		0.6									
		0.650									
		0.7			CL		SHALE / Silty CLAY - grey / brown, orange / red streaking, extremely weak, slaty.	dry			No odour. No staining. No PACM.
		0.8					End of Hole at 0.800 m Target depth.		0.0	TP233_0.8	
		0.9									
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▼ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



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Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **05/03/2019**
 Date: **12/03/2019**

Test Pit Log



Hole ID. **TP234**
 Project Number: **10025626**
 Hole Depth: **1.00 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262488.32**
 Northing: **6182239.64**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1			CL		Silty CLAY - brown, clumpy, roots.	dry	0.1	TP234_0.1	No odour. No staining. No PACM.
		0.2									
		0.3									
		0.350									
		0.4					Silty CLAY - brown / orange, red / orange streaking.	dry	0.0	TP234_0.5	No odour. No staining. No PACM.
		0.5									
		0.6			CL	Natural					
		0.7									
		0.800									
		0.9			CL		Silty CLAY - brown / orange, red / orange streaking, weathered shale.	dry			No odour. No staining. No PACM.
		1.1					End of Hole at 1.000 m Target depth.		0.0	TP234_1.0	
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▼ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		

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Logged By: Jack Palma
 Checked By: Tom Keatley

Date: 05/03/2019
 Date: 12/03/2019

Test Pit Log



Hole ID. **TP235**
 Project Number: **10025626**
 Hole Depth: **0.50 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **05/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262515.89**
 Northing: **6182205.53**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1			CL	Natural	Silty CLAY - brown, some consolidation, low plasticity, roots.	dry	0.0	TP235_0.1	No odour. No staining. No PACM.
		0.200					SHALE - orange / brown, extremely weak, with silty clay, bleaching, iron staining present, roots.	dry			No odour. No staining. No PACM.
		0.3					End of Hole at 0.500 m Target depth.		0.0	TP235_0.5	
		0.4									
		0.6									
		0.7									
		0.8									
		0.9									
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▼ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



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Logged By: **Jack Palma**
 Checked By: **Tom Keatley**

Date: **05/03/2019**
 Date: **12/03/2019**

Test Pit Log



Hole ID. **TP236**
 Project Number: **10025626**
 Hole Depth: **0.70 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **06/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262471.23**
 Northing: **6182183.14**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1			ML		Clayey SILT - blue / grey, low plasticity, low consolidation, roots.	dry	0.0	TP236_0.1	No odour. No staining. No PACM.
		0.200									
		0.3			GP	Natural	Clayey Silty GRAVEL - light brown, loose, shale gravel / cobbles to 200mm.	dry			No odour. No staining. No PACM.
		0.4									
		0.5							0.0	TP236_0.5	
		0.600			CL		Sandy Silty CLAY / SHALE - bleached, orange / red streaking, fine grained sand.	dry to slightly moist			No odour. No staining. No PACM.
		0.8					End of Hole at 0.700 m Target depth.				
		0.9									
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



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Logged By: **Jack Palma**
 Checked By:

Date: **06/03/2019**
 Date:

Test Pit Log



Hole ID. **TP243**
 Project Number: **10025626**
 Hole Depth: **0.70 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **06/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262935.52**
 Northing: **6182458.61**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1			ML	Natural	Clayey SILT - brown, clumpy, roots.	dry	0.6	TP243_0.0-0.3 TP243_0.1	No odour. No staining. No PACM.
		0.2									
		0.3									
		0.400									
		0.5			CL		Silty CLAY - brown / orange, red / orange streaking.	slightly moist	0.0	TP243_0.5	No odour. No staining. No PACM.
		0.6									
		0.7									
		0.8					End of Hole at 0.700 m Target depth.				
		0.9									
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▼ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



Log Drawn By: Laurie White
 Contact: laurie.white@reumad.com.au

Logged By: **Jack Palma**
 Checked By:

Date: **06/03/2019**
 Date:

Test Pit Log



Hole ID. **TP244**
 Project Number: **10025626**
 Hole Depth: **0.80 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **06/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262962.56**
 Northing: **6182439.09**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							<i>Grass surface</i>				
EX		0.1			ML		Clayey SILT - light brown, roots.	dry	0.0	TP244_0.1	No odour. No staining. No PACM.
		0.2									
		0.300									
		0.4			Natural		Silty CLAY - brown / orange, low plasticity, trace fine grained quartz sand, roots.	slightly moist	0.0	TP244_0.5	No odour. No staining. No PACM.
		0.5									
		0.6			CL						
		0.7									
		0.9					End of Hole at 0.800 m Target depth.				
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▽ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



Test Pit Log



Hole ID. **TP246**
 Project Number: **10025626**
 Hole Depth: **0.30 m**
 Sheet: **1 of 1**

Project Name: **Waterbrook Bowral - Detailed Site Investigation**
 Location / Site: **2-18 Centennial Road, Bowral NSW**
 Client: **Waterbrook Sim Trust**
 Drilling Company: **Ken Coles Excavations Pty Ltd**
 Drill Method: **Excavation**

Date: **06/03/2019**
 Ground Level : **N/A**
 Top of Casing : **N/A**
 Easting: **262789.26**
 Northing: **6182327.80**
 Zone: **MGA GDA 1994 Zone 56**

Method	Water Level	Depth (mbgl)	RL (mAHD)	Graphic Log	USCS Symbol	Material Type	Material Description	Moisture	Sample		Observations / Comments
									PID ppm	ID No.	
							Grass surface				
EX		0.1				Fill	FILL - Clayey SILT, brown, loose, roots.	dry	0.0	TP246_0.1 TP246_0.1_PACM	No odour. No staining. No PACM. Bricks, terracotta pipe.
		0.200			CL	Nat.	Silty CLAY - brown / yellow.	cry			No odour. No staining. No PACM.
							End of Hole at 0.300 m Target depth.				
		0.4									
		0.5									
		0.6									
		0.7									
		0.8									
		0.9									
		1.0									
		1.1									
		1.2									
		1.3									
		1.4									
		1.5									
		1.6									
		1.7									
		1.8									
		1.9									
		2.0									

Additional Comments

Method

▼ Strike Groundwater Level
 ▼ Static Groundwater Level

HA	Hand Auger	MR	Mud Rotary
CC	Concrete Corer	PT	Push Tube
CB	Concrete Breaker	AH	Air Hammer
SFA	Solid Flight Auger	EX	Excavator
HFA	Hollow Flight Auger	DC	Diamond Coring
SPT	Standard Penetrometer Test	WB	Wash Bore
PCD	Polycrystalline Diamond		



Log Drawn By: Laurie White
 Contact: laurie.white@reumad.com.au

Logged By: Jack Palma
 Checked By:

Date: 06/03/2019
 Date:

Detailed Site Investigation

APPENDIX F LABORATORY CERTIFICATES

JARS - small spec bag
NEM - material
Fm bag

CHAIN OF CUSTODY - Client

ENVIROLAB SERVICES



Client: Arcadis Canberra Project Mg Ryan Wells	Client Project Name and Number: 10025626 - task 2	Envirolab Services 12 Ashley St, Chatswood, NSW, 2067
Sampler: Jack Palma / Tom Keatley	PO No.: Envirolab Services 18SY347v3	Phone: 02 9910 6200 Fax: 02 9910 6201 E-mail:
Address: Level 16, 580 George Street, Sydney 2000	Date results required: Or choose: standard / 1 day / 2 day / 3 day	
Email: ryan.wells@arcadis.com, tom.keatley@arcadis.com,	Note: Inform lab in advance if urgent turnaround is required - surcharge applies	
Phone: (02) 8907 9000 Fax:	Contact: Aileen Hie	213142

Sample information			Tests Required								Comments		Type		
Envirolab Sample ID	Client Sample ID	Date sampled	Type of sample	NEM 2013 Soil Character	Combination 3 (water)	Combination 3	Combination 6a	Combination 8a	NEM Asbestos (FA/AF)	Asbestos ID	ALS - S26 Suite	ALS - S19 Suite	Combination 8a (Silica gel)	Combination 3 (Silica Gel)	
1	TP201 - 0.1	05/03/2019	Soil			X									N
2	TP201 - 0.5	05/03/2019	Soil												N
3	TP201 - 0.7	05/03/2019	Soil												N
4	TP202 - 0.1	05/03/2019	Soil												N
5	TP202 - 0.5	05/03/2019	Soil			X									N
6	TP202 - 0.8	05/03/2019	Soil	X				X							N
7	TP203 - 0.1	05/03/2019	Soil												N
8	TP203 - 0.5	05/03/2019	Soil			X									N
9	TP203 - 0.8	05/03/2019	Soil			X									N
10	TP204 - 0.1	05/03/2019	Soil												N
11	TP204 - 0.2	05/03/2019	Soil				X								F
12	TP204 - 0.5	05/03/2019	Soil												F
13	TP204 - 0.7	05/03/2019	Soil			X									N
14	TP205 - 0.1	05/03/2019	Soil												RN
15	TP205 - 0.5	05/03/2019	Soil												N

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



Job No: 213142
Date Received: 8/3/2019
Time Received: 14.20
Received by: R
Temp: Cool Ambient
Cooling: Icepack
Security: intact/Broken/None

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

Job No: 213142
Date Received: 8/3/2019
Time Received: 14:30
Received by: R
Temp: Cool Ambient
Cooling: Ice/Spack
Security: Intact/Broken/None

Bulk bag provided
Sieved bag provided.

Sieved bag provided.

[illegible]

[illegible]

218142
8/3/18

[illegible]

R2 8/3/2019 213142

TP227	- 0.1 W A	x 2	250 m L JAR
TP246	- 0.1 - 0.2	x 1	NED m BAG
		x 1	^{S.M.W.} - greens BAG
		x 1	^{S.M.W.} - spears BAG
134 TP209	- 2.5		
135 TP146	- 0.5		
136 TP2 ²⁴	- 0.2	x 1	250 m L JAR
137 TP216	- 2.7	x 1	250 m L JAR
138 TP246	- 0.5	x 1	250 m L JAR

x1	250ml	DAR
x1	250ml	DAR
x1	250ml	DAR

Extra]

CERTIFICATE OF ANALYSIS 213142

Client Details

Client	Arcadis Australia Pacific Pty Ltd
Attention	Tom Keatley, Jack Palma, Ryan Wells
Address	Level 16, 580 George St, Sydney, NSW, 2000

Sample Details

Your Reference	<u>10025626 - task 2</u>
Number of Samples	128 Soil, 5 Material, 1 Water
Date samples received	08/03/2019
Date completed instructions received	12/03/2000

Analysis Details

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

Report Details

Date results requested by	19/03/2019
Date of Issue	19/03/2019
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Asbestos Approved By

Analysed by Asbestos Approved Identifier: Wonnie Condos
 Authorised by Asbestos Approved Signatory: Matt Tang

Results Approved By

Giovanni Agosti, Group Technical Manager
 Jeremy Faircloth, Operations Manager, Sydney
 Lucy Zhu, Senior Asbestos Analyst
 Matthew Tang, Asbestos Supervisor
 Nancy Zhang, Laboratory Manager, Sydney
 Nick Sarlamis, Inorganics Supervisor
 Steven Luong, Organics Supervisor

Authorised By



Jacinta Hurst, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil

Our Reference		213142-1	213142-5	213142-7	213142-9	213142-10
Your Reference	UNITS	TP201 - 0.1	TP202 - 0.5	TP203 - 0.1	TP203 - 0.8	TP204 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	18/03/2019	18/03/2019	18/03/2019	18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	87	86	84	86	91

vTRH(C6-C10)/BTEXN in Soil

Our Reference		213142-12	213142-16	213142-19	213142-20	213142-23
Your Reference	UNITS	TP204 - 0.5	TP205 - 0.9	TP207 - 0.1	TP207 - 0.5	TP207 - 1.6
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	18/03/2019	18/03/2019	18/03/2019	18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	87	89	87	84

vTRH(C6-C10)/BTEXN in Soil

Our Reference		213142-24	213142-26	213142-27	213142-28	213142-32
Your Reference	UNITS	TP208 - 0.1	TP208 - 1.5	TP208 - 2.5	TP209 - 0.1	TP210 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	18/03/2019	18/03/2019	18/03/2019	18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	90	87	86	89	90

vTRH(C6-C10)/BTEXN in Soil

Our Reference		213142-34	213142-36	213142-40	213142-42	213142-45
Your Reference	UNITS	TP210 - 0.5	TP210 - 2	TP210 - 4	TP212 - 0.1	TP214 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	18/03/2019	18/03/2019	18/03/2019	18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	90	86	88	88

vTRH(C6-C10)/BTEXN in Soil

Our Reference		213142-47	213142-48	213142-49	213142-51	213142-52
Your Reference	UNITS	TP214 - 1	TP214 - 2	TP214 - 2.5	TP215 - 0.1	TP215 - 0.5
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	18/03/2019	18/03/2019	18/03/2019	18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	85	80	87	86

vTRH(C6-C10)/BTEXN in Soil

Our Reference		213142-54	213142-56	213142-58	213142-60	213142-61
Your Reference	UNITS	TP215 - 2.7	TP216 - 0.1	TP216 - 1	TP216 - 3	TP216 - 3.7
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	18/03/2019	18/03/2019	18/03/2019	18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	88	86	88	85	85

vTRH(C6-C10)/BTEXN in Soil

Our Reference		213142-63	213142-64	213142-65	213142-67	213142-68
Your Reference	UNITS	TP217 - 0.1	TP217 - 0.5	TP218 - 0.1	TP218 - 0.5	TP219 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	18/03/2019	18/03/2019	18/03/2019	18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	88	86	87	88	89

vTRH(C6-C10)/BTEXN in Soil

Our Reference		213142-70	213142-72	213142-75	213142-77	213142-79
Your Reference	UNITS	TP219 - 0.5	TP220 - 0.1	TP221 - 0.1	TP222 - 0.1	TP223 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	18/03/2019	18/03/2019	18/03/2019	18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	91	86	88	89	88

vTRH(C6-C10)/BTEXN in Soil

Our Reference		213142-81	213142-84	213142-85	213142-88	213142-91
Your Reference	UNITS	TP224 - 0.1	TP224 - 1	TP225 - 0.1	TP226 - 0.1	TP227 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	18/03/2019	18/03/2019	18/03/2019	18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	87	86	87	88	86

vTRH(C6-C10)/BTEXN in Soil

Our Reference		213142-92	213142-95	213142-97	213142-99	213142-100
Your Reference	UNITS	TP227 - 0.5	TP228 - 0.5	TP229 - 0.1	TP229 - 1.0	TP230 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	18/03/2019	18/03/2019	18/03/2019	18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	81	85	83	82	82

vTRH(C6-C10)/BTEXN in Soil

Our Reference		213142-103	213142-106	213142-110	213142-114	213142-117
Your Reference	UNITS	TP231 - 0.1	TP232 - 0.1	TP233 - 0.5	TP234 - 0.5	TP235 - 0.5
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	18/03/2019	18/03/2019	18/03/2019	18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	85	84	80	87

vTRH(C6-C10)/BTEXN in Soil

Our Reference		213142-118	213142-119	213142-120	213142-121	213142-123
Your Reference	UNITS	TP236 - 0.1	TP236 - 0.5	TP243 - 0.1	TP243 - 0.5	TP244 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	18/03/2019	18/03/2019	18/03/2019	18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	86	86	87	87

vTRH(C6-C10)/BTEXN in Soil

Our Reference		213142-124	213142-125	213142-127	213142-128	213142-129
Your Reference	UNITS	TP244 - 0.5	TP246 - 0.1	TP246 - 0.3	QA1	QA3
Date Sampled		06/03/2019	06/03/2019	06/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	18/03/2019	18/03/2019	18/03/2019	18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	84	84	87	81	88

vTRH(C6-C10)/BTEXN in Soil

Our Reference		213142-130	213142-131	213142-132
Your Reference	UNITS	QA5	QA7	QA9
Date Sampled		05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	18/03/2019	18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	86	87

svTRH (C10-C40) in Soil						
Our Reference		213142-1	213142-5	213142-7	213142-9	213142-10
Your Reference	UNITS	TP201 - 0.1	TP202 - 0.5	TP203 - 0.1	TP203 - 0.8	TP204 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019	16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	101	98	101	99	101

svTRH (C10-C40) in Soil						
Our Reference		213142-12	213142-16	213142-19	213142-20	213142-23
Your Reference	UNITS	TP204 - 0.5	TP205 - 0.9	TP207 - 0.1	TP207 - 0.5	TP207 - 1.6
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019	16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	99	99	102	100	99

