

**CONTAMINATION ASSESSMENT**

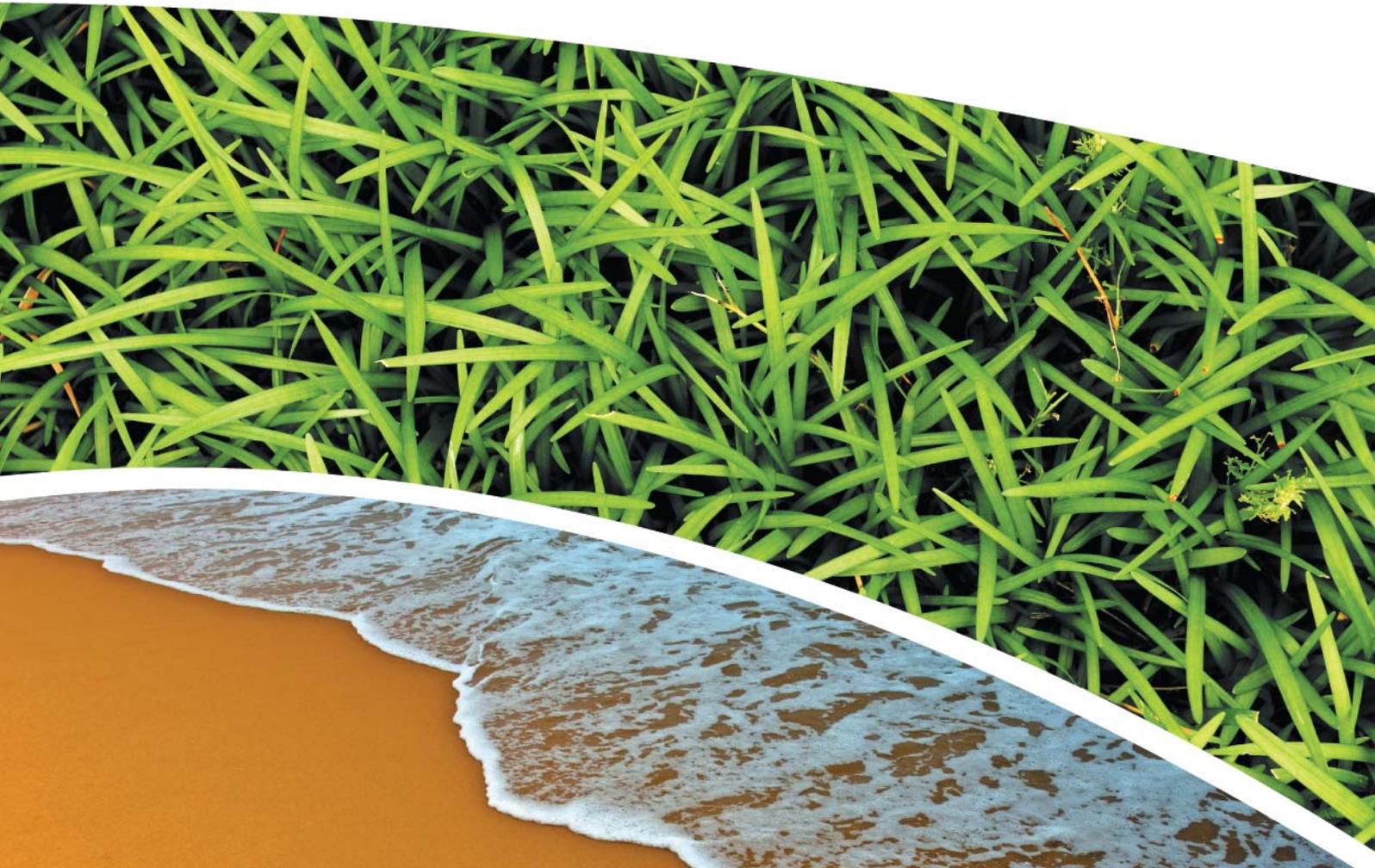
**LOTS 412 & 413 DP 1063902, MEDOWIE NSW**

**Prepared for Catholic Diocese of Maitland Newcastle c/o Webber  
Architects**

**Prepared by RCA Australia**

**RCA ref 13156-401/1**

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27 March 2018

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Engineering Geology

Environmental Engineering

Hydrogeology

Construction Materials Testing

Environmental Monitoring

Sound & Vibration

Occupational Hygiene

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## **CONTAMINATION ASSESSMENT**

### **LOTS 412 & 413, DP 1063902**

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### **EXECUTIVE SUMMARY**

This report presents the findings of a historical and intrusive assessment undertaken at the location of a proposed Catholic College located at 507 Medowie Road and 2 Kingfisher Close, Medowie.

The purpose of this assessment was to determine if the site is suitable for the proposed use which will include early learning through to the end of High School and may include some residential dwelling. RCA understands that this assessment may be used in compilation of the environmental impact statement (EIS) for the site that is required under the site's State Significant Development (SSD) status.

Historical assessment of the site included review of site and surrounding notifications, local council records, site specific requirements under SSD 8989, published local geology and hydrogeology, nearby registered groundwater bores and historical aerial photographs.

Intrusive works comprised:

- Site inspection
- Limited soil assessment with the use of a drill rig
  - based on low and potentially diffuse sources of potential contamination inferred from the historical assessment
- Installation and sampling of three (3) on site groundwater bores
- Hazardous material audit on the existing structures and dwelling,
- Salinity investigation
- Assessment for potential acid sulfate soils.

Assessment of the soils indicated that some impact was encountered within fill mounds surrounding the bituminous go-kart track that primarily consisted of polycyclic aromatic hydrocarbons (PAH). This material is considered likely to be attributable to asphaltic gravels logged within the material and RCA has recommended further assessment to clarify this and determine whether the material can be used on site or requires off-site disposal.

The natural and topsoil material assessed elsewhere across the site is considered suitable for the proposed use, with one (1) location reporting a hydrocarbon exceedance and one (1) reporting a zinc concentration in excess of the ecological criterion. The concentrations in the north of the site are considered possibly due to organic content of the sample and RCA have recommended further assessment at the time of development.

Assessment of installed groundwater monitoring bores indicates that some elevated metal concentrations were observed in MW2 and to a lesser extent MW1. Further assessment and/or future monitoring may be required to identify if these concentrations correlate with regional or local background level should future use, extraction and/or disposal of the groundwater be considered. Concentrations observed meet levels that would allow for human ingestion as the site is within a Hunter Water drinking water catchment. Additional testing would be required to fully assess whether the groundwater is suitable for drinking.

Acid sulfate soils were identified at the site at 3.0m below the surface at one location and may commence from 2.0m below the surface. Depending on the extent of excavation being undertaken, an acid sulfate management plan may be required.

The hazardous material audit did not encounter potential asbestos; however potential for synthetic mineral fibre (SMF) may be encountered within possible insulated area. RCA recommends that appropriate work, health and safety (WHS) and hygiene protocols should be employed during any demolition works.

RCA considers that there is minimal potential for site contamination in those areas within the proposed development which were not sampled in the absence of any point sources of contamination. Standard 'unexpected finds' protocols should be implemented during construction works to address any potential uncertainty.