svTRH (C10-C40) in Soil

Our Reference		213142-24	213142-26	213142-27	213142-28	213142-32
Your Reference	UNITS	TP208 - 0.1	TP208 - 1.5	TP208 - 2.5	TP209 - 0.1	TP210 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019	16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	101	100	99	101	100

svTRH (C10-C40) in Soil

Our Reference		213142-34	213142-36	213142-40	213142-42	213142-45
Your Reference	UNITS	TP210 - 0.5	TP210 - 2	TP210 - 4	TP212 - 0.1	TP214 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019	16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	99	98	100	100	99

svTRH (C10-C40) in Soil

Our Reference		213142-47	213142-48	213142-49	213142-51	213142-52
Your Reference	UNITS	TP214 - 1	TP214 - 2	TP214 - 2.5	TP215 - 0.1	TP215 - 0.5
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019	16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	98	98	97	99	97

svTRH (C10-C40) in Soil

Our Reference		213142-54	213142-56	213142-58	213142-60	213142-61
Your Reference	UNITS	TP215 - 2.7	TP216 - 0.1	TP216 - 1	TP216 - 3	TP216 - 3.7
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019	16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	95	98	98	97	95

svTRH (C10-C40) in Soil

Our Reference		213142-63	213142-64	213142-65	213142-67	213142-68
Your Reference	UNITS	TP217 - 0.1	TP217 - 0.5	TP218 - 0.1	TP218 - 0.5	TP219 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019	16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	97	94	98	96	99

svTRH (C10-C40) in Soil

Our Reference		213142-70	213142-72	213142-75	213142-77	213142-79
Your Reference	UNITS	TP219 - 0.5	TP220 - 0.1	TP221 - 0.1	TP222 - 0.1	TP223 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019	16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	97	90	103	96	101

svTRH (C10-C40) in Soil

Our Reference		213142-81	213142-84	213142-85	213142-88	213142-91
Your Reference	UNITS	TP224 - 0.1	TP224 - 1	TP225 - 0.1	TP226 - 0.1	TP227 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019	16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	210	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	270	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	270	<50	<50
Surrogate o-Terphenyl	%	106	105	118	96	94

svTRH (C10-C40) in Soil

Our Reference		213142-92	213142-95	213142-97	213142-99	213142-100
Your Reference	UNITS	TP227 - 0.5	TP228 - 0.5	TP229 - 0.1	TP229 - 1.0	TP230 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019	16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	106	92	94	103	102

svTRH (C10-C40) in Soil

Our Reference		213142-103	213142-106	213142-110	213142-114	213142-117
Your Reference	UNITS	TP231 - 0.1	TP232 - 0.1	TP233 - 0.5	TP234 - 0.5	TP235 - 0.5
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019	16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	94	93	92	103	91

svTRH (C10-C40) in Soil

Our Reference		213142-118	213142-119	213142-120	213142-121	213142-123
Your Reference	UNITS	TP236 - 0.1	TP236 - 0.5	TP243 - 0.1	TP243 - 0.5	TP244 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019	16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	91	101	106	91	104

svTRH (C10-C40) in Soil

Our Reference		213142-124	213142-125	213142-127	213142-128	213142-129
Your Reference	UNITS	TP244 - 0.5	TP246 - 0.1	TP246 - 0.3	QA1	QA3
Date Sampled		06/03/2019	06/03/2019	06/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019	16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	89	94	93	98	91

svTRH (C10-C40) in Soil

Our Reference		213142-130	213142-131	213142-132
Your Reference	UNITS	QA5	QA7	QA9
Date Sampled		05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	91	93	103

PAHs in Soil						
Our Reference		213142-1	213142-5	213142-7	213142-9	213142-10
Your Reference	UNITS	TP201 - 0.1	TP202 - 0.5	TP203 - 0.1	TP203 - 0.8	TP204 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	130	120	118	117	121

PAHs in Soil						
Our Reference		213142-12	213142-16	213142-19	213142-20	213142-23
Your Reference	UNITS	TP204 - 0.5	TP205 - 0.9	TP207 - 0.1	TP207 - 0.5	TP207 - 1.6
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	116	121	116	124	121

PAHs in Soil						
Our Reference		213142-24	213142-26	213142-27	213142-28	213142-32
Your Reference	UNITS	TP208 - 0.1	TP208 - 1.5	TP208 - 2.5	TP209 - 0.1	TP210 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.4	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.3	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	2.2	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	117	116	119	120	123

PAHs in Soil						
Our Reference		213142-34	213142-36	213142-40	213142-42	213142-45
Your Reference	UNITS	TP210 - 0.5	TP210 - 2	TP210 - 4	TP212 - 0.1	TP214 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	114	122	112	119	119

PAHs in Soil						
Our Reference		213142-47	213142-48	213142-49	213142-51	213142-52
Your Reference	UNITS	TP214 - 1	TP214 - 2	TP214 - 2.5	TP215 - 0.1	TP215 - 0.5
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	117	116	118	116	116

PAHs in Soil						
Our Reference		213142-54	213142-56	213142-58	213142-60	213142-61
Your Reference	UNITS	TP215 - 2.7	TP216 - 0.1	TP216 - 1	TP216 - 3	TP216 - 3.7
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	117	119	117	116	119

PAHs in Soil						
Our Reference		213142-63	213142-64	213142-65	213142-67	213142-68
Your Reference	UNITS	TP217 - 0.1	TP217 - 0.5	TP218 - 0.1	TP218 - 0.5	TP219 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j,k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	120	117	122	118	120

PAHs in Soil						
Our Reference		213142-70	213142-72	213142-75	213142-77	213142-79
Your Reference	UNITS	TP219 - 0.5	TP220 - 0.1	TP221 - 0.1	TP222 - 0.1	TP223 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j,k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	119	119	119	121	120

PAHs in Soil						
Our Reference		213142-81	213142-84	213142-85	213142-88	213142-91
Your Reference	UNITS	TP224 - 0.1	TP224 - 1	TP225 - 0.1	TP226 - 0.1	TP227 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	120	118	122	122	115

PAHs in Soil						
Our Reference		213142-92	213142-95	213142-97	213142-99	213142-100
Your Reference	UNITS	TP227 - 0.5	TP228 - 0.5	TP229 - 0.1	TP229 - 1.0	TP230 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	123	124	119	116	124

PAHs in Soil						
Our Reference		213142-103	213142-106	213142-110	213142-114	213142-117
Your Reference	UNITS	TP231 - 0.1	TP232 - 0.1	TP233 - 0.5	TP234 - 0.5	TP235 - 0.5
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	123	117	116	119	121

PAHs in Soil						
Our Reference		213142-118	213142-119	213142-120	213142-121	213142-123
Your Reference	UNITS	TP236 - 0.1	TP236 - 0.5	TP243 - 0.1	TP243 - 0.5	TP244 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	121	119	120	115	125

PAHs in Soil						
Our Reference		213142-124	213142-125	213142-127	213142-128	213142-129
Your Reference	UNITS	TP244 - 0.5	TP246 - 0.1	TP246 - 0.3	QA1	QA3
Date Sampled		06/03/2019	06/03/2019	06/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.4	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.4	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.4	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.2	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	2.6	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	119	123	124	127	121

PAHs in Soil				
Our Reference		213142-130	213142-131	213142-132
Your Reference	UNITS	QA5	QA7	QA9
Date Sampled		05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	0.1	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	122	119	121

Organochlorine Pesticides in soil						
Our Reference		213142-7	213142-10	213142-19	213142-20	213142-24
Your Reference	UNITS	TP203 - 0.1	TP204 - 0.1	TP207 - 0.1	TP207 - 0.5	TP208 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	97	105	99	99	100

Organochlorine Pesticides in soil						
Our Reference		213142-26	213142-27	213142-28	213142-32	213142-34
Your Reference	UNITS	TP208 - 1.5	TP208 - 2.5	TP209 - 0.1	TP210 - 0.1	TP210 - 0.5
Date Sampled		05/03/2019	05/03/2019	05/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	98	97	97	99	98

Organochlorine Pesticides in soil						
Our Reference		213142-36	213142-40	213142-45	213142-47	213142-48
Your Reference	UNITS	TP210 - 2	TP210 - 4	TP214 - 0.1	TP214 - 1	TP214 - 2
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	96	98	100	96	96

Organochlorine Pesticides in soil						
Our Reference		213142-51	213142-52	213142-56	213142-58	213142-60
Your Reference	UNITS	TP215 - 0.1	TP215 - 0.5	TP216 - 0.1	TP216 - 1	TP216 - 3
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	97	95	96	98	95

Organochlorine Pesticides in soil						
Our Reference		213142-63	213142-65	213142-68	213142-72	213142-81
Your Reference	UNITS	TP217 - 0.1	TP218 - 0.1	TP219 - 0.1	TP220 - 0.1	TP224 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	97	94	97	94	101

Organochlorine Pesticides in soil						
Our Reference		213142-85	213142-88	213142-91	213142-100	213142-118
Your Reference	UNITS	TP225 - 0.1	TP226 - 0.1	TP227 - 0.1	TP230 - 0.1	TP236 - 0.1
Date Sampled		06/03/2019	05/03/2019	05/03/2019	05/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	101	102	96	101	99

Organochlorine Pesticides in soil						
Our Reference		213142-120	213142-121	213142-123	213142-124	213142-125
Your Reference	UNITS	TP243 - 0.1	TP243 - 0.5	TP244 - 0.1	TP244 - 0.5	TP246 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	96	96	99	97

Organochlorine Pesticides in soil				
Our Reference		213142-130	213142-131	213142-132
Your Reference	UNITS	QA5	QA7	QA9
Date Sampled		05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019
HCB	mg/kg	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	98	99	100

Organophosphorus Pesticides						
Our Reference	UNITS	213142-7	213142-10	213142-19	213142-20	213142-24
Your Reference		TP203 - 0.1	TP204 - 0.1	TP207 - 0.1	TP207 - 0.5	TP208 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	97	105	99	99	100

Organophosphorus Pesticides						
Our Reference	UNITS	213142-26	213142-27	213142-28	213142-32	213142-34
Your Reference		TP208 - 1.5	TP208 - 2.5	TP209 - 0.1	TP210 - 0.1	TP210 - 0.5
Date Sampled		05/03/2019	05/03/2019	05/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	98	97	97	99	98

Organophosphorus Pesticides

Our Reference		213142-36	213142-40	213142-45	213142-47	213142-48
Your Reference	UNITS	TP210 - 2	TP210 - 4	TP214 - 0.1	TP214 - 1	TP214 - 2
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	96	98	100	96	96

Organophosphorus Pesticides

Our Reference		213142-51	213142-52	213142-56	213142-58	213142-60
Your Reference	UNITS	TP215 - 0.1	TP215 - 0.5	TP216 - 0.1	TP216 - 1	TP216 - 3
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	97	95	96	98	95

Organophosphorus Pesticides

Our Reference		213142-63	213142-65	213142-68	213142-72	213142-81
Your Reference	UNITS	TP217 - 0.1	TP218 - 0.1	TP219 - 0.1	TP220 - 0.1	TP224 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	97	94	97	94	101

Organophosphorus Pesticides

Our Reference		213142-85	213142-88	213142-91	213142-100	213142-118
Your Reference	UNITS	TP225 - 0.1	TP226 - 0.1	TP227 - 0.1	TP230 - 0.1	TP236 - 0.1
Date Sampled		06/03/2019	05/03/2019	05/03/2019	05/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	101	102	96	101	99

Organophosphorus Pesticides

Our Reference		213142-120	213142-121	213142-123	213142-124	213142-125
Your Reference	UNITS	TP243 - 0.1	TP243 - 0.5	TP244 - 0.1	TP244 - 0.5	TP246 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	94	96	96	99	97

Organophosphorus Pesticides

Our Reference		213142-130	213142-131	213142-132
Your Reference	UNITS	QA5	QA7	QA9
Date Sampled		05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	98	99	100

PCBs in Soil						
Our Reference		213142-7	213142-10	213142-19	213142-20	213142-24
Your Reference	UNITS	TP203 - 0.1	TP204 - 0.1	TP207 - 0.1	TP207 - 0.5	TP208 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	97	105	99	99	100

PCBs in Soil						
Our Reference		213142-26	213142-27	213142-28	213142-32	213142-34
Your Reference	UNITS	TP208 - 1.5	TP208 - 2.5	TP209 - 0.1	TP210 - 0.1	TP210 - 0.5
Date Sampled		05/03/2019	05/03/2019	05/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	98	97	97	99	98

PCBs in Soil						
Our Reference	UNITS	213142-36	213142-40	213142-45	213142-47	213142-48
Your Reference		TP210 - 2	TP210 - 4	TP214 - 0.1	TP214 - 1	TP214 - 2
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	96	98	100	96	96

PCBs in Soil						
Our Reference	UNITS	213142-51	213142-52	213142-56	213142-58	213142-60
Your Reference		TP215 - 0.1	TP215 - 0.5	TP216 - 0.1	TP216 - 1	TP216 - 3
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	97	95	96	98	95

PCBs in Soil						
Our Reference	UNITS	213142-63	213142-65	213142-68	213142-72	213142-81
Your Reference		TP217 - 0.1	TP218 - 0.1	TP219 - 0.1	TP220 - 0.1	TP224 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	97	94	97	94	101

PCBs in Soil						
Our Reference	UNITS	213142-85	213142-88	213142-91	213142-100	213142-118
Your Reference		TP225 - 0.1	TP226 - 0.1	TP227 - 0.1	TP230 - 0.1	TP236 - 0.1
Date Sampled		06/03/2019	05/03/2019	05/03/2019	05/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	101	102	96	101	99

PCBs in Soil						
Our Reference		213142-120	213142-121	213142-123	213142-124	213142-125
Your Reference	UNITS	TP243 - 0.1	TP243 - 0.5	TP244 - 0.1	TP244 - 0.5	TP246 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	94	96	96	99	97

PCBs in Soil				
Our Reference		213142-130	213142-131	213142-132
Your Reference	UNITS	QA5	QA7	QA9
Date Sampled		05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil
Date extracted	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCLMX	%	98	99	100

Misc Soil - Inorg						
Our Reference	UNITS	213142-7	213142-27	213142-32	213142-34	213142-40
Your Reference		TP203 - 0.1	TP208 - 2.5	TP210 - 0.1	TP210 - 0.5	TP210 - 4
Date Sampled		05/03/2019	05/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference	UNITS	213142-45	213142-56	213142-68	213142-72	213142-88
Your Reference		TP214 - 0.1	TP216 - 0.1	TP219 - 0.1	TP220 - 0.1	TP226 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference	UNITS	213142-91	213142-100	213142-118	213142-120	213142-123
Your Reference		TP227 - 0.1	TP230 - 0.1	TP236 - 0.1	TP243 - 0.1	TP244 - 0.1
Date Sampled		05/03/2019	05/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg		
Our Reference	UNITS	213142-125
Your Reference		TP246 - 0.1
Date Sampled		06/03/2019
Type of sample		Soil
Date prepared	-	13/03/2019
Date analysed	-	14/03/2019
Total Phenolics (as Phenol)	mg/kg	<5

Acid Extractable metals in soil

Our Reference		213142-1	213142-5	213142-6	213142-7	213142-9
Your Reference	UNITS	TP201 - 0.1	TP202 - 0.5	TP202 - 0.8	TP203 - 0.1	TP203 - 0.8
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	5	7	[NA]	<4	<4
Cadmium	mg/kg	<0.4	<0.4	[NA]	<0.4	<0.4
Chromium	mg/kg	24	20	[NA]	18	9
Copper	mg/kg	3	4	[NA]	5	5
Lead	mg/kg	14	10	[NA]	23	6
Mercury	mg/kg	<0.1	<0.1	[NA]	<0.1	<0.1
Nickel	mg/kg	3	3	[NA]	4	2
Zinc	mg/kg	7	8	[NA]	76	11
Iron	mg/kg	[NA]	[NA]	29,000	[NA]	[NA]

Acid Extractable metals in soil

Our Reference		213142-10	213142-12	213142-16	213142-19	213142-20
Your Reference	UNITS	TP204 - 0.1	TP204 - 0.5	TP205 - 0.9	TP207 - 0.1	TP207 - 0.5
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	<4	7	<4	4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	18	25	5	22	22
Copper	mg/kg	6	11	12	15	6
Lead	mg/kg	28	12	14	26	17
Mercury	mg/kg	<0.1	0.1	0.1	<0.1	<0.1
Nickel	mg/kg	5	4	<1	14	5
Zinc	mg/kg	20	13	5	31	13

Acid Extractable metals in soil

Our Reference		213142-23	213142-24	213142-26	213142-27	213142-28
Your Reference	UNITS	TP207 - 1.6	TP208 - 0.1	TP208 - 1.5	TP208 - 2.5	TP209 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	5	<4	<4	7	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	19	70	53	12	71
Copper	mg/kg	6	33	26	15	32
Lead	mg/kg	10	5	16	23	7
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	62	51	2	68
Zinc	mg/kg	15	43	40	10	43

Acid Extractable metals in soil

Our Reference		213142-32	213142-34	213142-36	213142-40	213142-42
Your Reference	UNITS	TP210 - 0.1	TP210 - 0.5	TP210 - 2	TP210 - 4	TP212 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	77	93	38	75	24
Copper	mg/kg	30	29	24	27	6
Lead	mg/kg	6	7	7	7	17
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	59	58	43	53	5
Zinc	mg/kg	41	46	33	43	11

Acid Extractable metals in soil

Our Reference		213142-43	213142-45	213142-47	213142-48	213142-49
Your Reference	UNITS	TP212 - 0.5	TP214 - 0.1	TP214 - 1	TP214 - 2	TP214 - 2.5
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	[NA]	<4	<4	<4	<4
Cadmium	mg/kg	[NA]	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	[NA]	16	22	26	19
Copper	mg/kg	[NA]	7	7	9	9
Lead	mg/kg	[NA]	17	10	11	9
Mercury	mg/kg	[NA]	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	[NA]	4	4	4	3
Zinc	mg/kg	[NA]	16	10	13	11
Iron	mg/kg	58,000	[NA]	[NA]	[NA]	[NA]

Acid Extractable metals in soil

Our Reference		213142-51	213142-52	213142-54	213142-56	213142-58
Your Reference	UNITS	TP215 - 0.1	TP215 - 0.5	TP215 - 2.7	TP216 - 0.1	TP216 - 1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	22	24	25	18	25
Copper	mg/kg	8	7	9	7	7
Lead	mg/kg	17	12	11	15	11
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	9	6	5	4	5
Zinc	mg/kg	17	16	11	15	10

Acid Extractable metals in soil

Our Reference		213142-60	213142-61	213142-63	213142-64	213142-65
Your Reference	UNITS	TP216 - 3	TP216 - 3.7	TP217 - 0.1	TP217 - 0.5	TP218 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	5	6	5	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	30	26	21	47	15
Copper	mg/kg	9	8	16	7	5
Lead	mg/kg	9	10	51	23	18
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	5	7	6	4
Zinc	mg/kg	13	15	47	13	31

Acid Extractable metals in soil

Our Reference		213142-67	213142-68	213142-70	213142-72	213142-75
Your Reference	UNITS	TP218 - 0.5	TP219 - 0.1	TP219 - 0.5	TP220 - 0.1	TP221 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	23	19	27	12	22
Copper	mg/kg	4	5	6	4	4
Lead	mg/kg	12	28	19	14	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	4	7	3	4
Zinc	mg/kg	9	22	19	12	8

Acid Extractable metals in soil

Our Reference		213142-77	213142-78	213142-79	213142-81	213142-84
Your Reference	UNITS	TP222 - 0.1	TP222 - 0.5	TP223 - 0.1	TP224 - 0.1	TP224 - 1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	<4	[NA]	4	7	6
Cadmium	mg/kg	<0.4	[NA]	<0.4	<0.4	<0.4
Chromium	mg/kg	13	[NA]	12	17	13
Copper	mg/kg	3	[NA]	6	12	10
Lead	mg/kg	15	[NA]	18	67	22
Mercury	mg/kg	<0.1	[NA]	<0.1	<0.1	<0.1
Nickel	mg/kg	3	[NA]	4	5	2
Zinc	mg/kg	10	[NA]	13	75	21
Iron	mg/kg	[NA]	27,000	[NA]	[NA]	[NA]

Acid Extractable metals in soil

Our Reference		213142-85	213142-88	213142-91	213142-92	213142-95
Your Reference	UNITS	TP225 - 0.1	TP226 - 0.1	TP227 - 0.1	TP227 - 0.5	TP228 - 0.5
Date Sampled		06/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	<4	6	<4	12	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	8	19	12	20	17
Copper	mg/kg	16	14	10	12	3
Lead	mg/kg	49	40	17	13	9
Mercury	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Nickel	mg/kg	4	3	5	2	3
Zinc	mg/kg	43	32	42	4	5

Acid Extractable metals in soil

Our Reference		213142-97	213142-99	213142-100	213142-103	213142-106
Your Reference	UNITS	TP229 - 0.1	TP229 - 1.0	TP230 - 0.1	TP231 - 0.1	TP232 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	<4	6	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	24	25	26	28	13
Copper	mg/kg	6	6	5	5	5
Lead	mg/kg	31	32	14	43	12
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	4	5	6	4
Zinc	mg/kg	25	21	15	16	5

Acid Extractable metals in soil

Our Reference		213142-110	213142-114	213142-115	213142-117	213142-118
Your Reference	UNITS	TP233 - 0.5	TP234 - 0.5	TP234 - 1	TP235 - 0.5	TP236 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	5	4	[NA]	7	<4
Cadmium	mg/kg	<0.4	<0.4	[NA]	<0.4	<0.4
Chromium	mg/kg	12	15	[NA]	11	11
Copper	mg/kg	15	10	[NA]	13	8
Lead	mg/kg	13	13	[NA]	13	14
Mercury	mg/kg	<0.1	<0.1	[NA]	<0.1	<0.1
Nickel	mg/kg	6	5	[NA]	4	5
Zinc	mg/kg	11	13	[NA]	23	9
Iron	mg/kg	[NA]	[NA]	19,000	[NA]	[NA]

Acid Extractable metals in soil

Our Reference		213142-119	213142-120	213142-121	213142-123	213142-124
Your Reference	UNITS	TP236 - 0.5	TP243 - 0.1	TP243 - 0.5	TP244 - 0.1	TP244 - 0.5
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	6	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	8	18	28	35	33
Copper	mg/kg	12	6	7	7	10
Lead	mg/kg	13	75	14	16	11
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	1	3	4	4	6
Zinc	mg/kg	8	24	9	21	15

Acid Extractable metals in soil

Our Reference		213142-125	213142-127	213142-128	213142-129	213142-130
Your Reference	UNITS	TP246 - 0.1	TP246 - 0.3	QA1	QA3	QA5
Date Sampled		06/03/2019	06/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	5	7	5	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	19	22	15	23	80
Copper	mg/kg	9	6	5	4	31
Lead	mg/kg	72	19	19	14	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	8	4	6	3	64
Zinc	mg/kg	50	12	14	8	44

Acid Extractable metals in soil				
Our Reference		213142-131	213142-132	213142-135
Your Reference	UNITS	QA7	QA9	TP233 - 0.5 - [TRIPLICATE]
Date Sampled		05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	6	<4	6
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	14	21	14
Copper	mg/kg	12	14	15
Lead	mg/kg	44	70	15
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	6	9	2
Zinc	mg/kg	48	45	6

Moisture						
Our Reference	UNITS	213142-1	213142-5	213142-6	213142-7	213142-9
Your Reference		TP201 - 0.1	TP202 - 0.5	TP202 - 0.8	TP203 - 0.1	TP203 - 0.8
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	14	12	16	16	11

Moisture						
Our Reference	UNITS	213142-10	213142-12	213142-16	213142-19	213142-20
Your Reference		TP204 - 0.1	TP204 - 0.5	TP205 - 0.9	TP207 - 0.1	TP207 - 0.5
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	9.9	18	15	12	13

Moisture						
Our Reference	UNITS	213142-23	213142-24	213142-26	213142-27	213142-28
Your Reference		TP207 - 1.6	TP208 - 0.1	TP208 - 1.5	TP208 - 2.5	TP209 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	19	11	18	20	13

Moisture						
Our Reference	UNITS	213142-32	213142-34	213142-36	213142-40	213142-42
Your Reference		TP210 - 0.1	TP210 - 0.5	TP210 - 2	TP210 - 4	TP212 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	13	16	13	13	8.0

Moisture						
Our Reference	UNITS	213142-43	213142-45	213142-47	213142-48	213142-49
Your Reference		TP212 - 0.5	TP214 - 0.1	TP214 - 1	TP214 - 2	TP214 - 2.5
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	13	8.8	15	12	15

Moisture						
Our Reference	UNITS	213142-51	213142-52	213142-54	213142-56	213142-58
Your Reference		TP215 - 0.1	TP215 - 0.5	TP215 - 2.7	TP216 - 0.1	TP216 - 1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	8.0	12	18	8.9	9.8

Moisture						
Our Reference	UNITS	213142-60	213142-61	213142-63	213142-64	213142-65
Your Reference		TP216 - 3	TP216 - 3.7	TP217 - 0.1	TP217 - 0.5	TP218 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	10	10	8.3	12	9.5

Moisture						
Our Reference	UNITS	213142-67	213142-68	213142-70	213142-72	213142-75
Your Reference		TP218 - 0.5	TP219 - 0.1	TP219 - 0.5	TP220 - 0.1	TP221 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	14	8.7	12	9.4	8.0

Moisture						
Our Reference	UNITS	213142-77	213142-78	213142-79	213142-81	213142-84
Your Reference		TP222 - 0.1	TP222 - 0.5	TP223 - 0.1	TP224 - 0.1	TP224 - 1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	6.6	12	8.1	7.4	13

Moisture						
Our Reference	UNITS	213142-85	213142-88	213142-91	213142-92	213142-95
Your Reference		TP225 - 0.1	TP226 - 0.1	TP227 - 0.1	TP227 - 0.5	TP228 - 0.5
Date Sampled		06/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	6.6	8.5	15	20	22

Moisture						
Our Reference	UNITS	213142-97	213142-99	213142-100	213142-103	213142-106
Your Reference		TP229 - 0.1	TP229 - 1.0	TP230 - 0.1	TP231 - 0.1	TP232 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	22	24	18	13	13

Moisture						
Our Reference	UNITS	213142-110	213142-114	213142-115	213142-117	213142-118
Your Reference		TP233 - 0.5	TP234 - 0.5	TP234 - 1	TP235 - 0.5	TP236 - 0.1
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	17	28	16	9.9	8.9

Moisture						
Our Reference	UNITS	213142-119	213142-120	213142-121	213142-123	213142-124
Your Reference		TP236 - 0.5	TP243 - 0.1	TP243 - 0.5	TP244 - 0.1	TP244 - 0.5
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	12	10	13	7.6	13

Moisture						
Our Reference	UNITS	213142-125	213142-127	213142-128	213142-129	213142-130
Your Reference		TP246 - 0.1	TP246 - 0.3	QA1	QA3	QA5
Date Sampled		06/03/2019	06/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	4.5	8.6	24	8.9	15

Moisture			
Our Reference	UNITS	213142-131	213142-132
Your Reference		QA7	QA9
Date Sampled		05/03/2019	05/03/2019
Type of sample		Soil	Soil
Date prepared	-	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019
Moisture	%	7.6	8.3

Asbestos ID - soils						
Our Reference	UNITS	213142-7	213142-10	213142-19	213142-24	213142-26
Your Reference		TP203 - 0.1	TP204 - 0.1	TP207 - 0.1	TP208 - 0.1	TP208 - 1.5
Date Sampled		05/03/2019	05/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Sample mass tested	g	Approx. 20g	Approx. 10g	Approx. 35g	Approx. 35g	Approx. 15g
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
		Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference	UNITS	213142-28	213142-29	213142-32	213142-34	213142-36
Your Reference		TP209 - 0.1	TP209 - 0.5	TP210 - 0.1	TP210 - 0.5	TP210 - 2
Date Sampled		05/03/2019	05/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Sample mass tested	g	Approx. 40g	Approx. 55g	Approx. 20g	Approx. 65g	Approx. 35g
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference	UNITS	213142-40	213142-45	213142-47	213142-48	213142-51
Your Reference		TP210 - 4	TP214 - 0.1	TP214 - 1	TP214 - 2	TP215 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Sample mass tested	g	Approx. 15g	Approx. 30g	Approx. 15g	Approx. 25g	Approx. 30g
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference	UNITS	213142-52	213142-56	213142-58	213142-60	213142-63
Your Reference		TP215 - 0.5	TP216 - 0.1	TP216 - 1	TP216 - 3	TP217 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Sample mass tested	g	Approx. 30g	Approx. 25g	Approx. 25g	Approx. 20g	Approx. 20g
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
		Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference	UNITS	213142-65	213142-72	213142-81	213142-85	213142-88
Your Reference		TP218 - 0.1	TP220 - 0.1	TP224 - 0.1	TP225 - 0.1	TP226 - 0.1
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Sample mass tested	g	Approx. 30g	Approx. 20g	Approx. 40g	Approx. 30g	Approx. 25g
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference	UNITS	213142-91	213142-100	213142-118	213142-120	213142-121
Your Reference		TP227 - 0.1	TP230 - 0.1	TP236 - 0.1	TP243 - 0.1	TP243 - 0.5
Date Sampled		05/03/2019	05/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Sample mass tested	g	Approx. 20g	Approx. 25g	Approx. 20g	Approx. 20g	Approx. 25g
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference	UNITS	213142-123	213142-124	213142-130	213142-131	213142-132
Your Reference		TP244 - 0.1	TP244 - 0.5	QA5	QA7	QA9
Date Sampled		06/03/2019	06/03/2019	05/03/2019	05/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Sample mass tested	g	Approx. 25g	Approx. 25g	Approx. 20g	Approx. 35g	Approx. 25g
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
		Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils NEPM - ASB-001

Our Reference		213142-20	213142-33	213142-37	213142-68	213142-125
Your Reference	UNITS	TP207 - 0.5	TP210 - 0.1-0.5	TP210 - 2.5	TP219 - 0.1	TP246 - 0.1
Date Sampled		05/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Sample mass tested	g	726.49	607.44	636.82	645.05	485.44
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	—	—	—	—	—
FA and AF Estimation*	g	—	—	—	—	—
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - materials						
Our Reference	UNITS	213142-21	213142-38	213142-41	213142-69	213142-126
Your Reference		TP207 - 0.5 - PACM	TP210 - 2.5 - PACM	TP210 - Surface - PACM	TP219 - 0.1 - PACM	TP246 - 0.1 - PACM
Date Sampled		05/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		Material	Material	Material	Material	Material
Date analysed	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Mass / Dimension of Sample	-	27.05g	12.27g	18.05g	2.41g	12.34g
Sample Description	-	Beige fibre cement material	Beige fibre cement material	Beige fibre cement material	Beige fibre cement material	Beige fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected	Chrysotile asbestos detected	Chrysotile asbestos detected	Chrysotile asbestos detected	Chrysotile asbestos detected

CEC					
Our Reference		213142-6	213142-43	213142-78	213142-115
Your Reference	UNITS	TP202 - 0.8	TP212 - 0.5	TP222 - 0.5	TP234 - 1
Date Sampled		05/03/2019	06/03/2019	06/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	19/03/2019	19/03/2019	19/03/2019	19/03/2019
Date analysed	-	19/03/2019	19/03/2019	19/03/2019	19/03/2019
Exchangeable Ca	meq/100g	0.6	0.6	0.1	<0.1
Exchangeable K	meq/100g	<0.1	<0.1	0.1	<0.1
Exchangeable Mg	meq/100g	2.6	2.7	2.4	<0.1
Exchangeable Na	meq/100g	<0.1	<0.1	0.18	<0.1
Cation Exchange Capacity	meq/100g	3.3	3.5	2.8	<1

Misc Inorg - Soil					
Our Reference		213142-6	213142-43	213142-78	213142-115
Your Reference	UNITS	TP202 - 0.8	TP212 - 0.5	TP222 - 0.5	TP234 - 1
Date Sampled		05/03/2019	06/03/2019	06/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	19/03/2019	19/03/2019	19/03/2019	19/03/2019
Date analysed	-	19/03/2019	19/03/2019	19/03/2019	19/03/2019
Total Organic Carbon (Walkley Black)	mg/kg	2,300	2,500	2,300	2,500
pH 1:5 soil:CaCl ₂	pH Units	4.2	4.3	4.3	4.0