RCA considers the site is suitable for the proposed use as a Catholic College subject to:

- Management and/or remediation of the fill mound material located adjacent to the bitumen track.
- Consideration of the extent of excavation and implementation of an acid sulfate soil management plan if excavation is likely to impact on acid sulfate soils.

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## APPENDIX A

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**APPENDIX C**

*HISTORICAL PHOTOGRAPHS*

**APPENDIX D**

*REGISTERED GROUNDWATER WELL INFORMATION*

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**APPENDIX G**

*BORE LOGS AND FIELD SHEETS*

**APPENDIX H**

*QUALITY ASSURANCE REVIEW AND LABORATORY REPORT SHEETS*

**APPENDIX I**

*SUMMARY OF RESULTS*

## 1 INTRODUCTION

This report presents the findings of an environmental assessment undertaken by RCA at the site of a proposed development area at Medowie, NSW. The assessment was undertaken at the request of Webber Architects on behalf of the Catholic Diocese of Maitland Newcastle.

The site is situated to the west of Medowie Road and to the south of the township of Medowie. It is proposed for the site to be developed into a Catholic College comprising a secondary school and primary school, and place of worship. The master plan also includes an early learning centre and residential portions.

The proposed development is a State Significant Development lodged under SSD 8989. Part of the approval process requires consultation with a number of Local, State and Commonwealth government authorities to allow for the environmental impact statement (EIS) to be compiled as per Secretary's Environmental Assessment Requirements (SEAR). These bodies have included the School Community, Port Stephens Council, NSW EPA, NSW Department of Planning and Environment, Department of Primary Industries, Office of Environment and Heritage, Hunter Water, Transport for NSW, Roads and Maritime Services, and NSW Government Architect. The following SEAR were considered relevant to potential contamination and have therefore been considered by this assessment:

- Hunter Water response (Ref [1]):
  - The proposed development falls within the Hunter Water's Grahamstown Dam Drinking Water Special Area.
  - Hunter Water requires all development within drinking water catchments to demonstrate a Neutral or Beneficial Effect on water Quality (NorBE). Ways in which water quality may be adversely impacted are through demolition and construction, sewage and stormwater management/ discharge, storage and use of chemicals.
  - Development and management are to be in accordance with Hunter Water's "Protecting our Drinking Water Catchments: Guidelines for Developments in the drinking water catchments" (Ref [2]).
  - Understanding that a contamination assessment must be undertaken to identify soil or groundwater contamination at the site. It is stressed that, if contamination is found, contaminants must not be permitted to leave the site through soil or surface water runoff.
- Office of Environment & Heritage (Ref [3]):
  - Describe background conditions for any water source likely to be affected by the development including existing surface and groundwater
  - Water quality objectives that represent the community's uses and values for the receiving waters.

- Indicators and trigger values/criteria for the environmental values identified above in accordance with the ANZECC 2000 (Ref [4]) and/or local objectives, criteria or targets endorsed by the NSW Government.
- Identification of proposed monitoring of water quality.

The objectives of this assessment are to address the above SEAR and to determine if the site is suitable for the proposed development which will include sensitive receptors.

This report has been undertaken in general accordance with the Guidelines for Consultants Reporting on Contaminated Sites (Ref [5]).

## 2 SITE IDENTIFICATION AND DESCRIPTION

The site comprises of two (2) Lots, which are described as 507 Medowie Road, Medowie, NSW, Lot 412 DP 1063902 and 2 Kingfisher Close, Medowie, NSW, Lot 413 DP 1063902.

Additional site details are shown in **Table 1**.

**Table 1**      *Site Details*

|  |  |
|--|--|
| <p><b>Current zoning<br/>(Ref [6])</b></p>                   |  <p>R2 Low density residential and RU2 Rural Landscape</p>   |
| <p><b>Current use<br/>Proposed use</b></p>                   | <p>Lot 412 DP 1063902 is currently used for residential use, which consists of one dwelling, large shed, tennis court and bitumen track.</p> <p>Lot 413 DP 1063902 is vacant.</p> <p>Part of the site is proposed to be used as a Catholic College, including early learning through to Year 12. Residential use of a portion of the site is also proposed for a later date.</p> <p>The remainder of the site is understood to remain vacant and undeveloped.</p>  |
| <p><b>Size of site</b></p>                                   | <p>Lot 413 DP 1063902 – 10 ha<br/>         Lot 412 DP 1063902 – 16.83 ha<br/>         Proposed College Development – 6.7 ha</p>  |
| <p><b>Land use to the:<br/>North</b></p>                     | <p>Residential housing which falls under R5- Large Lot residential zoning</p>  |
| <p><b>South</b></p>  | <p>Rural property with grassland, bush and wetlands. A small electrical substation is located within the paddock.</p>  |
| <p><b>East</b></p>   | <p>An electrical substation and residential house is located directly adjacent to Lot 413 DP 1063902.</p> <p>Medowie Road is directly adjacent to the site. On the other side of the road is residential housing and Pacific Dunes Golf Course.</p>  |
| <p><b>West</b></p>   | <p>The area is zoned RU2 Rural Landscape, but consists of bushland and possible wetlands.</p>  |
| <p><b>Nearest sensitive receptor<br/>(human health)</b></p>  | <p>Kindy Patch Medowie – Kindergarten and preschool approximately 40m directly east of the site.</p>   |
| <p><b>Nearest sensitive receptor<br/>(environmental)</b></p> | <p>There is a dam/wetland located in the western portion of the site, whilst a creek/ drainage channel is located in the southern portion of the site.</p> <p>Wetlands are present on the site and directly adjacent to the south, west and east of the site (Ref [7]).</p> <p>Grahamstown Dam is located approximately 3.5km west of the site, which is a primary water source for the Newcastle area.</p> <p>A habitat corridor is located along the western boundary of the site as specified within the Medowie Planning Strategy (Ref [8]).</p> |

**Drawing 1, Appendix A** shows the locality and the layout of the site.

Layout of the proposed development is included in **Appendix B**.

### **3 SITE HISTORY AND BACKGROUND INFORMATION**

#### **3.1 SITE NOTIFICATIONS**

The Section 149 (2) Planning Certificate as specified under the Environmental Planning and Assessment Regulation 2000 (Schedule 4) includes information associated with any restrictions for the use of the land.

Information relevant to this obtained from the 149 certificate and relevant to the site is contained in **Table 2**, below.