Clay 50-120g					
Our Reference		213142-6	213142-43	213142-78	213142-115
Your Reference	UNITS	TP202 - 0.8	TP212 - 0.5	TP222 - 0.5	TP234 - 1
Date Sampled		05/03/2019	06/03/2019	06/03/2019	05/03/2019
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Clay in soils <2µm	% (w/w)	35	42	37	52

vTRH(C6-C10)/BTEXN in Water		
Our Reference		213142-133
Your Reference	UNITS	Rinsate
Date Sampled		05/03/2019
Type of sample		Water
Date extracted	-	13/03/2019
Date analysed	-	13/03/2019
TRH C ₆ - C ₉	µg/L	<10
TRH C ₆ - C ₁₀	µg/L	<10
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	100
Surrogate toluene-d8	%	98
Surrogate 4-BFB	%	104

svTRH (C10-C40) in Water		
Our Reference		213142-133
Your Reference	UNITS	Rinsate
Date Sampled		05/03/2019
Type of sample		Water
Date extracted	-	14/03/2019
Date analysed	-	16/03/2019
TRH C ₁₀ - C ₁₄	µg/L	<50
TRH C ₁₅ - C ₂₈	µg/L	<100
TRH C ₂₉ - C ₃₆	µg/L	<100
TRH >C ₁₀ - C ₁₆	µg/L	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50
TRH >C ₁₆ - C ₃₄	µg/L	<100
TRH >C ₃₄ - C ₄₀	µg/L	<100
Surrogate o-Terphenyl	%	95

PAHs in Water		
Our Reference		213142-133
Your Reference	UNITS	Rinsate
Date Sampled		05/03/2019
Type of sample		Water
Date extracted	-	14/03/2019
Date analysed	-	15/03/2019
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b,j+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate <i>p</i> -Terphenyl-d14	%	92

Metals in Water - Dissolved		
Our Reference		213142-133
Your Reference	UNITS	Rinsate
Date Sampled		05/03/2019
Type of sample		Water
Date digested	-	14/03/2019
Date analysed	-	14/03/2019
Arsenic - Dissolved	mg/L	<0.05
Cadmium - Dissolved	mg/L	<0.01
Chromium - Dissolved	mg/L	<0.01
Copper - Dissolved	mg/L	<0.01
Lead - Dissolved	mg/L	<0.03
Mercury - Dissolved	mg/L	<0.0005
Nickel - Dissolved	mg/L	<0.02
Zinc - Dissolved	mg/L	<0.02

Method ID	Methodology Summary
AS1289.3.6.3	Determination Particle Size Analysis using AS1289.3.6.3 and AS1289.3.6.1 and in house method INORG-107. Clay fraction at <2µm reported.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. NOTE #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) NOTE #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-036	Total Organic Carbon or Matter - A titrimetric method that measures the oxidisable organic content of soils.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

Method ID	Methodology Summary
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	213142-5
Date extracted	-			13/03/2019	1	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			18/03/2019	1	18/03/2019	18/03/2019		18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	1	<25	<25	0	93	90
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	1	<25	<25	0	93	90
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	103	102
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	99	97
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	89	85
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	88	84
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	90	86
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	90	1	87	84	4	90	86

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-12	213142-34
Date extracted	-			[NT]	23	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	23	18/03/2019	18/03/2019		18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	23	<25	<25	0	92	94
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	23	<25	<25	0	92	94
Benzene	mg/kg	0.2	Org-016	[NT]	23	<0.2	<0.2	0	104	105
Toluene	mg/kg	0.5	Org-016	[NT]	23	<0.5	<0.5	0	98	101
Ethylbenzene	mg/kg	1	Org-016	[NT]	23	<1	<1	0	86	89
m+p-xylene	mg/kg	2	Org-016	[NT]	23	<2	<2	0	85	87
o-Xylene	mg/kg	1	Org-016	[NT]	23	<1	<1	0	87	88
naphthalene	mg/kg	1	Org-014	[NT]	23	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	23	84	85	1	90	88

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-13	213142-65
Date extracted	-			[NT]	32	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	32	18/03/2019	18/03/2019		18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	32	<25	<25	0	83	91
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	32	<25	<25	0	83	91
Benzene	mg/kg	0.2	Org-016	[NT]	32	<0.2	<0.2	0	108	104
Toluene	mg/kg	0.5	Org-016	[NT]	32	<0.5	<0.5	0	101	99
Ethylbenzene	mg/kg	1	Org-016	[NT]	32	<1	<1	0	90	86
m+p-xylene	mg/kg	2	Org-016	[NT]	32	<2	<2	0	88	84
o-Xylene	mg/kg	1	Org-016	[NT]	32	<1	<1	0	91	86
naphthalene	mg/kg	1	Org-014	[NT]	32	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	32	90	85	6	90	84

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	213142-85
Date extracted	-			[NT]	45	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	45	18/03/2019	18/03/2019		18/03/2019	18/03/2019
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	45	<25	<25	0	93	89
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	45	<25	<25	0	93	89
Benzene	mg/kg	0.2	Org-016	[NT]	45	<0.2	<0.2	0	106	100
Toluene	mg/kg	0.5	Org-016	[NT]	45	<0.5	<0.5	0	101	95
Ethylbenzene	mg/kg	1	Org-016	[NT]	45	<1	<1	0	87	85
m+p-xylene	mg/kg	2	Org-016	[NT]	45	<2	<2	0	86	83
o-Xylene	mg/kg	1	Org-016	[NT]	45	<1	<1	0	88	85
naphthalene	mg/kg	1	Org-014	[NT]	45	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	45	88	86	2	87	84

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	63	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	63	18/03/2019	18/03/2019		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	63	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	63	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	63	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	63	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	63	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	63	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	63	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	63	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	63	88	86	2	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	81	18/03/2019	18/03/2019		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	81	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	81	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	81	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	81	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	81	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	81	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	81	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	81	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	81	87	88	1	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	110	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	110	18/03/2019	18/03/2019		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	110	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	110	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	110	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	110	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	110	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	110	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	110	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	110	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	110	84	82	2	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	128	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	128	18/03/2019	18/03/2019		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	128	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	128	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	128	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	128	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	128	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	128	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	128	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	128	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	128	81	81	0	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	213142-5
Date extracted	-			13/03/2019	1	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			16/03/2019	1	16/03/2019	16/03/2019		16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	1	<50	<50	0	111	106
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	1	<100	<100	0	107	105
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	1	<100	<100	0	114	107
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	1	<50	<50	0	111	106
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	1	<100	<100	0	107	105
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	1	<100	<100	0	114	107
Surrogate o-Terphenyl	%		Org-003	98	1	101	99	2	119	98

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-12	213142-34
Date extracted	-			[NT]	23	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	23	16/03/2019	16/03/2019		16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	23	<50	<50	0	111	103
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	23	<100	<100	0	105	104
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	23	<100	<100	0	114	94
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	23	<50	<50	0	111	103
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	23	<100	<100	0	105	104
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	23	<100	<100	0	114	94
Surrogate o-Terphenyl	%		Org-003	[NT]	23	99	98	1	126	99

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-13	213142-65
Date extracted	-			[NT]	32	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	32	16/03/2019	16/03/2019		16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	32	<50	<50	0	113	87
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	32	<100	<100	0	107	81
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	32	<100	<100	0	114	80
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	32	<50	<50	0	113	87
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	32	<100	<100	0	107	81
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	32	<100	<100	0	114	80
Surrogate o-Terphenyl	%		Org-003	[NT]	32	100	100	0	126	98

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	213142-85
Date extracted	-			[NT]	45	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	45	16/03/2019	16/03/2019		16/03/2019	16/03/2019
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	45	<50	<50	0	82	106
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	45	<100	<100	0	75	106
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	45	<100	<100	0	100	111
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	45	<50	<50	0	82	106
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	45	<100	<100	0	75	106
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	45	<100	<100	0	100	111
Surrogate o-Terphenyl	%		Org-003	[NT]	45	99	102	3	105	118

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	63	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	63	16/03/2019	16/03/2019		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	63	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	63	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	63	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	63	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	63	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	63	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	63	97	99	2	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	81	16/03/2019	16/03/2019		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	81	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	81	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	81	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	81	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	81	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	81	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	81	106	107	1	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	110	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	110	16/03/2019	16/03/2019		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	110	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	110	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	110	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	110	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	110	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	110	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	110	92	92	0	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	128	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	128	16/03/2019	16/03/2019		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	128	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	128	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	128	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	128	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	128	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	128	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	128	98	94	4	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	213142-5
Date extracted	-			13/03/2019	1	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			14/03/2019	1	14/03/2019	14/03/2019		14/03/2019	14/03/2019
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	105	102
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	111	108
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	117	114
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	106	102
Pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	107	103
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	130	127
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	<0.05	<0.05	0	113	110
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	125	1	130	120	8	122	113

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-12	213142-34
Date extracted	-			[NT]	23	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	23	14/03/2019	14/03/2019		14/03/2019	14/03/2019
Naphthalene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	103	100
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	109	106
Phenanthrene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	114	111
Anthracene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	102	100
Pyrene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	103	101
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	125	125
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012	[NT]	23	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	23	<0.05	<0.05	0	110	108
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	23	121	115	5	118	112

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-13	213142-65
Date extracted	-			[NT]	32	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	32	14/03/2019	14/03/2019		14/03/2019	14/03/2019
Naphthalene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	103	102
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	110	108
Phenanthrene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	115	112
Anthracene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	103	101
Pyrene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	104	102
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	125	127
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	32	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	32	<0.05	<0.05	0	112	109
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	32	123	117	5	121	116

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	213142-85
Date extracted	-			[NT]	45	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	45	14/03/2019	14/03/2019		14/03/2019	14/03/2019
Naphthalene	mg/kg	0.1	Org-012	[NT]	45	<0.1	<0.1	0	107	100
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	45	<0.1	<0.1	0	113	105
Phenanthrene	mg/kg	0.1	Org-012	[NT]	45	<0.1	<0.1	0	118	110
Anthracene	mg/kg	0.1	Org-012	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	45	<0.1	<0.1	0	107	97
Pyrene	mg/kg	0.1	Org-012	[NT]	45	<0.1	<0.1	0	108	98
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	45	<0.1	<0.1	0	126	121
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	45	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	45	<0.05	<0.05	0	116	103
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	45	119	119	0	124	113

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	63	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	63	14/03/2019	14/03/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	63	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	63	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d14	%		Org-012	[NT]	63	120	119	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	81	14/03/2019	14/03/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	81	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	81	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d14	%		Org-012	[NT]	81	120	119	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	110	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	110	14/03/2019	14/03/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	110	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	110	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d14	%		Org-012	[NT]	110	116	120	3	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	128	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	128	14/03/2019	14/03/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	128	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	128	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	128	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	128	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	128	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	128	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	128	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	128	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	128	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	128	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	128	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	128	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	128	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	128	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	128	<0.1	<0.1	0	[NT]	[NT]
Surrogate <i>p</i> -Terphenyl-d14	%		Org-012	[NT]	128	127	125	2	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	213142-34
Date extracted	-			13/03/2019	32	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			15/03/2019	32	15/03/2019	15/03/2019		15/03/2019	15/03/2019
HCB	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	84	93
gamma-BHC	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	79	90
Heptachlor	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	77	92
delta-BHC	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	82	92
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	90	100
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	85	96
Dieldrin	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	107	119
Endrin	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	85	101
pp-DDD	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	74	88
Endosulfan II	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	71	97
Methoxychlor	mg/kg	0.1	Org-005	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	101	32	99	96	3	127	90

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-12	213142-65
Date extracted	-			[NT]	45	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	45	15/03/2019	15/03/2019		15/03/2019	15/03/2019
HCB	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	95	78
gamma-BHC	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	92	78
Heptachlor	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	94	77
delta-BHC	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	94	81
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	103	89
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	100	84
Dieldrin	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	123	106
Endrin	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	104	87
pp-DDD	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	91	73
Endosulfan II	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	100	63
Methoxychlor	mg/kg	0.1	Org-005	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	45	100	97	3	94	113

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	63	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	63	15/03/2019	15/03/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	63	97	96	1	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	81	15/03/2019	15/03/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	81	101	100	1	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	213142-34
Date extracted	-			13/03/2019	32	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			15/03/2019	32	15/03/2019	15/03/2019		15/03/2019	15/03/2019
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	<0.1	32	<0.1	<0.1	0	89	64
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	32	<0.1	<0.1	0	109	76
Dimethoate	mg/kg	0.1	Org-008	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	32	<0.1	<0.1	0	86	62
Fenitrothion	mg/kg	0.1	Org-008	<0.1	32	<0.1	<0.1	0	97	86
Malathion	mg/kg	0.1	Org-008	<0.1	32	<0.1	<0.1	0	74	83
Parathion	mg/kg	0.1	Org-008	<0.1	32	<0.1	<0.1	0	99	90
Ronnel	mg/kg	0.1	Org-008	<0.1	32	<0.1	<0.1	0	87	64
Surrogate TCMX	%		Org-008	101	32	99	96	3	101	95

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-12	213142-65
Date extracted	-			[NT]	45	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	45	15/03/2019	15/03/2019		15/03/2019	15/03/2019
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	[NT]	45	<0.1	<0.1	0	74	78
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	45	<0.1	<0.1	0	102	84
Dimethoate	mg/kg	0.1	Org-008	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	45	<0.1	<0.1	0	70	75
Fenitrothion	mg/kg	0.1	Org-008	[NT]	45	<0.1	<0.1	0	82	108
Malathion	mg/kg	0.1	Org-008	[NT]	45	<0.1	<0.1	0	79	106
Parathion	mg/kg	0.1	Org-008	[NT]	45	<0.1	<0.1	0	97	94
Ronnel	mg/kg	0.1	Org-008	[NT]	45	<0.1	<0.1	0	74	76
Surrogate TCMX	%		Org-008	[NT]	45	100	97	3	123	92

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	63	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	63	15/03/2019	15/03/2019		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	63	97	96	1	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	81	15/03/2019	15/03/2019		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	81	101	100	1	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	213142-34
Date extracted	-			13/03/2019	32	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			15/03/2019	32	15/03/2019	15/03/2019		15/03/2019	15/03/2019
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	32	<0.1	<0.1	0	111	110
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	32	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	101	32	99	96	3	101	95

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-12	213142-65
Date extracted	-			[NT]	45	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	45	15/03/2019	15/03/2019		15/03/2019	15/03/2019
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	45	<0.1	<0.1	0	114	107
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	45	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	45	100	97	3	123	92

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	63	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	63	15/03/2019	15/03/2019		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	63	97	96	1	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	81	15/03/2019	15/03/2019		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	81	101	100	1	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	213142-34
Date prepared	-			14/03/2019	32	13/03/2019	13/03/2019		14/03/2019	14/03/2019
Date analysed	-			14/03/2019	32	14/03/2019	14/03/2019		14/03/2019	14/03/2019
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	32	<5	<5	0	103	101

QUALITY CONTROL: Misc Soil - Inorg					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	45	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	45	14/03/2019	14/03/2019		[NT]	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	[NT]	45	<5	<5	0	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	213142-5
Date prepared	-			13/03/2019	1	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			14/03/2019	1	14/03/2019	14/03/2019		14/03/2019	14/03/2019
Arsenic	mg/kg	4	Metals-020	<4	1	5	4	22	91	74
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	102	77
Chromium	mg/kg	1	Metals-020	<1	1	24	24	0	111	82
Copper	mg/kg	1	Metals-020	<1	1	3	5	50	112	99
Lead	mg/kg	1	Metals-020	<1	1	14	14	0	112	80
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	112	109
Nickel	mg/kg	1	Metals-020	<1	1	3	3	0	108	87
Zinc	mg/kg	1	Metals-020	<1	1	7	10	35	107	89
Iron	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-12	213142-34
Date prepared	-			[NT]	23	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	23	14/03/2019	14/03/2019		14/03/2019	14/03/2019
Arsenic	mg/kg	4	Metals-020	[NT]	23	5	6	18	99	#
Cadmium	mg/kg	0.4	Metals-020	[NT]	23	<0.4	<0.4	0	98	79
Chromium	mg/kg	1	Metals-020	[NT]	23	19	26	31	104	83
Copper	mg/kg	1	Metals-020	[NT]	23	6	8	29	109	102
Lead	mg/kg	1	Metals-020	[NT]	23	10	14	33	105	73
Mercury	mg/kg	0.1	Metals-021	[NT]	23	<0.1	<0.1	0	113	112
Nickel	mg/kg	1	Metals-020	[NT]	23	3	3	0	103	79
Zinc	mg/kg	1	Metals-020	[NT]	23	15	20	29	102	74

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-13	213142-65
Date prepared	-			[NT]	32	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	32	14/03/2019	14/03/2019		14/03/2019	14/03/2019
Arsenic	mg/kg	4	Metals-020	[NT]	32	<4	<4	0	100	89
Cadmium	mg/kg	0.4	Metals-020	[NT]	32	<0.4	<0.4	0	100	90
Chromium	mg/kg	1	Metals-020	[NT]	32	77	89	14	108	91
Copper	mg/kg	1	Metals-020	[NT]	32	30	31	3	111	104
Lead	mg/kg	1	Metals-020	[NT]	32	6	6	0	108	92
Mercury	mg/kg	0.1	Metals-021	[NT]	32	<0.1	<0.1	0	115	113
Nickel	mg/kg	1	Metals-020	[NT]	32	59	67	13	106	95
Zinc	mg/kg	1	Metals-020	[NT]	32	41	45	9	105	90

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-14	213142-85
Date prepared	-			[NT]	45	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	45	14/03/2019	14/03/2019		14/03/2019	14/03/2019
Arsenic	mg/kg	4	Metals-020	[NT]	45	<4	<4	0	98	91
Cadmium	mg/kg	0.4	Metals-020	[NT]	45	<0.4	<0.4	0	100	78
Chromium	mg/kg	1	Metals-020	[NT]	45	16	16	0	106	103
Copper	mg/kg	1	Metals-020	[NT]	45	7	7	0	109	96
Lead	mg/kg	1	Metals-020	[NT]	45	17	17	0	108	127
Mercury	mg/kg	0.1	Metals-021	[NT]	45	<0.1	<0.1	0	114	117
Nickel	mg/kg	1	Metals-020	[NT]	45	4	4	0	105	84
Zinc	mg/kg	1	Metals-020	[NT]	45	16	16	0	105	126

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	63	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	63	14/03/2019	14/03/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	63	5	<4	22	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	63	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	63	21	22	5	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	63	16	12	29	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	63	51	49	4	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	63	7	10	35	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	63	47	40	16	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	81	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	81	14/03/2019	14/03/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	81	7	7	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	81	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	81	17	25	38	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	81	12	12	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	81	67	90	29	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	81	5	4	22	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	81	75	75	0	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	110	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	110	14/03/2019	14/03/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	110	5	5	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	110	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	110	12	13	8	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	110	15	15	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	110	13	14	7	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	110	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	110	6	2	100	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	110	11	6	59	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	128	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	128	14/03/2019	14/03/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	128	5	<4	22	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	128	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	128	15	11	31	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	128	5	6	18	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	128	19	16	17	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	128	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	128	6	3	67	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	128	14	9	43	[NT]	[NT]

QUALITY CONTROL: CEC				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	[NT]
Date prepared	-			19/03/2019	43	19/03/2019	19/03/2019		19/03/2019	[NT]
Date analysed	-			19/03/2019	43	19/03/2019	19/03/2019		19/03/2019	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	43	0.6	<0.1	143	103	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	43	<0.1	0.2	67	110	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	43	2.7	2.0	30	104	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	43	<0.1	0.16	46	108	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-11	[NT]
Date prepared	-			19/03/2019	6	19/03/2019	19/03/2019		19/03/2019	[NT]
Date analysed	-			19/03/2019	6	19/03/2019	19/03/2019		19/03/2019	[NT]
Total Organic Carbon (Walkley Black)	mg/kg	1000	Inorg-036	<1000	6	2300	2400	4	93	[NT]
pH 1:5 soil:CaCl ₂	pH Units		Inorg-001	[NT]	6	4.2	[NT]		103	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			13/03/2019	[NT]	[NT]	[NT]	[NT]	13/03/2019	[NT]
Date analysed	-			13/03/2019	[NT]	[NT]	[NT]	[NT]	13/03/2019	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	105	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	107	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate toluene-d8	%		Org-016	99	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-BFB	%		Org-016	104	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W5	[NT]
Date extracted	-			14/03/2019	[NT]	[NT]	[NT]	[NT]	14/03/2019	[NT]
Date analysed	-			16/03/2019	[NT]	[NT]	[NT]	[NT]	16/03/2019	[NT]
TRH C ₁₀ - C ₁₄	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	128	[NT]
TRH C ₁₅ - C ₂₈	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	102	[NT]
TRH C ₂₉ - C ₃₆	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	129	[NT]
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	128	[NT]
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	102	[NT]
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	129	[NT]
Surrogate o-Terphenyl	%		Org-003	78	[NT]	[NT]	[NT]	[NT]	136	[NT]

QUALITY CONTROL: PAHs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			14/03/2019	[NT]	[NT]	[NT]	[NT]	14/03/2019	[NT]
Date analysed	-			15/03/2019	[NT]	[NT]	[NT]	[NT]	15/03/2019	[NT]
Naphthalene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	74	[NT]
Acenaphthylene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Phenanthrene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	87	[NT]
Anthracene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	79	[NT]
Pyrene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	79	[NT]
Benzo(a)anthracene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Benzo(b,j+k)fluoranthene	µg/L	2	Org-012	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	125	[NT]	[NT]	[NT]	[NT]	90	[NT]

QUALITY CONTROL: Metals in Water - Dissolved					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			14/03/2019	[NT]	[NT]	[NT]	[NT]	14/03/2019	[NT]
Date analysed	-			14/03/2019	[NT]	[NT]	[NT]	[NT]	14/03/2019	[NT]
Arsenic - Dissolved	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	106	[NT]
Cadmium - Dissolved	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	109	[NT]
Chromium - Dissolved	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	103	[NT]
Copper - Dissolved	mg/L	0.01	Metals-020	<0.01	[NT]	[NT]	[NT]	[NT]	106	[NT]
Lead - Dissolved	mg/L	0.03	Metals-020	<0.03	[NT]	[NT]	[NT]	[NT]	103	[NT]
Mercury - Dissolved	mg/L	0.0005	Metals-021	<0.0005	[NT]	[NT]	[NT]	[NT]	100	[NT]
Nickel - Dissolved	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	105	[NT]
Zinc - Dissolved	mg/L	0.02	Metals-020	<0.02	[NT]	[NT]	[NT]	[NT]	105	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

Asbestos-ID in soil: NEPM

This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

Asbestos: A portion of the supplied samples were sub-sampled for asbestos analysis according to Envirolab procedures.

We cannot guarantee that these sub-samples are indicative of the entire sample.

Envirolab recommends supplying 40-50g of sample in its own container.

Note: Samples 213142-7, 19, 26, 32, 34, 36, 40, 45, 47, 48, 51, 52, 56, 58, 60, 65, 81, 85, 88, 91, 100, 118, 120, 121, 123, 124, 130, 131 & 132 were sub-sampled from jars provided by the client.

Asbestos: Excessive sample volumes were provided for asbestos analysis.

A portion of the supplied samples were sub-sampled according to Envirolab procedures.

We cannot guarantee that these sub-samples are indicative of the entire sample.

Envirolab recommends supplying 40-50g (50mL) of sample in its own container as per AS4964-2004.

Note: Samples 213142-10, 24, 28, 29, 63 & 72 were sub-sampled from bags provided by the client.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 213142-110 for Zn. Therefore a triplicate result has been issued as laboratory sample number 213142-135.

Acid Extractable Metals in Soil:

Low spike recovery was obtained for this sample. The sample was re-digested and re-spiked and the low recovery was confirmed. This is due to matrix interferences. However, an acceptable recovery was obtained for the LCS.

sTPH in Soil (C10-C40) - Silica was not performed as samples 79 and 120 were less than the limit of reporting

Stecherberg

ENVIROLAB SERVICES

ES1907530

Enviro

10025626 - task 2

PO No.:

EnviroLab Services 18SY347v3

Date results required:

Or choose: standard / 1 day / 2 day / 3 day

Note: Inform lab in advance if urgent turnaround is required
surcharge applies

213142

Tests Required

Comments

 EnviroLab EnviroLab Services 12 Ashley Street Chatswood NSW 2065 Ph: (02) 9970 6200	Job No: 213142 Date Received: 8/3/2019 Time Received: 14:30 Received by: R Temp: Coolant Temp Cooling: local repair Security: Attach/Remove/None

Type	N

Reas-Sch
12/3/19 1615 11-7-

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : ES1907530

Client : ARCADIS AUSTRALIA PACIFIC PTY LTD Contact : JACK PALMA Address : L16, 480 GEORGE STREET SYDNEY NSW 2000 E-mail : jack.palma@arcadis.com Telephone : +61 02 8907 9000 Facsimile : +61 02 8907 9001 Project : 10025626 - task 2 Order number : C-O-C number : ---- Site : ---- Sampler : JACK PALMA, RYAN WELLS	Laboratory : Environmental Division Sydney Contact : Loren Schiavon Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 E-mail : Loren.Schiavon@ALSGlobal.com Telephone : +61 2 8784 8555 Facsimile : +61-2-8784 8500 Page : 1 of 2 Quote number : EM2017HYDCON0003 (EN/333 - Secondary Work) QC Level : NEPM 2013 B3 & ALS QC Standard

Dates

Date Samples Received : 12-Mar-2019 16:15 Client Requested Due Date : 18-Mar-2019	Issue Date : 13-Mar-2019 Scheduled Reporting Date : 18-Mar-2019

Delivery Details

Mode of Delivery : Carrier No. of coolers/boxes : 1 Receipt Detail :	Security Seal : Not Available Temperature : 11.7 - Ice Bricks present No. of samples received / analysed : 5 / 5

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 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 (3 weeks), Solid (2 months ± 1 week) from receipt of samples.



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 - S-19 TRH/BTEXN/PAH/Ph/OC/OP/PCB/8 metals	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES1907530-001	05-Mar-2019 00:00	QA2	✓		✓
ES1907530-002	05-Mar-2019 00:00	QA4	✓		✓
ES1907530-003	06-Mar-2019 00:00	QA6	✓	✓	
ES1907530-004	06-Mar-2019 00:00	QA8	✓	✓	
ES1907530-005	06-Mar-2019 00:00	QA10	✓	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

JACK PALMA

- *AU Certificate of Analysis - NATA (COA)	Email	jack.palma@arcadis.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	jack.palma@arcadis.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	jack.palma@arcadis.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	jack.palma@arcadis.com
- A4 - AU Tax Invoice (INV)	Email	jack.palma@arcadis.com
- Chain of Custody (CoC) (COC)	Email	jack.palma@arcadis.com
- EDI Format - ENMRG (ENMRG)	Email	jack.palma@arcadis.com
- EDI Format - ESDAT (ESDAT)	Email	jack.palma@arcadis.com

Oracle 10018071

- A4 - AU Tax Invoice (INV)	Email	AU.Accounts.Payable@arcadis.com

RYAN WELLS

- *AU Certificate of Analysis - NATA (COA)	Email	ryan.wells@arcadis.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ryan.wells@arcadis.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ryan.wells@arcadis.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ryan.wells@arcadis.com
- A4 - AU Tax Invoice (INV)	Email	ryan.wells@arcadis.com
- Chain of Custody (CoC) (COC)	Email	ryan.wells@arcadis.com
- EDI Format - ENMRG (ENMRG)	Email	ryan.wells@arcadis.com
- EDI Format - ESDAT (ESDAT)	Email	ryan.wells@arcadis.com

TOM KEATLEY

- *AU Certificate of Analysis - NATA (COA)	Email	tom.keatley@arcadis.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	tom.keatley@arcadis.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	tom.keatley@arcadis.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	tom.keatley@arcadis.com
- A4 - AU Tax Invoice (INV)	Email	tom.keatley@arcadis.com
- Chain of Custody (CoC) (COC)	Email	tom.keatley@arcadis.com
- EDI Format - ENMRG (ENMRG)	Email	tom.keatley@arcadis.com
- EDI Format - ESDAT (ESDAT)	Email	tom.keatley@arcadis.com

CERTIFICATE OF ANALYSIS

Work Order : **ES1907530**
Client : **ARCADIS AUSTRALIA PACIFIC PTY LTD**
Contact : JACK PALMA
Address : L16, 480 GEORGE STREET
 SYDNEY NSW 2000
Telephone : +61 02 8907 9000
Project : 10025626 - task 2
Order number :
C-O-C number : ----
Sampler : JACK PALMA, RYAN WELLS
Site : ----
Quote number : EN/333 - Secondary Work
No. of samples received : 5
No. of samples analysed : 5

Page : 1 of 8
Laboratory : Environmental Division Sydney
Contact : Loren Schiavon
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61 2 8784 8555
Date Samples Received : 12-Mar-2019 16:15
Date Analysis Commenced : 14-Mar-2019
Issue Date : 18-Mar-2019 18:41



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
Edwandy Fadjjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	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 sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

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.

- 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), Dibenzo(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR.
Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA2	QA4	QA6	QA8	QA10
Client sampling date / time					05-Mar-2019 00:00	05-Mar-2019 00:00	06-Mar-2019 00:00	06-Mar-2019 00:00	06-Mar-2019 00:00
Compound	CAS Number	LOR	Unit		ES1907530-001	ES1907530-002	ES1907530-003	ES1907530-004	ES1907530-005
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		16.0	16.2	12.8	8.6	8.8
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	5	<5	8	5
Cadmium	7440-43-9	1	mg/kg		<1	<1	2	<1	<1
Chromium	7440-47-3	2	mg/kg		14	23	89	13	23
Copper	7440-50-8	5	mg/kg		6	<5	40	13	16
Lead	7439-92-1	5	mg/kg		14	17	<5	80	92
Nickel	7440-02-0	2	mg/kg		4	3	107	4	7
Zinc	7440-66-6	5	mg/kg		<5	<5	58	74	53
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg		----	----	<0.1	<0.1	<0.1
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



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA2	QA4	QA6	QA8	QA10
Client sampling date / time					05-Mar-2019 00:00	05-Mar-2019 00:00	06-Mar-2019 00:00	06-Mar-2019 00:00	06-Mar-2019 00:00
Compound	CAS Number	LOR	Unit		ES1907530-001	ES1907530-002	ES1907530-003	ES1907530-004	ES1907530-005
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4,4'-DDT	50-29-3	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
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
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		----	----	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		----	----	<0.05	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg		----	----	<1	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2,4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2,4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	<0.5	<0.5	<0.5
2,6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	<0.5	<0.5	<0.5



Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				QA2	QA4	QA6	QA8	QA10
Client sampling date / time				05-Mar-2019 00:00	05-Mar-2019 00:00	06-Mar-2019 00:00	06-Mar-2019 00:00	06-Mar-2019 00:00
Compound	CAS Number	LOR	Unit	ES1907530-001	ES1907530-002	ES1907530-003	ES1907530-004	ES1907530-005
				Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued								
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	----	----	<0.5	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg	----	----	<2	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	<10	<10



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA2	QA4	QA6	QA8	QA10
Client sampling date / time					05-Mar-2019 00:00	05-Mar-2019 00:00	06-Mar-2019 00:00	06-Mar-2019 00:00	06-Mar-2019 00:00
Compound	CAS Number	LOR	Unit		ES1907530-001	ES1907530-002	ES1907530-003	ES1907530-004	ES1907530-005
					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	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	88.1	95.0	76.8
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	111	116	97.6
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	79.6	84.5	74.2
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		66.9	76.0	71.8	71.0	78.8
2-Chlorophenol-D4	93951-73-6	0.5	%		71.8	73.9	73.4	77.3	76.5
2,4,6-Tribromophenol	118-79-6	0.5	%		64.5	68.3	61.0	68.9	68.9
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		97.7	98.4	99.7	102	99.5
Anthracene-d10	1719-06-8	0.5	%		79.7	84.3	86.4	87.9	86.5
4-Terphenyl-d14	1718-51-0	0.5	%		68.1	66.5	68.8	68.3	68.3
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		88.9	96.4	93.0	97.8	100
Toluene-D8	2037-26-5	0.2	%		97.4	102	83.2	96.2	95.4



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QA2	QA4	QA6	QA8	QA10
Client sampling date / time					05-Mar-2019 00:00	05-Mar-2019 00:00	06-Mar-2019 00:00	06-Mar-2019 00:00	06-Mar-2019 00:00
Compound	CAS Number	LOR	Unit		ES1907530-001	ES1907530-002	ES1907530-003	ES1907530-004	ES1907530-005
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		104	106	86.8	97.0	98.8



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

QUALITY CONTROL REPORT

Work Order	: ES1907530	Page	: 1 of 11
Client	: ARCADIS AUSTRALIA PACIFIC PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: JACK PALMA	Contact	: Loren Schiavon
Address	: L16, 480 GEORGE STREET SYDNEY NSW 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8907 9000	Telephone	: +61 2 8784 8555
Project	: 10025626 - task 2	Date Samples Received	: 12-Mar-2019
Order number	: ----	Date Analysis Commenced	: 14-Mar-2019
C-O-C number	: ----	Issue Date	: 18-Mar-2019
Sampler	: JACK PALMA, RYAN WELLS		
Site	: ----		
Quote number	: EN/333 - Secondary Work		
No. of samples received	: 5		
No. of samples analysed	: 5		