**Table 2** *Planning Advice Contained In the 149 Certificate*

|  | <b>507 Medowie Road<br/>Lot 412 DP 1063902<br/>25/03/2014</b>   | <b>2 Kingfisher Close<br/>Lot 413 DP 1063902<br/>25/03/2014</b> |
|--|---|---|
| <b>Part 2<br/>relevant<br/>Information</b> | <p>Multiple SEPP and draft SEPP apply to sites.<br/>Port Stephens LEP 2013 and DCP 2013 apply to sites.<br/>Williams River Catchment Regional Environmental Plan 1997 applies to the sites.</p> <p>R5 Large Lot Residential and RU2 Rural Landscape; this zoning allows for child care centres, community facilities, recreational areas, places of public worship, and dwelling houses with consent within the R5 zoned area.<sup>1</sup></p> <p>The sites are <b>not</b> defined as Critical Habitat.</p> <p>The sites are <b>not</b> within a heritage conservation area.</p> <p><b>No</b> heritage items are situated on the sites.</p> <p>The sites are <b>not</b> affected by coastal protection provisions.</p> <p>The sites <b>are</b> within a Mine Subsidence District.</p> <p>Lot 413 DP 1063902 <b>is</b> affected by proposed road widening or realignment.</p> <p>The sites are <b>not</b> affected by RAAF Base Williamtown and Salt Ash Weapons Range 2025 or Aircraft Noise Planning Area.</p> <p>The sites <b>are</b> considered to potentially be wholly or partially flood prone.</p> <p>The sites are <b>not</b> reserved for government acquisition.</p> <p>The sites are <b>not</b> biodiversity certified land.</p> <p>The sites are <b>not</b> subject to a biobanking agreement.</p> <p>The sites <b>are</b> considered bushfire prone.</p> <p>The sites are <b>not</b> affected by a Property Vegetation Plan.</p> <p>The sites are <b>not</b> been notified regarding a dispute between neighbours regarding trees.</p> <p>The sites are <b>not</b> affected by a direction from the Minister.</p> <p>The sites are <b>not</b> known to be affected by any aspect of the :</p> <ul style="list-style-type: none"> <li>• SEPP (Housing for Seniors and People with a Disability). <ul style="list-style-type: none"> <li>• SEPP (Infrastructure).</li> <li>• SEPP (Affordable Rental Housing).</li> </ul> </li> <li>• SEPP (Mining, Petroleum Production and Extractive Industries).</li> </ul> <p>The sites are <b>not</b> subject to a current development plan.</p> <p>There are <b>no</b> prescribed matters under the Contaminated Land Management Act 1997 related to the sites.</p> |   |
| <b>Part 5<br/>relevant<br/>Information</b> | No assessment of the Section 149 (5) has been undertaken as the information was not provided.   |   |

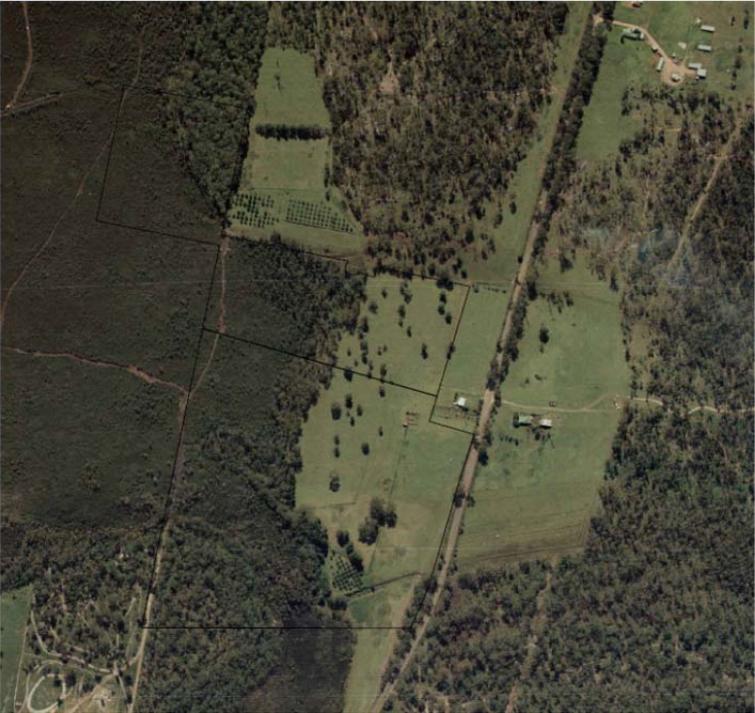
<sup>1</sup> LEP mapping indicates that this zoning has changed since the issue of the S149 documents

### 3.2 HISTORICAL PHOTOGRAPHS

RCA reviewed historical aerial photographs and **Table 3** summarises the observations at the site and the surrounding environment. The reviewed aerial photographs are provided in **Appendix C** with the exception of the 2017 aerial which is the base for the drawings provided in **Appendix A**.

**Table 3** *Aerial Photograph review*

|                                  |  |
|----------------------------------|--|
| <p><b>1954</b><br/>(B&amp;W)</p> |  <p>The eastern portion of the site has been predominantly cleared, with a few scattered trees and an area being used for horticultural purposes, presumed orchard, in the southern portion of the site. A channel exists directly adjacent to the southern portion of the presumed orchard. The western portion of the site appears to not have been disturbed and consists of bushland and wetlands. One (1) small structure and some fencing are present in the cleared portion.</p> <p>A dirt road is present to the immediate east of the site, presumed to be Medowie Road, whilst a dwelling and structures are further to the east. Some horticultural activity is present to the north of the site, presumed to be orchards. West and south of the site appears to be relatively undisturbed, with some lots and structures present on Richardson Road.</p> |
| <p><b>1967</b><br/>(B&amp;W)</p> |    |

|                                 |  |
|---------------------------------|--|
|                                 | <p>Another small structure is present on the site, adjacent to the existing one and both are presumed to be sheds or pens. The drainage channel appears to have been extended and is now a distinct channel running to the edge of the site. There appears to have been no change to the horticultural patch or the western portion of the site.</p> <p>Surrounding the site there is a dwelling to the north east which has been constructed. To the south west of the site, there land has been cleared with a number of structures and tracks present. Some clearance south of the site directly adjacent to Medowie road has occurred; otherwise it remains wetland and bushland.</p>                                      |
| <p><b>1977</b><br/>(colour)</p> |  <p>One of the structures has been removed on the site; otherwise no significant changes have occurred on the site since 1967.</p> <p>Adjacent to the site, a track now exists bordering the western boundary of the site. To the south west, a number of tracks can be observed within the bushland, although some of these may have been present before, which the colour and quality of the photograph has made more apparent. The largest orchard to the north of the site has been partially cleared, with two (2) sections of the original extent remaining.</p> <p>No significant changes have occurred to the east of the site.</p> |

|                                  |  |
|----------------------------------|--|
| <p><b>1984</b><br/>(B&amp;W)</p> |  <p>The small area in the southern section of the site used for horticultural purposes is either no longer in use or is fallow. No other significant changes have occurred on the site.</p> <p>Two (2) structures are now present north east of the site, whilst to the north only one section of presumed orchard remains. This area has been left clear with a track observable. No significant changes have occurred to the east, south or south west of the site. To the south east of the site a significant portion of bushland/ Moffats swamp has been cleared (refer to the full aerial provided in <b>Appendix C</b>).</p>  |
| <p><b>1993</b><br/>(Colour)</p>  |  <p>The small structure on the site has been replaced with the large shed and container alongside. A bituminous track is present on the central cleared portion of the site, whilst a large clearing with a perimeter track is now present on the western portion of the site. The northern central portion appears to be used for agricultural purposes. The former horticultural area in the southern portion has been somewhat replanted. A track is now observable south of the creek which goes to the south west and branches off in the bushland in that portion. Some clearing of vegetation has occurred in the north western portion of the site, with a track accessing the area now present.</p> <p>To the north of the site, all the presumed orchard areas have now been removed</p> |