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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	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**

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 (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2235400)									
ES1907493-094	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	1	1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	21	20	0.00	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	14	13	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	7	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	21	22	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	77	80	4.97	0% - 50%
ES1907535-004	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	25	21	15.9	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	7	7	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	9	14.2	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	10	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	11	9	16.7	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2234584)									
ES1907493-065	Anonymous	EA055: Moisture Content	----	0.1	%	21.0	21.6	2.93	0% - 20%
ES1907493-094	Anonymous	EA055: Moisture Content	----	0.1	%	17.5	17.6	0.860	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2234585)									
ES1907530-004	QA8	EA055: Moisture Content	----	0.1	%	8.6	8.3	3.07	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2235401)									
ES1907493-094	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1907535-004	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2231783)									
ES1907530-003	QA6	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	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: 2231782)									
ES1907530-003	QA6	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
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2231782)									
ES1907530-003	QA6	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit

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Work Order : ES1907530
Client : ARCADIS AUSTRALIA PACIFIC PTY LTD
Project : 10025626 - task 2



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 (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2231782) - continued									
ES1907530-003	QA6	EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 2231780)									
ES1907533-006	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
ES1907530-003	QA6	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.00	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2231780)									
ES1907533-006	Anonymous	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	0.9	0.8	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	4.1	3.3	22.6	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	1.1	1.0	12.2	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	7.3	7.4	0.00	0% - 50%
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	7.3	7.2	0.00	0% - 50%
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	3.3	3.4	3.51	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	3.0	3.2	5.80	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	3.8	4.2	8.85	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	1.5	1.6	7.89	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: 2231780) - continued									
ES1907533-006	Anonymous	EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	3.6	3.9	9.16	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	1.9	2.2	15.3	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	0.6	0.00	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	2.4	2.8	15.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	40.2	41.6	3.42	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	4.7	5.7	19.1	0% - 50%
ES1907530-003	QA6	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	No Limit
		EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2231781)							
ES1907533-006	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	150	200	30.3	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	110	150	30.5	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1907530-003	QA6	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 Petroleum Hydrocarbons (QC Lot: 2233804)									
ES1907535-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1907535-003	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2231781)									
ES1907533-006	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	220	290	26.9	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

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 Client : ARCADIS AUSTRALIA PACIFIC PTY LTD
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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: 2231781) - continued									
ES1907533-006	Anonymous	EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES1907530-003	QA6	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
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2233804)									
ES1907535-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1907535-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 2233804)									
ES1907535-001	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
ES1907535-003	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		

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	108	86	126	
<1	4.64 mg/kg	109	83	113	
<2	43.9 mg/kg	99.1	76	128	
<5	32 mg/kg	102	86	120	
<5	40 mg/kg	100	80	114	
<2	55 mg/kg	110	87	123	
<5	60.8 mg/kg	108	80	122	
<0.1	2.57 mg/kg	82.7	70	105	
<0.1	1 mg/kg	119	62	126	
<0.05	0.5 mg/kg	83.1	69	113	
<0.05	0.5 mg/kg	82.4	65	117	
<0.05	0.5 mg/kg	81.2	67	119	
<0.05	0.5 mg/kg	86.4	68	116	
<0.05	0.5 mg/kg	81.9	65	117	
<0.05	0.5 mg/kg	81.4	67	115	
<0.05	0.5 mg/kg	89.7	69	115	
<0.05	0.5 mg/kg	93.3	62	118	
<0.05	0.5 mg/kg	89.3	63	117	
<0.05	0.5 mg/kg	88.2	66	116	
<0.05	0.5 mg/kg	87.7	64	116	
<0.05	0.5 mg/kg	91.2	66	116	
<0.05	0.5 mg/kg	90.2	67	115	
<0.05	0.5 mg/kg	85.0	67	123	
<0.05	0.5 mg/kg	89.3	69	115	
<0.05	0.5 mg/kg	90.9	69	121	
<0.05	0.5 mg/kg	94.3	56	120	
<0.05	0.5 mg/kg	86.8	62	124	
<0.2	0.5 mg/kg	94.3	66	120	
<0.05	0.5 mg/kg	104	64	122	
<0.2	0.5 mg/kg	87.8	54	130	



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				
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2231782) - continued								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	75.4	59	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	80.4	62	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	74.2	54	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	88.0	67	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	84.6	70	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	86.2	72	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	77.3	68	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	79.7	68	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	84.2	69	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	86.3	76	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	78.6	64	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	83.6	70	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	75.3	69	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	87.1	66	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	79.4	68	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	87.7	62	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	85.8	68	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	65	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	65.3	41	123
EP075(SIM)A: Phenolic Compounds (QCLot: 2231780)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	97.9	71	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	98.6	72	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	88.9	71	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	91.3	67	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	78.5	54	114
EP075(SIM): 2,4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	82.4	68	126
EP075(SIM): 2,4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	78.4	66	120
EP075(SIM): 2,6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	92.3	70	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	86.2	70	116
EP075(SIM): 2,4,6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	103	54	114
EP075(SIM): 2,4,5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	105	60	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	# 60.4	10	57
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2231780)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	94.8	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	103	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	97.3	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	107	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	106	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	108	77	127



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: 2231780) - continued								
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	113	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	102	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	96.5	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	96.9	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	6 mg/kg	89.9	68	116
	205-82-3							
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	100	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	109	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	66.8	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	72.6	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	67.4	63	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2231781)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	93.4	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	95.4	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	89.4	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2233804)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	96.4	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2231781)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	93.0	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	93.6	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	76.4	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2233804)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	96.6	68	128
EP080: BTEXN (QCLot: 2233804)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	103	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	99.9	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	95.6	65	117
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	94.5	66	118
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	96.4	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	99.5	63	119

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 (%)

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 Project : 10025626 - task 2



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
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2235400)							
ES1907493-094	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	103	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	104	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	105	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	103	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	106	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	106	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2235401)							
ES1907493-094	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	93.8	70	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2231783)							
ES1907530-003	QA6	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	123	70	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2231782)							
ES1907530-003	QA6	EP068: gamma-BHC	58-89-9	0.5 mg/kg	99.3	70	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	112	70	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	111	70	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	87.0	70	130
		EP068: Endrin	72-20-8	2 mg/kg	99.1	70	130
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	106	70	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2231782)							
ES1907530-003	QA6	EP068: Diazinon	333-41-5	0.5 mg/kg	74.9	70	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	75.2	70	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	73.8	70	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	75.7	70	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	85.1	70	130
EP075(SIM)A: Phenolic Compounds (QCLot: 2231780)							
ES1907530-003	QA6	EP075(SIM): Phenol	108-95-2	10 mg/kg	82.2	70	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	82.7	70	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	121	60	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	83.0	70	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	84.7	20	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2231780)							
ES1907530-003	QA6	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.5	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	106	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2231781)							
ES1907530-003	QA6	EP071: C10 - C14 Fraction	----	523 mg/kg	90.4	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	112	53	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	124	52	132



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: 2233804)							
ES1907535-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	105	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2231781)							
ES1907530-003	QA6	EP071: >C10 - C16 Fraction	----	860 mg/kg	99.7	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	118	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	127	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2233804)							
ES1907535-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	103	70	130
EP080: BTEXN (QCLot: 2233804)							
ES1907535-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	105	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	104	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	99.5	70	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	97.4	70	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	98.7	70	130
	EP080: Naphthalene	91-20-3	2.5 mg/kg	98.9	70	130	

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES1907530	Page	: 1 of 5
Client	: ARCADIS AUSTRALIA PACIFIC PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: JACK PALMA	Telephone	: +61 2 8784 8555
Project	: 10025626 - task 2	Date Samples Received	: 12-Mar-2019
Site	: ----	Issue Date	: 18-Mar-2019
Sampler	: JACK PALMA, RYAN WELLS	No. of samples received	: 5
Order number	:	No. of samples analysed	: 5

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** Matrix Spike outliers occur.
- Laboratory Control 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

- **NO** Quality Control Sample Frequency Outliers exist.

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 Work Order : ES1907530
 Client : ARCADIS AUSTRALIA PACIFIC PTY LTD
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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
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)A: Phenolic Compounds	QC-2231780-002	----	Pentachlorophenol	87-86-5	60.4 %	10-57%	Recovery greater than upper control limit

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) QA2, QA4	05-Mar-2019	----	----	----	14-Mar-2019	19-Mar-2019	✓	
Soil Glass Jar - Unpreserved (EA055) QA6, QA8, QA10	06-Mar-2019	----	----	----	14-Mar-2019	20-Mar-2019	✓	
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) QA2, QA4	05-Mar-2019	14-Mar-2019	01-Sep-2019	✓	14-Mar-2019	01-Sep-2019	✓	
Soil Glass Jar - Unpreserved (EG005T) QA6, QA8, QA10	06-Mar-2019	14-Mar-2019	02-Sep-2019	✓	14-Mar-2019	02-Sep-2019	✓	
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) QA2, QA4	05-Mar-2019	14-Mar-2019	02-Apr-2019	✓	15-Mar-2019	02-Apr-2019	✓	
Soil Glass Jar - Unpreserved (EG035T) QA6, QA8, QA10	06-Mar-2019	14-Mar-2019	03-Apr-2019	✓	15-Mar-2019	03-Apr-2019	✓	
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066) QA6, QA8, QA10	06-Mar-2019	14-Mar-2019	20-Mar-2019	✓	15-Mar-2019	23-Apr-2019	✓	



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
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068) QA6, QA10	QA8,	06-Mar-2019	14-Mar-2019	20-Mar-2019	✓	15-Mar-2019	23-Apr-2019	✓
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068) QA6, QA10	QA8,	06-Mar-2019	14-Mar-2019	20-Mar-2019	✓	15-Mar-2019	23-Apr-2019	✓
EP075(SIM)A: Phenolic Compounds								
Soil Glass Jar - Unpreserved (EP075(SIM)) QA6, QA10	QA8,	06-Mar-2019	14-Mar-2019	20-Mar-2019	✓	15-Mar-2019	23-Apr-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) QA2,	QA4	05-Mar-2019	14-Mar-2019	19-Mar-2019	✓	15-Mar-2019	23-Apr-2019	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) QA6, QA10	QA8,	06-Mar-2019	14-Mar-2019	20-Mar-2019	✓	15-Mar-2019	23-Apr-2019	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) QA2,	QA4	05-Mar-2019	14-Mar-2019	19-Mar-2019	✓	15-Mar-2019	19-Mar-2019	✓
Soil Glass Jar - Unpreserved (EP080) QA6, QA10	QA8,	06-Mar-2019	14-Mar-2019	20-Mar-2019	✓	15-Mar-2019	20-Mar-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080) QA2,	QA4	05-Mar-2019	14-Mar-2019	19-Mar-2019	✓	15-Mar-2019	19-Mar-2019	✓
Soil Glass Jar - Unpreserved (EP080) QA6, QA10	QA8,	06-Mar-2019	14-Mar-2019	20-Mar-2019	✓	15-Mar-2019	20-Mar-2019	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) QA2,	QA4	05-Mar-2019	14-Mar-2019	19-Mar-2019	✓	15-Mar-2019	19-Mar-2019	✓
Soil Glass Jar - Unpreserved (EP080) QA6, QA10	QA8,	06-Mar-2019	14-Mar-2019	20-Mar-2019	✓	15-Mar-2019	20-Mar-2019	✓



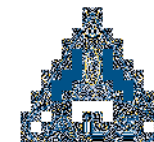
Quality Control Parameter Frequency Compliance

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	3	26	11.54	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	14	14.29	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	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	14	7.14	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	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	14	7.14	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	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	14	7.14	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	17	5.88	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).
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)
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.

Detailed Site Investigation

APPENDIX G QUALITY ANALYSIS / QUALITY CONTROL

Quality Analysis/Quality Control

Field Quality Analysis/Quality Control

Details of Sampling Team

Soil sampling was conducted by Arcadis Environmental Scientists Tom Keatley and Jack Palma, who are appropriately experienced and adequately trained in the collection of environmental samples and intrusive test pitting.

Decontamination Procedures Carried out Between Sampling Events

No equipment (bar the excavator bucket) was reused between sampling locations. The excavator bucket was cleaned prior to intrusive works. Dedicated disposable gloves were utilised for each sample collected.

Chain of Custody

Soil, samples were transported to the laboratory under a chain of custody (CoC). Information on the CoC included the sampler, sample identifier, sample matrix, collection date, analyses to be performed, sample preservation method, sample release date and sample received date. COCs are provided in Appendix F along with the laboratory reports.

Sample Splitting Techniques

Soil samples were split by collecting representative samples of the soil sample at the same depth interval. Due to the potential loss of volatiles, samples were not mixed and separated, but replicate samples were collected.

Rinsate Sample Results

One rinsate samples were collected during the soil sampling works. The samples reported all analytes below laboratory detection limits.

Statement of Duplicate Frequency

All primary samples were submitted to NATA Accredited Laboratory Envirolab Services Pty Ltd.

Five (5) Intra-laboratory and five (5) inter-laboratory duplicates were collected during this investigation and selected for analysis.

Refer to QA/QC Table 1 below for the details of the primary samples that correspond to the intra-laboratory duplicates.

QA/QC Table 1: Intra-laboratory duplicate corresponding primary samples

Primary Sample	Intra-laboratory Duplicate	Inter-laboratory Duplicate
TP232 – 0.1	QA1	QA2
TP201 – 0.1	QA3	QA4
TP208 – 0.1	QA5	QA6
TP224 – 0.1	QA7	QA8
TP217 – 0.1	QA9	QA10

QA/QC sets were analysed at a frequency of 1 intra-laboratory and 1 inter-laboratory sample per 14 primary samples at a ratio of 1:14, which is in accordance with the Australian Standard 4482.1-2005 'Guide to the investigation and sampling of sites with potentially contaminated soil'.

Laboratory Quality Analysis/Quality Control

Refer to QA/QC Table 2 for details of the laboratory QA/QC reported by the primary laboratories as part of this assessment.

QA/QC Table 2: Laboratory QA/QC

Item	Description
Chain of Custody (CoC)	A copy of signed chain of custody forms acknowledging receipt date and time, and identity of samples included in shipments are provided in Appendix F.
Holding Times	All primary samples were collected, sent, and analysed by the primary and secondary laboratories within specified holding times except for some samples analysed for volatile or semi-volatile analysis. No major holding time exceedances were observed.
Laboratory Accreditation	The primary laboratory was National Association of Testing Authorities (NATA) accredited for all analytes tested, except for: - Asbestos ID in soil <0.1g/kg; - ACM >7mm Estimation; and - FA and AF Estimation. The primary laboratory used for analysis of soil was Envirolab Services Pty Ltd (Envirolab). Envirolab are accredited by NATA to ISO 17025, Accreditation Number 2901. The secondary laboratory was Australian Laboratory Services Pty Ltd (ALS). ALS are accredited by NATA to USI 17025, Accreditation Number 825.
Laboratory Performance (Inter-laboratory samples and analytical methods).	Laboratory Performance was considered to be acceptable.
Matrix and LOR assessment	The LOR for all soil analytes were less than the adopted SAC.
Laboratory Control Sample (LCS) Results	All LCS results were reported to be within acceptable ranges.
Laboratory Duplicate Results	All laboratory duplicate results were reported to be acceptable.
Laboratory Blank Results	All laboratory blank samples were reported below laboratory LOR and hence acceptable.
Matrix Spike Results	All laboratory matrix spikes were reported to be within the acceptable limits.

QA/QC Data Evaluation

Evaluation of the QA/QC Information Compared to the DQOs

- Documentation completeness:
 - Soil logs and chain-of-custody forms were complete and appropriate.
- Data completeness:
 - All samples were received by the laboratories and analytical results reported including laboratory QA/QC, except for the three inter-laboratory samples.
- Data comparability:
 - Arcadis standard operating procedures, Australian Standards and industry best practice were followed during sampling;
 - Consistent field conditions and similarly trained staff were used during sampling;
 - The limits of reporting are appropriate and generally consistent from each laboratory.
- Data representativeness:
 - The frequency of laboratory blanks was acceptable, and the results were within specified ranges.
- Precision:
 - Intra-laboratory and inter-laboratory duplicates were collected at the following rates:
 - Soil Intra-laboratory duplicates frequency were collected at 1:14.

QA/QC sample collection rate follows the guidance provided in the Australian Standard Field procedures (AS1482.1 1997).

Relative Percentage Difference

Refer below for the Relative Percent Difference (RPD) calculations between the primary, intra-laboratory samples and inter-laboratory duplicate samples. It is noted that RPDs were only calculated for groups of compounds with detections above the laboratory detection limits.