|  |  |
|--|--|
|  | <p>and a few structures have been built. The structures observed in 1984 are now clear and include a dwelling and shed, with a swimming pool now present. Significant tree felling and vegetation clearance has occurred to the south and south east of the site, with bare ground clearly observable.</p>   |
| <p><b>1998</b><br/>(Colour)</p>              |  <p>On the site, the shed size has increased and the driveway is more pronounced. The clearing to the west of the site has a dirt track in the shape of an "8", potentially with water in the inner sections. An unknown orange object is noticeable within the bitumen track. The agricultural activity in the north of the site is no longer observable.</p> <p>Adjacent to the site, there has been some land clearance south west of the site, whilst the clearing previously observed to the south and south east has somewhat revegetated at a reduced density. Clearing and development to the north and north east of the site is in progress.</p> |
| <p><b>2004</b><br/>(Colour-Google Earth)</p> |  <p>The inner portions of the western "8" track still appear waterlogged, but appear to include vegetation. A dwelling is now present on the site to the south east of the</p>   |

|   |   |
|---|---|
|   | <p>existing shed and a tennis court to the south. Some ground disturbance is noticeable to the west of the bitumen track, with some material stockpiled in front of the dwelling and inside the track (this could also be the unknown object recorded in 1998).</p> <p>Surrounding the site there has been significant residential development to the north, north east and east of the site has and is occurring. The Pacific Dunes golf course to the east has predominantly been constructed.</p>  |
| <p><b>2017</b><br/>(Colour-<br/>Nearmap<br/>Appendix<br/>A)</p> | <p>Ground disturbance works and stockpiles in the central portion of the site are no longer observable, as are the few trees which were in the former horticultural area. Revegetation within the "8" track in the western area has continued. No other significant changes are observable on the site.</p> <p>Surrounding the site, an electrical substation has been developed directly to the north east of the site, with the two (2) structures and the pool demolished. The Pacific Dunes golf course has been completed, as has the majority of the residential development within the surrounding area.</p> |

### 3.3 CONTAMINATED LAND PUBLIC RECORD

RCA undertook a search of the NSW EPA public lands register (<http://www.epa.nsw.gov.au/publicregister/>) and did not find any record of Environment Protection licences, applications, notices, audits or pollution studies and reduction programmes applicable to the site, or in the suburbs of Medowie or Campvale, NSW.

RCA undertook a search of sites notified to the EPA as potentially requiring regulation (<http://www.epa.nsw.gov.au/clm/publiclist.htm> as updated 9 February 2018) and confirmed that the site is not notified, nor is there any site within Medowie, Salt Ash or Campvale. One site is each located in Oyster Cove and Williamtown; however these are both situated over 5km away from the site and therefore are not considered likely to have potentially impacted the site.

The site is located approximately 2.5km north of Williamtown RAAF base; however the site is not classified under any of the PFAS Management Area tiers as defined by the NSW EPA (Ref [9]) as it is considered to be upgradient of the impacted groundwater.

RCA undertook a search of the NSW EPA gasworks database (<http://www.epa.nsw.gov.au/clm/gasworkslocation.htm>) and determined that there are no gasworks within vicinity of the site.

RCA undertook a search of the NSW Office of Fair Trading asbestos insulation register ([http://www.fairtrading.nsw.gov.au/ftw/Tenants\\_and\\_home\\_owners/Loose\\_fill\\_asbestos\\_insulation/Public\\_Search/LFAI\\_Public\\_Register.page](http://www.fairtrading.nsw.gov.au/ftw/Tenants_and_home_owners/Loose_fill_asbestos_insulation/Public_Search/LFAI_Public_Register.page)) and determined the absence of loose-fill asbestos insulation in the buildings at the site.

### 3.4 GEOLOGY AND HYDROGEOLOGY

RCA reviewed published geological and hydrogeological maps and summarised the findings in **Table 4**.

**Table 4** *Geology and Hydrogeology*

|   |   |
|---|---|
| <b>Soil (Ref [10])</b>                      | <p>The predominant soil type of the site is residual sandy clay loams, overlying loams on deeply weathered clay deposits under the Medowie landscape.</p> <p>The southern portion of the site is classified under Tea Gardens Aeolian profile predominantly consisting of well-drained hummus podzols on ridges and acid peat in swampy areas.</p>  |
| <b>Geology (Ref [11])</b>                   | <p>Dominant geology across the site is from the Permian period, consisting of Tomago coal measures. This is generally represented by shales, mudstones, sandstones, coals, tuffs and clays.</p> <p>The western portion of the site is quaternary alluvium consisting of gravels, sands and silts.</p>   |
| <b>Acid sulfate soil (Ref [12])</b>         | <p>Across the site, the potential occurrence for acid sulfate soils (ASS) varies between no known occurrence and low probability.</p> <p>The western and southern portions of the both Lots are classified as low probability of ASS either below 1 to 3m below the surface (mbgs), or greater than 3mbgs.</p> <p>The north eastern portion of the site, which is where the majority of development is proposed is in an area of no known occurrence of potential ASS.</p>  |
| <b>Groundwater use</b>                      | <p>Four (4) off site bores located less than 500m from the site were published on the Department of Primary Industries Office of Water website. Three of these bores are located east of the site, with one located to the south. No information was detailed in the work summaries provided regarding use.</p> <p>A number of groundwater wells are registered on the Office of Water website in the area, of which many were licenced by Hunter Water and are presumed to be related to the drinking water catchment area of Newcastle.</p>                   |
| <b>Number of monitoring wells on site</b>   | <p>No registered on site monitoring wells were published on the DPI Office of Water groundwater maps.</p> <p>A windmill and nearby trough was observed within the go kart track which may have formerly been used for groundwater extraction.</p>   |
| <b>Depth to groundwater</b>                 | Unknown – no known data available   |
| <b>Estimated Groundwater flow direction</b> | Unknown – no known data available   |
| <b>Background water quality</b>             | Unknown – no known data available   |

The groundwater information is attached in **Appendix D**.

### 3.5 PREVIOUS INVESTIGATIONS

A geotechnical assessment of the site has been undertaken by Valley Civilab (Ref [8]); with the report indicating that five (5) soil units were encountered during their works<sup>2</sup>. The subsurface conditions encountered (Ref [13]) consisted of the following:

- Topsoil: Silty SAND with grass root fibres, loose.
  - This was commonly encountered across most of the sampled locations.
- Fill: Silty Gravelly SAND/ SAND, Silty Sandy Clay, medium dense to dense/ stiff.
  - This was only encountered immediately to the south of the dwelling and shed, immediately to the north of the dwelling and adjacent to Medowie Road on the lower southern portion of the site.
- Alluvium: Silty SAND / SAND/ Clayey SAND / Sandy CLAY, medium dense to dense / stiff.
  - This was generally encountered on the southern and eastern portions of the site, including adjacent to the electrical substation and vacant dwelling.
  - Groundwater influx was encountered with this stratum at depths between 0.6mbgs and 1.8mbgs.
- Residual: Silty CLAY, Stiff to very stiff.
  - Encountered on the central and western portions of the cleared area of the site.
- Silty CLAY, high plasticity, pale grey/ red with weathered inclusions (ironstone/ sandstone bands), very stiff to hard.