RPDs for soil were reported within acceptable ranges with the exception of the following samples:

Table 2: RPD Exceedances

Analyte	Primary Sample	Duplicate	RPD (%)
Cadmium	TP208 – 0.1	QA6	133
Lead	TP217 – 0.1	QA9	31
		QA10	57
	TP224 – 0.1	QA7	41
Nickel	TP208 – 0.1	QA6	53
Zinc	TP224 – 0.1	QA7	44%

Detailed Site Investigation

Analyte	Primary Sample	Duplicate	RPD (%)
	TP232 – 0.1	QA1	95%

The low-level exceedances of RPD within soil is most likely due to the heterogenous nature of sampled material, and replicate sampling. Arcadis is confident that the exceeding RPD for soil will not affect the integrity of the analytical data. Reported RPD exceedances of Benzo(a)pyrene are due to toxicity quotient calculations that differ between the primary and secondary laboratory.

Field Duplicates (SOIL)
Filter: SDG in('ENVIROLAB 2019-03-12T00:00:00')

Field Duplicates (SOIL) Filter: SDG in('ENVIROLAB 2019-03-12T00:00:00')				SDG Field ID Sampled Date/Time	ENVIROLAB 2019-03-12 TP232 - 0.1 5/03/2019	ENVIROLAB 2019-03-12 QA1 5/03/2019	RPD	ENVIROLAB 2019-03-12 TP201 - 0.1 5/03/2019	ENVIROLAB 2019-03-12 QA3 5/03/2019	RPD	ENVIROLAB 2019-03-12 TP208 - 0.1 5/03/2019	ENVIROLAB 2019-03-12 QA5 5/03/2019	RPD	ENVIROLAB 2019-03-12 TP224 - 0.1 6/03/2019	ENVIROLAB 2019-03-12 QA7 6/03/2019	RPD	ENVIROLAB 2019-03-12 TP217 - 0.1 6/03/2019	
Method Type	ChemName	Units	EQL															
Moisture	Moisture %	% w/wet w	0.1	13	24	59		14	8.9	45		11	15	31	7.4	7.6	3	8.3
Asbestos ID - soils	Asbestos fibres	-										0.0E0	0.0E0	0	0.0E0	0.0E0	0	0.0E0
Acid Extractable metals in soil	Arsenic	mg/kg	4 : 5 (Interlab)	<4	5	22		5	<4	22		<4	<4	0	7	6	15	5
	Cadmium	mg/kg	0.4 : 1 (Interlab)	<0.4	<0.4	0		<0.4	<0.4	0		<0.4	<0.4	0	<0.4	<0.4	0	<0.4
	Chromium (III+VI)	mg/kg	1 : 2 (Interlab)	13	15	14		24	23	4		70	80	13	17	14	19	21
	Copper	mg/kg	1 : 5 (Interlab)	5	5	0		3	5	4	29	33	31	6	12	12	0	16
	Lead	mg/kg	1 : 5 (Interlab)	12	19	45		14	14	0		5	6	18	67	44	41	51
	Mercury	mg/kg	0.1	<0.1	<0.1	0		<0.1	<0.1	0		<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Nickel	mg/kg	1 : 2 (Interlab)	4	6	40		3	4	3	0	62	64	3	5	6	18	7
	Zinc	mg/kg	1 : 5 (Interlab)	5	14	95		7	8	13		43	44	2	75	48	44	47
svTRH (C10-C40) in Soil	C10-C14	mg/kg	50	<50	<50	0		<50	<50	0		<50	<50	0	<50	<50	0	<50
	C15-C28	mg/kg	100	<100	<100	0		<100	<100	0		<100	<100	0	<100	<100	0	<100
	C29-C36	mg/kg	100	<100	<100	0		<100	<100	0		<100	<100	0	<100	<100	0	<100
vTRH(C6-C10)/BTEXN in Soil	C6-C9	mg/kg	25 : 10 (Interlab)	<25	<25	0		<25	<25	0		<25	<25	0	<25	<25	0	<25
svTRH (C10-C40) in Soil	C10-C16	mg/kg	50	<50	<50	0		<50	<50	0		<50	<50	0	<50	<50	0	<50
	>C10-C16 less Naphthalene (F2)	mg/kg	50	<50	<50	0		<50	<50	0		<50	<50	0	<50	<50	0	<50
	C16-C34	mg/kg	100	<100	<100	0		<100	<100	0		<100	<100	0	<100	<100	0	<100
	C34-C40	mg/kg	100	<100	<100	0		<100	<100	0		<100	<100	0	<100	<100	0	<100
	>C10 - C40 (Sum of total)	mg/kg	50	<50	<50	0		<50	<50	0		<50	<50	0	<50	<50	0	<50
vTRH(C6-C10)/BTEXN in Soil	C6-C10	mg/kg	25 : 10 (Interlab)	<25	<25	0		<25	<25	0		<25	<25	0	<25	<25	0	<25
	>C6-C10 less BTEX (F1)	mg/kg	25 : 10 (Interlab)	<25	<25	0		<25	<25	0		<25	<25	0	<25	<25	0	<25
	Benzene	mg/kg	0.2	<0.2	<0.2	0		<0.2	<0.2	0		<0.2	<0.2	0	<0.2	<0.2	0	<0.2
	Toluene	mg/kg	0.5	<0.5	<0.5	0		<0.5	<0.5	0		<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Ethylbenzene	mg/kg	1 : 0.5 (Interlab)	<1	<1	0		<1	<1	0		<1	<1	0	<1	<1	0	<1
	Xylene (m & p)	mg/kg	2 : 0.5 (Interlab)	<2	<2	0		<2	<2	0		<2	<2	0	<2	<2	0	<2
	Xylene (o)	mg/kg	1 : 0.5 (Interlab)	<1	<1	0		<1	<1	0		<1	<1	0	<1	<1	0	<1
	Xylene Total	mg/kg	1 : 0.5 (Interlab)	<1	<1	0		<1	<1	0		<1	<1	0	<1	<1	0	<1
PAHs in Soil	Acenaphthene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	0		<0.1	<0.1	0		<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Acenaphthylene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	0		<0.1	<0.1	0		<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Anthracene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	0		<0.1	<0.1	0		<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Benz(a)anthracene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	0		<0.1	<0.1	0		<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Benzo(a) pyrene	mg/kg	0.05 : 0.5 (Interlab)	<0.05	<0.05	0		<0.05	<0.05	0		<0.05	<0.05	0	<0.05	<0.05	0	<0.05
	Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5	<0.5	<0.5	0		<0.5	<0.5	0		<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.5	<0.5	<0.5	0		<0.5	<0.5	0		<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	<0.5	<0.5	0		<0.5	<0.5	0		<0.5	<0.5	0	<0.5	<0.5	0	<0.5
	Benzo(g,h,i)perylene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	0		<0.1	<0.1	0		<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Benzo(b+j+k)fluoranthene	mg/kg	0.2	<0.2	<0.2	0		<0.2	<0.2	0		<0.2	<0.2	0	<0.2	<0.2	0	<0.2
	Chrysene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	0		<0.1	<0.1	0		<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Dibenz(a,h)anthracene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	0		<0.1	<0.1	0		<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Fluoranthene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	0		<0.1	<0.1	0		<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Fluorene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	0		<0.1	<0.1	0		<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	0		<0.1	<0.1	0		<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Naphthalene	mg/kg	0.1 : 1 (Interlab)	<0.1	<0.1	0		<0.1	<0.1	0		<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Phenanthrene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	0		<0.1	<0.1	0		<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Pyrene	mg/kg	0.1 : 0.5 (Interlab)	<0.1	<0.1	0		<0.1	<0.1	0		<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	PAHs (Sum of positives)	mg/kg	0.05	<0.05	<0.05	0		<0.05	<0.05	0		<0.05	<0.05	0	<0.05	0.1	67	<0.05
vTRH(C6-C10)/BTEXN in Soil	Naphthalene	mg/kg	1 : 0.5 (Interlab)	<1	<1	0		<1	<1	0		<1	<1	0	<1	<1	0	<1
PCBs in Soil	Arochlor 1016	mg/kg	0.1									<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Arochlor 1221	mg/kg	0.1									<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Arochlor 1232	mg/kg	0.1									<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Arochlor 1242	mg/kg	0.1									<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Arochlor 1248	mg/kg	0.1									<0.1	<0.1	0	<0.1	<0.1	0	<0.1
	Arochlor 1254	mg/kg	0.1									<0.1	<0.1	0	<0.1	<0.1	0	<0.1

Field Duplicates (SOIL)
Filter: SDG in('ENVIROLAB 2019-03-12T00:00:00')

SDG				ENVIROLAB 2019-03-12				ENVIROLAB 2019-03-12				ENVIROLAB 2019-03-12				ENVIROLAB 2019-03-12				ENVIROLAB 2019-03-12			
Field ID				TP232 - 0.1				QA1				TP201 - 0.1				QA3				TP208 - 0.1			
Sampled Date/Time				5/03/2019				5/03/2019				5/03/2019				5/03/2019				5/03/2019			
				RPD				RPD				RPD				RPD				RPD			
	Chlorpyrifos	mg/kg	0.1 : 0.05 (Interlab)																				
	Chlorpyrifos-methyl	mg/kg	0.1 : 0.05 (Interlab)																				
	Diazinon	mg/kg	0.1 : 0.05 (Interlab)																				
	Dichlorvos	mg/kg	0.1 : 0.05 (Interlab)																				
	Dimethoate	mg/kg	0.1 : 0.05 (Interlab)																				
	Ethion	mg/kg	0.1 : 0.05 (Interlab)																				
	Fenitrothion	mg/kg	0.1																				
	Malathion	mg/kg	0.1 : 0.05 (Interlab)																				
	Parathion	mg/kg	0.1 : 0.2 (Interlab)																				
	Ronnel	mg/kg	0.1																				
Organochlorine Pesticides in soil	Hexachlorobenzene	µg/kg	100 : 50 (Interlab)																				

*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 80 (1-10 x EQL); 50 (10-30 x EQL); 30 (> 30 x EQL))
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Field Duplicates (SOIL)
Filter: SDG in("ENVIROLAB 2019-03-12T00:00:00")

Field Duplicates (SOIL)				SDG		ENVIROLAB 2019-03-12		ENVIROLAB 2019-03-12		ALSE-Sydney 12-Mar-19		ENVIROLAB 2019-03-12		ALSE-Sydney 12-Mar-19		ENVIROLAB 2019-03-12		ALSE-Sydney 12-Mar-19		ENVIROLAB 2019-03-12		ALSE-Sydney 12-Mar-19	
Filter: SDG in('ENVIROLAB 2019-03-12T00:00:00')				Field ID	RPD	QA9	TP232 - 0.1	QA2	RPD	TP201 - 0.1	QA4	RPD	TP208 - 0.1	QA6	RPD	TP224 - 0.1	QA8						
				Sampled Date/Time		6/03/2019	5/03/2019	5/03/2019		5/03/2019	5/03/2019		5/03/2019	5/03/2019		6/03/2019	6/03/2019						
Method Type	ChemName	Units	EQL																				
Moisture	Moisture %	% w/wet w	0.1			8.3	0			13			14			11							
Asbestos ID - soils	Asbestos fibres	-				0.0E0	0						0.0E0			0.0E0							
Acid Extractable metals in soil	Arsenic	mg/kg	4 : 5 (Interlab)			<4	22			<4	<5	0	5	5	0	<4	<5						
	Cadmium	mg/kg	0.4 : 1 (Interlab)			<0.4	0			<0.4	<1	0	<0.4	<1	0	<0.4	<1						
	Chromium (III+VI)	mg/kg	1 : 2 (Interlab)			21	0			13	14	7	24	23	4	70	89						
	Copper	mg/kg	1 : 5 (Interlab)			14	13			5	6	18	3	<5	0	33	40						
	Lead	mg/kg	1 : 5 (Interlab)			70	31			12	14	15	14	17	19	5	<5						
	Mercury	mg/kg	0.1			<0.1	0			<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1						
	Nickel	mg/kg	1 : 2 (Interlab)			9	25			4	3	0	3	4	0	62	107						
	Zinc	mg/kg	1 : 5 (Interlab)			45	4			5	<5	0	7	<5	33	43	58						
svTRH (C10-C40) in Soil	C10-C14	mg/kg	50			<50	0			<50	<50	0	<50	<50	0	<50	<50						
	C15-C28	mg/kg	100			<100	0			<100	<100	0	<100	<100	0	<100	<100						
	C29-C36	mg/kg	100			<100	0			<100	<100	0	<100	<100	0	<100	<100						
vTRH(C6-C10)/BTEXN in Soil	C6-C9	mg/kg	25 : 10 (Interlab)			<25	0			<25	<10	0	<25	<10	0	<25	<10						
svTRH (C10-C40) in Soil	C10-C16	mg/kg	50			<50	0			<50	<50	0	<50	<50	0	<50	<50						
	>C10-C16 less Naphthalene (F2)	mg/kg	50			<50	0			<50	<50	0	<50	<50	0	<50	<50						
	C16-C34	mg/kg	100			<100	0			<100	<100	0	<100	<100	0	<100	<100						
	C34-C40	mg/kg	100			<100	0			<100	<100	0	<100	<100	0	<100	<100						
	>C10 - C40 (Sum of total)	mg/kg	50			<50	0			<50	<50	0	<50	<50	0	<50	<50						
vTRH(C6-C10)/BTEXN in Soil	C6-C10	mg/kg	25 : 10 (Interlab)			<25	0			<25	<10	0	<25	<10	0	<25	<10						
	>C6-C10 less BTEX (F1)	mg/kg	25 : 10 (Interlab)			<25	0			<25	<10	0	<25	<10	0	<25	<10						
	Benzene	mg/kg	0.2			<0.2	0			<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2						
	Toluene	mg/kg	0.5			<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5						
	Ethylbenzene	mg/kg	1 : 0.5 (Interlab)			<1	0			<1	<0.5	0	<1	<0.5	0	<1	<0.5						
	Xylene (m & p)	mg/kg	2 : 0.5 (Interlab)			<2	0			<2	<0.5	0	<2	<0.5	0	<2	<0.5						
	Xylene (o)	mg/kg	1 : 0.5 (Interlab)			<1	0			<1	<0.5	0	<1	<0.5	0	<1	<0.5						
	Xylene Total	mg/kg	1 : 0.5 (Interlab)			<1	0			<1	<0.5	0	<1	<0.5	0	<1	<0.5						
PAHs in Soil	Acenaphthene	mg/kg	0.1 : 0.5 (Interlab)			<0.1	0			<0.1	<0.5	0	<0.1	<0.5	0	<0.1	<0.5						
	Acenaphthylene	mg/kg	0.1 : 0.5 (Interlab)			<0.1	0			<0.1	<0.5	0	<0.1	<0.5	0	<0.1	<0.5						
	Anthracene	mg/kg	0.1 : 0.5 (Interlab)			<0.1	0			<0.1	<0.5	0	<0.1	<0.5	0	<0.1	<0.5						
	Benzo(a)anthracene	mg/kg	0.1 : 0.5 (Interlab)			<0.1	0			<0.1	<0.5	0	<0.1	<0.5	0	<0.1	<0.5						
	Benzo(a) pyrene	mg/kg	0.05 : 0.5 (Interlab)			<0.05	0			<0.05	<0.5	0	<0.05	<0.5	0	<0.05	<0.5						
	Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5			<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5						
	Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.5			<0.5	0			<0.5	0.6	18	<0.5	0.6	18	<0.5	0.6						
	Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5			<0.5	0			<0.5	1.2	82	<0.5	1.2	82	<0.5	1.2						
	Benzo(g,h,i)perylene	mg/kg	0.1 : 0.5 (Interlab)			<0.1	0			<0.1	<0.5	0	<0.1	<0.5	0	<0.1	<0.5						
	Benzo(b+j+k)fluoranthene	mg/kg	0.2			<0.2	0			<0.2			<0.2			<0.2							
	Chrysene	mg/kg	0.1 : 0.5 (Interlab)			<0.1	0			<0.1	<0.5	0	<0.1	<0.5	0	<0.1	<0.5						
	Dibenz(a,h)anthracene	mg/kg	0.1 : 0.5 (Interlab)			<0.1	0			<0.1	<0.5	0	<0.1	<0.5	0	<0.1	<0.5						
	Fluoranthene	mg/kg	0.1 : 0.5 (Interlab)			<0.1	0			<0.1	<0.5	0	<0.1	<0.5	0	<0.1	<0.5						
	Fluorene	mg/kg	0.1 : 0.5 (Interlab)			<0.1	0			<0.1	<0.5	0	<0.1	<0.5	0	<0.1	<0.5						
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.1 : 0.5 (Interlab)			<0.1	0			<0.1	<0.5	0	<0.1	<0.5	0	<0.1	<0.5						
	Naphthalene	mg/kg	0.1 : 1 (Interlab)			<0.1	0			<0.1	<0.5	0	<0.1	<0.5	0	<0.1	<0.5						
	Phenanthrene	mg/kg	0.1 : 0.5 (Interlab)			<0.1	0			<0.1	<0.5	0	<0.1	<0.5	0	<0.1	<0.5						
	Pyrene	mg/kg	0.1 : 0.5 (Interlab)			<0.1	0			<0.1	<0.5	0	<0.1	<0.5	0	<0.1	<0.5						
	PAHs (Sum of positives)	mg/kg	0.05			<0.05	0			<0.05			<0.05			<0.05							
VTRH(C6-C10)/BTEXN in Soil	Naphtthalene	mg/kg	1 : 0.5 (Interlab)			<1	0			<1	<0.5	0	<1	<0.5	0	<1	<0.5						
PCBs in Soil	Arochlor 1016	mg/kg	0.1			<0.1	0									<0.1							
	Arochlor 1221	mg/kg	0.1			<0.1	0									<0.1							
	Arochlor 1232	mg/kg	0.1			<0.1	0									<0.1							
	Arochlor 1242	mg/kg	0.1			<0.1	0									<0.1							
	Arochlor 1248	mg/kg	0.1			<0.1	0									<0.1							
	Arochlor 1254	mg/kg	0.1			<0.1	0									<0.1							
	Arochlor 1260	mg/kg	0.1			<0.1	0									<0.1							
	PCBs (Sum of total)	mg/kg	0.1			<0.1	0									<0.1	<0.1						
Organochlorine Pesticides in soil	a-BHC	ug/kg	100 : 50 (Interlab)			<100	0									<100	<50						
	Aldrin	ug/kg	100 : 50 (Interlab)			<100	0									<100	<50						
	Dieldrin	ug/kg	100 : 50 (Interlab)			<100	0									<100	<50						
	b-BHC	ug/kg	100 : 50 (Interlab)			<100	0									<100	<50						
	Chlordane (cis)	ug/kg	100 : 50 (Interlab)			<100	0									<100	<50						
	Chlordane (trans)	ug/kg	100 : 50 (Interlab)			<100	0		</														