### 3.6 INTEGRITY ASSESSMENT

The information reviewed as part of this assessment is general information in most cases. Specific information, as provided by the Section 149 certificates are specific to the site, however the records are incomplete and appear to be outdated. Geological information for the site is based on third parties however does provide data that is site specific, although some data gaps are present; these are outside of the proposed building footprint and therefore not considered to be significant. The historical aerial photographs are considered to provide an indicative understanding of former site use only based on the vegetation clearing, type, size of buildings observed.

The information about groundwater is limited with a number of the bores located within the area, however no information was provided regarding the use or details in the Office of Water summaries.

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<sup>2</sup> It is noted that the geotechnical assessment was undertaken based on areas of the proposed building footprint and therefore some parts of the cleared portion have not been assessed; namely the western and northern areas. The assessment was undertaken with an earlier revision of the proposed development plan and therefore there has since been some change to the proposed location of buildings.

RCA considers that the information is sufficient to indicate that the site has been a rural property since the 1950s although a dwelling has only been present since 1998 at the earliest. Some horticultural activities have been undertaken in the northern and southern parts of the site, with possible grazing used elsewhere. Racing tracks have built on the site, with both dirt and bitumen courses observed to have been constructed in the late 1980s/ early 1990s.

#### 4 GENERAL SITE CONDITIONS AND OBSERVATIONS

RCA undertook a site inspection on 7 February 2018 and recorded the following observations in **Table 5**.

**Table 5** *General Site conditions and observations*

|  |   |
|--|---|
| <b>Topography</b>                      | The structures on the site are situated at the highest elevation, with the ground sloping to the south and west, whilst also sloping gently to the north west (Refer to <b>Photographs 1 - 3, Appendix E</b> ).   |
| <b>Site condition</b>                  | The site was generally well grassed with both native and exotic trees and shrubs present in the western and southern portions of the site. Some large and medium sized trees were sporadic across the site and a small area north of the drainage channel has some fruit trees growing. Refer to <b>Photographs 1- 5, Appendix E</b> .  |
| <b>Condition of Building and roads</b> | <p>The dwelling is on brick and steel construction, whilst the shed is steel with (mostly) concrete floor. Both are relatively young in age and were in good condition. The access from Medowie Road to the shed and dwelling is compacted dirt. Refer to <b>Photograph 1 and 2, Appendix E</b>.</p> <p>A bitumen track that was formerly a go-kart track (as indicated during discussion with the current tenant and signage observed in the shed) is present on the south western portion of the site. Within the track is a windmill that may have formerly been used to extract groundwater. Two (2) mounds are located to the west and north of the bituminous track. Refer to <b>Photographs 6 and 7, Appendix E</b>.</p> <p>A dirt track was observed in the western portion of the site, which is also considered to have likely been used for a similar purpose to the bitumen track. It appears to be disused with the track vegetated with grass and shrubs at the time of inspection (Refer to <b>Photograph 8, Appendix E</b>).</p> <p>A hardstand tennis court is present in the central portion of the site, directly south of the dwelling and shed (Refer to <b>Photograph 1, Appendix E</b>).</p> |
| <b>Visual Signs of contamination</b>   | None observed   |

|   |  |
|---|--|
| <b>Signs of erosion</b>                                       | <p>None observed.</p> <p>Although not observed at the time of inspection, site drainage would be expected to be via overland flow and some drainage channels were evident in the central and southern area of the site. A drainage channel runs under Medowie Road onto the site in the south eastern corner and joins the creek/ drainage channel that runs north east-south westerly in the southern area of the site (refer to <b>Photograph 2, 4 &amp; 9, Appendix E</b>). Discussion with the current site tenants indicated that stormwater from Medowie and the golf course is via this pathway. It is understood that the southern and western portions of the site flood during storms/ prolonged rainfall.</p> |
| <b>Presence of drums or waste</b>                             | Nil observed.  |
| <b>Identification of potential asbestos bearing materials</b> | One (1) sample was collected during the hazardous material audit (HMA) for identification. The shed and residential dwelling on the site were of steel and brick construction respectively, with the dwelling built between 1998 and 2004 and therefore the presence of asbestos is considered unlikely. Further details from the HMA are provided in <b>Section 9.1</b> .   |
| <b>Visible signs of plant stress</b>                          | Nil observed.  |
| <b>Odours noticeable on site</b>                              | Nil observed.  |
| <b>Evidence of current or former petroleum facilities</b>     | None observed.   |
| <b>Chemicals stored on site</b>                               | Some chemicals were stored in the shed; however these were mostly on the portion which is underlain by a concrete slab. No evidence of staining or previous leaks was observed (refer to <b>Photograph 10, Appendix E</b> ).   |
| <b>Evidence of waste burial: (anecdotal or otherwise)</b>     | Mounds surrounding the go-kart track were observed along the north and western perimeter (Refer to <b>Photograph 7, Appendix E</b> ). Surface assessment during site inspection of the mounds indicated presence of concrete and asphalt and therefore further assessment were conducted.  |

The location of photographs taken during the site inspection are shown on **Drawing 1, Appendix A** and attached in **Appendix E**.

## 5 PRELIMINARY CONCEPTUAL SITE MODEL

RCA has determined, based on the reviewed historical information, potential contamination arises from:

- Site activities which appear to comprise of rural / residential use:
  - This may have resulted in surface contamination by pesticides and herbicides. Petroleum and other chemicals may have been stored in, or around, the large shed however there has been no indications of bulk storage. Sub-surface contamination may have been caused by infiltration over time.

- Risks associated with this material are considered to be associated with inhalation of dust and ingestion of, or dermal contact with, soil. This risk would be highest during construction works and would likely be considered negligible following completion of construction, however would be dependent on concentrations observed.
- Off site impacts are considered minimal in the absence of bulk storage and are restricted to potential transportation/migration of dust and fines in stormwater, primarily during construction.
- Localised filling.
  - Mounds are present directly to the west of the bitumen track and they may contain material that was imported to site. Potential contaminants of concern could be wide ranging dependent on the type of fill and material within.
- Use of asbestos containing building materials at the site:
  - Review of historical aerials indicate that the dwelling was constructed between 1998 and 2004, whilst the industrial sized shed was built between 1987 and 1993 and extended between 1993 and 1998 and as such are not considered to have a high potential for the presence of asbestos. Former structures were at the site and if asbestos containing materials were used in construction, and depending on the condition and location within the building this may have resulted in surface soil contamination. Subsurface contamination may be present if excess building materials were inappropriately disposed of at site at the time of construction.
  - The risks associated with this contamination are considered to be due to inhalation directly or secondarily from adhered fibres on equipment and clothing. Risks are highest during demolition.
  - Off site impacts are not considered likely based on the occupied nature of the residences, however may be possible depending on the extent of the degradation of building materials.
- Presence of acid sulfate soils. The Williamstown Acid Sulfate Soil Risk Map indicates that the north and western portions of the site have a low probability of acid sulfate soils at depths greater than one metre below the surface.
  - This may lead to acid leachate and corrosion issues during and post development and poses material re-use complications.
  - The risks associated with this contamination are considered to be the potential to increase the mobility of some contaminants, particularly metals.
  - Off site impacts are possible through leaching of acidic surface water from the material while excavating/handling during construction. Acid sulfate material cannot be disposed of off-site without treatment and cannot be re-used off site under any waste order/exemption.

## 6 SAMPLING AND ANALYTICAL QUALITY PLAN

No formal sampling and analytical quality plan (SAQP) was developed for the project. The scope of work was provided in RCA's proposal for the works and the following sections detail the basis for the scope.

### 6.1 STEP 1 – STATE THE PROBLEM

Based on the preliminary conceptual site model determined by RCA, there was considered to be potential onsite herbicides, pesticides and hydrocarbons possibly arising from past agricultural use. Building materials could have potentially included the use of asbestos, and the construction of the tracks may have included the importation of fill material. The southern and western portions of the site could have acid sulfate soils which could impact construction and mobilise any contaminants, if present.

### 6.2 STEP 2 – IDENTIFY THE GOALS AND DECISIONS

The key uncertainties that the investigation attempts to address were as follows:

- What, if any, is the extent of the filling?
- What is the geology and hydrogeology of the site?
- Does the concentration of contaminants in groundwater exceed acceptable levels?
- Do the concentrations of contaminants in soil exceed acceptable levels?

In order to achieve these uncertainties, decisions were to be made as to the presence and significance of potential contamination such that management measures can be designed to reduce the risk. The specific decisions to be made were to be as follows:

- Determine past and present potential contamination sources.
- Determine the nature of contamination.
- Determine the geology and hydrogeology.
- Determine whether contaminants in ground water exceed acceptable levels.
- Determine the potential and actual contaminant migration routes.
- Determine the lateral and vertical extent of contamination.
- Determine whether contaminants in soil exceed acceptable levels.
- Determine whether further investigation or management is required.

### 6.3 STEP 3 – IDENTIFY INPUTS TO THE DECISIONS

The specific types of information needed to resolve the decision statements in Step 3 were noted as follows:

- Adequate site history appraisal.
- Adequate conceptual site model (CSM).
- Soil material type.
- Installation of groundwater monitoring wells.
- Analytical data for the collected samples.

- Appropriate assessment criteria for the media being investigated.
- Appropriate field methods.
- Appropriate laboratory analysis methods.

The ASC NEPM (Ref [14]) document has been approved by the NSW EPA for use on potentially contaminated sites and supersedes most of the preceding reference documents.

Best practice in alignment with council's requirements under SEPP 55 (Ref [15]) prescribes assessment on the basis of the most sensitive allowable site use. Currently the site use is residential and the development of a school with the range from Kindergarten to Year 12 and therefore the proposed sensitivity is to remain the same, with an inclusion for early learning in the master development plan. RCA therefore considers the criteria as defined for residential with access to the soil to be applied due to the potential sensitive receptors within the proposed early learning and Kindergarten appropriate for assessment of human health risk from the soil at the site. The ecological risk was to be assessed under the criteria defined for urban residential and public open space. Soil salinity will be compared against the Department of Land and Conservation guidelines (Ref [16]), with 4dS/m considered to be saline. Sensitive plants may show effects at concentrations between 1.0dS/m and 2dS/m (Ref [16]).

The ASC NEPM provides generic groundwater investigation levels (GIL) which are defined as 'the concentration of a contaminant in groundwater above which further investigation is required'. The ANZECC 2000 and Australian Drinking Water guidelines (Ref [4] and [17]) constitute part of these GIL and differentiate on the protection percentage. Due to the site being located within the Grahamstown Dam Drinking Water Special Area, RCA considers that the site should be compared against the drinking water human health ingestion guidelines. In regards to the aquatic ecosystems, RCA considers that 95% protection level would be considered to be representative.

The ASSMAC (Ref [18]) document is considered the most appropriate guidance for potential acid sulfate soils. RCA have utilised the coarse material criteria, which are the same for projects regardless of the amount of tonnes disturbed. These are the most conservative of the available criteria.

Full details of the relevant guidelines are included in **Appendix F**.

#### **6.4 STEP 4 – DEFINE THE BOUNDARIES OF THE INVESTIGATION**

The horizontal extent of the assessment has generally been defined by the proposed development footprint as shown on the plan in **Appendix A**. Some limited indicative sampling was to be undertaken within the proposed future residential Lots in the north of the site.

Samples were to be collected within the proposed child care centre, primary school, secondary school, place of worship and administrative areas. Sampling has been targeted within the building footprints as works will involve soil disturbance, however some allowance in the outdoor play and recreational areas has been included.

Groundwater bores were to have been located in areas outside of the current proposed footprint to allow for potential monitoring during and after the construction phase of works.

Practical constraints that could have interfered with sampling include:

- Infrastructure, including the existing dwelling and shed.
- Electrical easement which runs north-south adjacent to Medowie Road.
- Vegetation and water courses.
- Vehicle access ways.
- Site and tenant owner/s and permissions.

Timing constrains for this project include scope delivery within the approval application process and therefore inspection and sampling will be undertaken as soon as practicable.

The financial constraints for sampling will be according to the final costing provided and agreed. Any deviations from this costing determined during the fieldwork were to be discussed and agreed with the Catholic Diocese of Maitland Newcastle prior to additional costs being incurred.

## 6.5 STEP 5 – DEVELOP THE DECISION RULES

The Data Quality Indicators (DQI) that were implemented for the project are detailed in **Table 6**.

**Table 6** *Data Quality Indicators Implemented for the Assessment*

| DQI                | Determined by   | Criteria   |
|--------------------|---|--|
| Accuracy           | Internal – surrogates, laboratory control samples, matrix spikes, method blanks.<br>External – trip spikes.   | Surrogate, LCS, spike - recovery data to be 70-130%.<br>Blanks – results to be < practical quantification limit (PQL).   |
| Precision          | Internal – laboratory duplicates<br>External – intralaboratory duplicates.  | Relative Percentage Difference (RPD) of duplicates: <ul style="list-style-type: none"> <li>• 50% RPD at concentration levels greater than ten times the PQL.</li> <li>• 75% RPD at concentrations between five to ten times the PQL.</li> <li>• 100% RPD at concentration levels between two and five times the PQL.</li> </ul> Where concentration levels are less than two times the PQL, the Absolute Difference (AD) shall be calculated. Data will be considered acceptable if the AD <2.5 times the PQL. |
| Completeness       | The percentage of completed data points, taking in account consideration of other DQI.  | 95%  |
| Representativeness | Whether there has been sufficient sampling by appropriate methodology with relevant analysis to determine that the assessment is representative of the site conditions. |  |
| Comparability      | <ul style="list-style-type: none"> <li>• All samples collected during this sampling programme were</li> </ul>   |  |

|  |  |
|--|--|
|  | <p>to be obtained by adequately trained RCA personnel using consistent sampling methodologies throughout the project.</p> <ul style="list-style-type: none"> <li>• All samples must have been received by the laboratory cool and appropriately preserved for the requested analysis with sufficient time within the specified holding time.</li> <li>• All laboratory analyses were to be conducted by NATA accredited methodologies that comply with the international standard methods referred to in the ANZECC (Ref [4]) and ASC NEPM (Ref [14]) guidelines.</li> <li>• Comparable analytes such as TRH C<sub>6</sub>-C<sub>10</sub> and BTEX, PAH and TRH C<sub>&gt;10</sub>-C<sub>40</sub>, and metals should show some concurrence between analytical results and to identified field observations.</li> </ul> |
|--|--|