Field Duplicates (SOIL)
Filter: SDG in('ENVIROLAB 2019-03-12T00:00:00')

Field Duplicates (SOIL)			SDG	ENVIROLAB 2019-03-12	ENVIROLAB 2019-03-12	ENVIROLAB 2019-03-12	ALSE-Sydney 12-Mar-19	ENVIROLAB 2019-03-12	ALSE-Sydney 12-Mar-19	ENVIROLAB 2019-03-12	ALSE-Sydney 12-Mar-19	ENVIROLAB 2019-03-12	ALSE-Sydney 12-Mar-19	ENVIROLAB 2019-03-12	ALSE-Sydney 12-Mar-19
Filter: SDG in('ENVIROLAB 2019-03-12T00:00:00')			Field ID	QA9	TP232 - 0.1	QA2	TP201 - 0.1	QA4	TP208 - 0.1	QA6	TP224 - 0.1	QA8			
			Sampled Date/Time	6/03/2019	5/03/2019	5/03/2019	5/03/2019	5/03/2019	5/03/2019	5/03/2019	6/03/2019	6/03/2019			
	Chlorpyrifos	mg/kg	0.1 : 0.05 (Interlab)	<0.1	0						<0.1	<0.05	0	<0.1	<0.05
	Chlorpyrifos-methyl	mg/kg	0.1 : 0.05 (Interlab)	<0.1	0						<0.1	<0.05	0	<0.1	<0.05
	Diazinon	mg/kg	0.1 : 0.05 (Interlab)	<0.1	0						<0.1	<0.05	0	<0.1	<0.05
	Dichlorvos	mg/kg	0.1 : 0.05 (Interlab)	<0.1	0						<0.1	<0.05	0	<0.1	<0.05
	Dimethoate	mg/kg	0.1 : 0.05 (Interlab)	<0.1	0						<0.1	<0.05	0	<0.1	<0.05
	Ethion	mg/kg	0.1 : 0.05 (Interlab)	<0.1	0						<0.1	<0.05	0	<0.1	<0.05
	Fenitrothion	mg/kg	0.1	<0.1	0						<0.1			<0.1	
	Malathion	mg/kg	0.1 : 0.05 (Interlab)	<0.1	0						<0.1	<0.05	0	<0.1	<0.05
	Parathion	mg/kg	0.1 : 0.2 (Interlab)	<0.1	0						<0.1	<0.2	0	<0.1	<0.2
	Ronnel	mg/kg	0.1	<0.1	0						<0.1			<0.1	
Organochlorine Pesticides in soil	Hexachlorobenzene	µg/kg	100 : 50 (Interlab)	<100	0						<100	<50	0	<100	<50

*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 80 (1-10 x EQL); 50 (10-30 x EQL); 30
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in

Soil Analytical RPD Table

Field Duplicates (SOIL)
Filter: SDG in('ENVIROLAB 2019-03-12T00:00:00')

SDG	RPD	ENVIROLAB 2019-03-12	ALSE-Sydney 12-Mar-19	RPD
Field ID		TP217 - 0.1	QA10	
Sampled Date/Time		6/03/2019	6/03/2019	

Method Type	ChemName	Units	EQL				
Moisture	Moisture %	% w/wet w	0.1		8.3		
Asbestos ID - soils	Asbestos fibres	-			0.0E0		
Acid Extractable metals in soil	Arsenic	mg/kg	4 : 5 (Interlab)	13	5	5	0
	Cadmium	mg/kg	0.4 : 1 (Interlab)	0	<0.4	<1	0
	Chromium (III+VI)	mg/kg	1 : 2 (Interlab)	27	21	23	9
	Copper	mg/kg	1 : 5 (Interlab)	8	16	16	0
	Lead	mg/kg	1 : 5 (Interlab)	18	51	92	57
	Mercury	mg/kg	0.1	0	<0.1	<0.1	0
	Nickel	mg/kg	1 : 2 (Interlab)	22	7	7	0
	Zinc	mg/kg	1 : 5 (Interlab)	1	47	53	12
svTRH (C10-C40) in Soil	C10-C14	mg/kg	50	0	<50	<50	0
	C15-C28	mg/kg	100	0	<100	<100	0
	C29-C36	mg/kg	100	0	<100	<100	0
vTRH(C6-C10)/BTEXN in Soil	C6-C9	mg/kg	25 : 10 (Interlab)	0	<25	<10	0
svTRH (C10-C40) in Soil	C10-C16	mg/kg	50	0	<50	<50	0
	>C10-C16 less Naphthalene (F2)	mg/kg	50	0	<50	<50	0
	C16-C34	mg/kg	100	0	<100	<100	0
	C34-C40	mg/kg	100	0	<100	<100	0
	>C10 - C40 (Sum of total)	mg/kg	50	0	<50	<50	0
vTRH(C6-C10)/BTEXN in Soil	C6-C10	mg/kg	25 : 10 (Interlab)	0	<25	<10	0
	>C6-C10 less BTEX (F1)	mg/kg	25 : 10 (Interlab)	0	<25	<10	0
	Benzene	mg/kg	0.2	0	<0.2	<0.2	0
	Toluene	mg/kg	0.5	0	<0.5	<0.5	0
	Ethylbenzene	mg/kg	1 : 0.5 (Interlab)	0	<1	<0.5	0
	Xylene (m & p)	mg/kg	2 : 0.5 (Interlab)	0	<2	<0.5	0
	Xylene (o)	mg/kg	1 : 0.5 (Interlab)	0	<1	<0.5	0
	Xylene Total	mg/kg	1 : 0.5 (Interlab)	0	<1	<0.5	0
PAHs in Soil	Acenaphthene	mg/kg	0.1 : 0.5 (Interlab)	0	<0.1	<0.5	0
	Acenaphthylene	mg/kg	0.1 : 0.5 (Interlab)	0	<0.1	<0.5	0
	Anthracene	mg/kg	0.1 : 0.5 (Interlab)	0	<0.1	<0.5	0
	Benz(a)anthracene	mg/kg	0.1 : 0.5 (Interlab)	0	<0.1	<0.5	0
	Benzo(a) pyrene	mg/kg	0.05 : 0.5 (Interlab)	0	<0.05	<0.5	0
	Benzo(a)pyrene TEQ calc (Zero)	mg/kg	0.5	0	<0.5	<0.5	0
	Benzo(a)pyrene TEQ calc (Half)	mg/kg	0.5	18	<0.5	0.6	18
	Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	82	<0.5	1.2	82
	Benzo(g,h,i)perylene	mg/kg	0.1 : 0.5 (Interlab)	0	<0.1	<0.5	0
	Benzo(b+j+k)fluoranthene	mg/kg	0.2		<0.2		
	Chrysene	mg/kg	0.1 : 0.5 (Interlab)	0	<0.1	<0.5	0
	Dibenz(a,h)anthracene	mg/kg	0.1 : 0.5 (Interlab)	0	<0.1	<0.5	0
	Fluoranthene	mg/kg	0.1 : 0.5 (Interlab)	0	<0.1	<0.5	0
	Fluorene	mg/kg	0.1 : 0.5 (Interlab)	0	<0.1	<0.5	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.1 : 0.5 (Interlab)	0	<0.1	<0.5	0
	Naphthalene	mg/kg	0.1 : 1 (Interlab)	0	<0.1	<0.5	0
	Phenanthrene	mg/kg	0.1 : 0.5 (Interlab)	0	<0.1	<0.5	0
	Pyrene	mg/kg	0.1 : 0.5 (Interlab)	0	<0.1	<0.5	0
	PAHs (Sum of positives)	mg/kg	0.05		<0.05		
vTRH(C6-C10)/BTEXN in Soil	Naphthalene	mg/kg	1 : 0.5 (Interlab)	0	<1	<0.5	0
PCBs in Soil	Arochlor 1016	mg/kg	0.1		<0.1		
	Arochlor 1221	mg/kg	0.1		<0.1		
	Arochlor 1232	mg/kg	0.1		<0.1		
	Arochlor 1242	mg/kg	0.1		<0.1		
	Arochlor 1248	mg/kg	0.1		<0.1		
	Arochlor 1254	mg/kg	0.1		<0.1		
	Arochlor 1260	mg/kg	0.1		<0.1		
	PCBs (Sum of total)	mg/kg	0.1	0	<0.1	<0.1	0
Organochlorine Pesticides in soil	a-BHC	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	Aldrin	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	Dieldrin	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	b-BHC	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	Chlordane (cis)	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	Chlordane (trans)	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	d-BHC	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	DDD	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	4,4-DDE	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	DDT	ug/kg	100 : 200 (Interlab)	0	<100	<200	0
	DDT+DDE+DDD	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	Endosulfan I	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	Endosulfan II	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	Endosulfan sulphate	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	Endrin	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	Endrin aldehyde	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	g-BHC (Lindane)	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	Heptachlor	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	Heptachlor epoxide	ug/kg	100 : 50 (Interlab)	0	<100	<50	0
	Methoxychlor	ug/kg	100 : 200 (Interlab)	0	<100	<200	0
Organophosphorus Pesticides	Azinophos methyl	mg/kg	0.1 : 0.05 (Interlab)	0	<0.1	<0.05	0
	Bromophos-ethyl	mg/kg	0.1 : 0.05 (Interlab)	0	<0.1	<0.05	0

Field Duplicates (SOIL)
Filter: SDG in('ENVIROLAB 2019-03-12T00:00:00')

SDG						
Field ID	RPD	ENVIROLAB 2019-03-12	ALSE-Sydney 12-Mar-19			RPD
Sampled Date/Time		TP217 - 0.1	QA10			
		6/03/2019	6/03/2019			

	Chlorpyrifos	mg/kg	0.1 : 0.05 (Interlab)	0	<0.1	<0.05	0
	Chlorpyrifos-methyl	mg/kg	0.1 : 0.05 (Interlab)	0	<0.1	<0.05	0
	Diazinon	mg/kg	0.1 : 0.05 (Interlab)	0	<0.1	<0.05	0
	Dichlorvos	mg/kg	0.1 : 0.05 (Interlab)	0	<0.1	<0.05	0
	Dimethoate	mg/kg	0.1 : 0.05 (Interlab)	0	<0.1	<0.05	0
	Ethion	mg/kg	0.1 : 0.05 (Interlab)	0	<0.1	<0.05	0
	Fenitrothion	mg/kg	0.1		<0.1		
	Malathion	mg/kg	0.1 : 0.05 (Interlab)	0	<0.1	<0.05	0
	Parathion	mg/kg	0.1 : 0.2 (Interlab)	0	<0.1	<0.2	0
	Ronnel	mg/kg	0.1		<0.1		
Organochlorine Pesticides in soil	Hexachlorobenzene	µg/kg	100 : 50 (Interlab)	0	<100	<50	0

*RPDs have only been considered where a concentration is greater than 1 times the EQL.
**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 80 (1-10 x EQL); 50 (10-30 x EQL); 30
***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in

Field Blanks (WATER)
Filter: SDG in(ENVIROLAB 2019-03-12T00:00:00)

SDG	ENVIROLAB 2019-03-12T00:00:00
Field ID	Rinsate
Sampled_Date/Time	5/03/2019
Sample Type	Rinsate

Method_Type	ChemName	Units	EQL	
Metals in Water - Dissolved	Arsenic (Filtered)	µg/l	50	<50
	Cadmium (Filtered)	µg/l	10	<10
	Chromium (III+VI) (Filtered)	µg/l	10	<10
	Copper (Filtered)	µg/l	10	<10
	Lead (Filtered)	µg/l	30	<30
	Mercury (Filtered)	µg/l	0.5	<0.5
	Nickel (Filtered)	µg/l	20	<20
	Zinc (Filtered)	µg/l	20	<20
PAHs in Water	Acenaphthene	µg/L	1	<1
	Acenaphthylene	µg/L	1	<1
	Anthracene	µg/L	1	<1
	Benz(a)anthracene	µg/L	1	<1
	Benzo(a) pyrene	µg/L	1	<1
	Benzo(a)pyrene TEQ	µg/L	5	<5
	Benzo(g,h,i)perylene	µg/L	1	<1
	Benzo(b+i+k)fluoranthene	µg/L	2	<2
	Chrysene	µg/L	1	<1
	Dibenz(a,h)anthracene	µg/L	1	<1
	Fluoranthene	µg/L	1	<1
	Fluorene	µg/L	1	<1
	Indeno(1,2,3-c,d)pyrene	µg/L	1	<1
	Naphthalene	µg/L	1	<1
	Phenanthrene	µg/L	1	<1
	Pyrene	µg/L	1	<1
	PAHs (Sum of positives)	µg/L	1	0
svTRH (C10-C40) in Water	C10-C16	µg/L	50	<50
	>C10-C16 less Naphthalene (F2)	µg/L	50	<50
	C16-C34	µg/L	100	<100
	C34-C40	µg/L	100	<100
	C10-C14	µg/L	50	<50
	C15-C28	µg/L	100	<100
	C29-C36	µg/L	100	<100
vTRH(C6-C10)/BTEXN in Water	C6-C10	µg/L	10	<10
	>C6-C10 less BTEX (F1)	µg/L	10	<10
	C6-C9	µg/L	10	<10
	Benzene	µg/L	1	<1
	Naphthalene	µg/L	1	<1
	Toluene	µg/L	1	<1
	Ethylbenzene	µg/L	1	<1
	Xylene (m & p)	µg/L	2	<2
	Xylene (o)	µg/L	1	<1

Detailed Site Investigation

APPENDIX H SAFework CERTIFICATE



SafeWork NSW

Locked Bag 2906, Lisarow NSW 2252

Customer Experience 13 10 50

ABN 81 913 830 179 | www.safework.nsw.gov.au

Our Ref: D18/203110

9 October 2018

Ryan Wells
Arcadis Australia Pty Ltd
Level 16
580 George Street
Sydney NSW 2000

Dear Mr Wells

RE SITE: 2-18 Centennial Road Bowral NSW 2576

I refer to your site search request received by SafeWork NSW on 25 September 2018 requesting information on Storage of Hazardous Chemicals for the above site.

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

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

Yours sincerely

Customer Service Officer
Customer Experience - Operations
SafeWork NSW