## 6.6 STEP 6 – ACCEPTABLE LIMITS ON DECISION ERRORS

If the data received was not in accordance with the defined acceptable limits outlined in Step 5, it may have been considered to be an estimate or be rejected. Determination of whether this data may be used or, if re-sampling was required, will have been based on the following considerations:

- Closeness of the result to the guideline concentrations.
- Specific contaminant of concern (eg, response to carcinogens may be more conservative).
- The area of site in question and the potential lateral and vertical extent of questionable information.
- Whether the uncertainty can be effectively managed by site management controls.

If any of the data validation procedures or criteria identified were not followed or met, this will have constituted a non-conformance. The significance of the non-conformance will have determined if rectification was required. Re-sampling may have been required as a result of non-conformances.

## 6.7 STEP 7 – OPTIMISATION OF THE DESIGN OF THE COLLECTION OF DATA

The derived scope of work was to comprise twenty (20) soil sampling locations to 1.0mbgs. Thirteen (13) sample locations were to target where the development footprint was proposed, with most collected within the proposed building footprints. Three (3) samples were to be collected within the bitumen track area and four (4) were to be collected from other areas which consisted of the potential residential lots.

Disturbed soil samples were to have been collected directly from the drill rig auger. This collection method was chosen for the site due to limited site access and to limit disturbance.

Samples were to have been screened using a photoionisation detector (PID) in the field to aid in the selection of samples for laboratory analysis.

Decontamination of soil sampling equipment was to have been undertaken by brushing of excess soil from the auger between locations. New, disposable nitrile gloves will be employed at each sampling location.

All soil samples were to have been laboratory analysed for electrical conductivity, metals (arsenic, cadmium, chromium, copper, nickel, lead, zinc, and mercury), pesticides and herbicides. The surface samples were to have also been analysed for total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylene (BTEX), polycyclic aromatic hydrocarbons (PAH).

All samples were to have been stored in the field in a chilled container on ice and sent to the laboratory within 24 hours of sampling under chain of custody (COC) documentation.

ALS were to have been used as the primary analysing laboratory for all analyses as well as quality assurance samples due to its NATA accreditation and experience with potentially contaminated soil. Eurofins mgt were the secondary analysing laboratory and are also NATA accredited.

Assessment for acid sulfate soils has formed part of this assessment and included the collected for soil samples at 1.0mbgs and every metre thereafter at the three (3) groundwater bore locations at the time of well installation. All samples will be screened with a peroxide oxidisation test, with an allowance for six (6) samples to be analysed for potential acid sulfate soil properties.

Groundwater sampling was to be undertaken approximately one (1) week following installation and development to allow sufficient time for resetting of the natural equilibrium. Sampling will be undertaken via low flow pumping to minimise disturbance to the groundwater aquifer. Samples were to be analysed for TRH, BTEX, PAH, metals, pesticides and herbicides.

A summary of the sampling strategy is presented in **Table 7**.

**Table 7**      *Sampling Strategy*

| Contaminating activity  | Potential Contaminants of Concern   | Sampling Strategy  | Rationale for Sampling Strategy and Sampling Locations  |
|---|---|--|---|
| <b>Soil</b>   |   |  |   |
| <p>Potential historical filling of the site.</p> <p>Potential use of pesticides, herbicides, and hydrocarbons during agricultural and horticultural uses.</p> <p>Potential impact from surface water flow and/or flooding from offsite sources.</p> <p>Part of the site is situated in an area with potentially acid sulfate soil greater than 1mbgs.</p> | <p>Variable dependent on the material encountered and source. Could include total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xyxylene (BTEX), polycyclic aromatic hydrocarbons (PAH) and metals.</p> <p>Organochloride and organophosphorous pesticides (OCP &amp; OPP), herbicides, TRH and PAH.</p> <p style="text-align: center;">PFAS.</p> | <p>Collection of soil samples at surface (approx. 0.05mbgs) and near surface (0.3mbgs- 0.5mbgs).</p> <p>Additional samples will be collected based on field observations of contamination or to characterise strata.</p> <p>Acid sulfate samples will be collected at 1mbgs and every metre thereafter until 4.0mbgs.</p> <p>A drill rig will be utilised to obtain disturbed samples.</p> | <p>Twenty (20) locations were chosen to provide characterisation of potential herbicide and pesticide contamination with logging and assessment of the soil for potential fill at the site. Three (3) locations were chosen to determine potential ASS of site soils</p> <p>A judgmental sampling pattern was employed based on available site history information, site walkover and the proposed development design and footprint. RCA has determined that the limited sampling strategy to be sufficient give the lack of point sources identified during the historical assessment.</p> |
| <b>Groundwater</b>  |   |  |   |
| <p>Migration of potential contaminants into the presumed shallow groundwater table.</p> <p>Potential impact to the groundwater aquifer from the Williamtown RAAF Base.</p>  | <p>OCP, OPP, herbicides, TRH, BTEX, PAH and metals.</p> <p style="text-align: center;">PFAS.</p>  | <p>RCA have allowed for the analysis of three (3) samples from the site to provide adequate coverage.</p>  | <p>Limited groundwater bore locations were selected due low potential of impact considered on site and therefore limited exposure to groundwater.</p> <p>Three monitoring bores would assist in determining groundwater flow direction and confirmation of migration of offsite contamination.</p>  |

## 7 FIELDWORK

An environmental scientist experienced in the handling of potentially contaminated soil and groundwater undertook the fieldwork on 7, 9, 12 and 16 February 2018 with the assistance of a technician. The scope of work included:

- A site inspection.
- Location of services.
- HMA.
- The collection of fifty six (56) soil samples from twenty three (23) locations on the site:
  - This was in accordance with RCA's intended scope with the exception of six (6) additional samples which were collected from the fill mound encountered on the site.
  - Samples for characterisation were collected from fill and natural materials from between depths of approximately 1.0 and 1.5 mbgs using a drill rig. Sampling depths were determined in the field based on material types encountered and evidence of visual and olfactory contamination.
  - Three (3) of the locations, from which eleven (11) samples were collected, relate to the assessment of potential ASS and were collected from depths between 1.0 and 4.1mbgs.
- Re-instatement of all excavations.
- Converting the three (3) bores into groundwater monitoring wells:
  - Groundwater monitoring wells were installed by a licensed driller under NSW Office of Water license 2261.
  - Wells were developed to remove all fines disturbed during the drilling. No water was required to be added to the bores whilst drilling. Field sheets are attached in **Appendix G**.
- Logging of boreholes including description of samples for texture, colour, odour, moisture content and well construction. Logs are attached in **Appendix G**.
- Screening of eleven (11) samples for potential ASS using the peroxide oxidation test.
  - Based on the results of the screening, six (6) soil samples were analysed for potential acid sulfate soil properties using the complete chromium suite method
- Analysis of one (1) bulk sample for potential asbestos.
- Analysis of thirty six (36) samples for metals (arsenic, cadmium, chromium, copper, nickel, lead, zinc and mercury) and electrical conductivity.
- Analysis of twenty (20) surface soil samples and nine (9) soil samples from within encountered fill mounds for TRH, BTEX, PAH.
- Analysis of thirty three (33) soil samples for pesticides and herbicides.

- Analysis of three (3) soil samples located on the southern, lower portion of the site for PFAS due to the elevation and proximity to the drainage channel/creek situated on the site, which is considered likely to have been flooded and/or waterlogged before.

An environmental scientist returned to the site on 16 February 2018 to collect groundwater samples:

- Bores were dipped to determine depth of groundwater and presence of any phase separated hydrocarbons. Bores were then purged of at least one bore volume and until pH and EC readings stabilised.
- Samples were collected by designated low flow pump and were analysed for OCP, OPP, herbicides, PFAS, TRH, BTEX, PAH and metals. Field sheets are attached in **Appendix G**.

No contamination issues were identified onsite or within the surrounding environment during fieldwork using visual and olfactory means with the exception of one fragment of suspected asbestos collected from fibrous concrete on the ground within the shed.

Fill was encountered in two (2) mounds which were situated on the western and northern side of the bitumen go-kart track. Assessment of these mounds was undertaken by drilling three (3) boreholes until natural material was encountered. Natural material was encountered between 1.4mbgs and 2.2mbgs. The material within the mounds included gravels consisting of chert, siltstone, as well as rock, brick, concrete and asphalt up to depths of 1.4mbgs in the southern mound. The northern mound included stone, brick and asphalt near the surface whilst at depth soil material which could have been from on-site material was predominant.

Some shallow fill material was also encountered within proximity to the shed and dwelling (BH8). BH20 was collected from the location which looked to have been used to stockpile material during the historical assessment, and when assessed some stone gravels were encountered at the surface, which could be attributed to this former use.

The profile observed included both alluvial and residual soils, with the southern lower portion of the site generally consisting of sands and loams overlying silty sands/ silty sandy clay. The sloped area and elevated portion of the site generally consisted of sandy silts/ sandy loams overlying silty clay and is considered to represent the residual profile.

The location of the three (3) groundwater wells is shown on **Drawing 1, Appendix A**. Two (2) of these bores are located on the lower portion of the site, within the alluvial profile and groundwater was encountered at 1.3mbgs and 1.4mbgs at MW1 and MW3 respectively. MW2 is situated on the slope of the site, to the south of the residential dwelling and water was not encountered until 10.5mbgs, just above bedrock. It is considered that the low moisture content of the stiff clay encountered may have impeded groundwater flow back into the hole during drilling and therefore a few hours were left between the drilling and well installation. When the hole was reassessed there was some moisture on the tape at approximately 4.5mbgs and therefore the decision to extend the screening to 9m was agreed in case the inflow of the groundwater was slow. At the time of groundwater sampling, the water level at MW2 was 8.5mbgs, indicating 2.9m of water within the screen.

Pooled water was encountered within the creek/ drainage channel (Refer to **Photograph 9, Appendix E**); however no surface water flow was encountered during fieldwork. It is considered that during rainfall, water would flow to the south down the hill to the creek/ drainage channel.

## 8 QUALITY ASSURANCE/QUALITY CONTROL

RCA has assessed the quality assurance and control in **Appendix H** and found it to be acceptable for the purpose of site assessment or otherwise.

## 9 RESULTS

All soil and groundwater results are compared to the relevant criteria in **Appendix I**. The following sections present a summary of the assessment undertaken at the site. Results which are in excess of the applied site criteria are shown on **Drawing 2, Appendix A**.

### 9.1 HAZARDOUS MATERIAL AUDIT

The HMA was conducted on the dwelling and industrial sized shed on 7 February 2018. The residential dwelling was documented on the historical aerials between 1998 and 2003 and therefore it was considered unlikely that potential asbestos containing materials have been used. The construction of the house was brick with steel roofing, whilst the inside of the house was plasterboard walls and carpet/ ceramic tile flooring. No potential asbestos containing material (ACM) was identified in the house although RCA do note that access into the roof or wall cavity was not conducted. The use of synthetic mineral fibre (SMF) could have been utilised in these areas.

The large shed on the site was of steel construction, although inside it had been segregated into a number of areas/ rooms (as can be seen from the photographs provided in **Appendix E**). The partition walls were of cement sheeting board composition, with RCA collecting some samples for further investigation (burn testing and close inspection by senior personnel). This included the wet areas encountered within the shed that consisted of a toilet and bathroom within the older section of the shed. Masonite board was identified in parts of the shed. Large pieces of fibre concrete (~1m x0.3m) were encountered within the section of the shed that is not hardstand. One (1) bulk sample was collected from one of the smaller fragments of this material and analysed for presence of asbestos fibres, of which the analysing laboratory reported to be absent of asbestos.

Situated on the western side of the shed were two (2) demountable structures. These were primary of metal, masonite and laminate construction although full assessment of the southern structure was severely limited due to restricted access from the amount of items inside.

Photographs taken from the residential dwelling, shed, and demountable assessed during the HMA are provided in **Appendix E**.

### 9.2 SOIL

- The EC results appear to range between 0.008 ds/m and 0.210 ds/m and are not considered to be saline when compared against the reference value of 4.0 ds/m (Ref [12]).

- BTEX concentrations were below the PQL in all of the samples analysed.
- TRH concentrations were below the PQL in all of the samples with the following exceptions:
  - BH13A which exceeded the vapour based human health limit for F2 (TRH >C<sub>10</sub>-C<sub>16</sub> minus naphthalene) by 1.18 times the residential with access to soil guideline.
  - BH13A and BH17A which exceeded the ecological criterion for TRH fractions TRH >C<sub>10</sub>-C<sub>16</sub> and TRH >C<sub>16</sub>-C<sub>34</sub> respectively by a maximum of 1.5 times the applicable criteria.
- Concentrations of PAH compounds were generally below the laboratory PQL, or else below the applied site guideline with the exception of:
  - BH17B which reported a concentration of Carcinogenic PAH (B(a)P equivalent) that exceeded by over 4.5 times the criterion. This result represents a 'hotspot' (>250% criterion). The concentration of benzo(a)pyrene at this location was also above the ecological criterion.
  - BH17C reported a concentration of Carcinogenic PAH (B(a)P equivalent) that exceeded the guideline criterion by 1.8 times. This sample also exceeded the benzo(a)pyrene ecological criterion.
- Concentrations of metals were either below the laboratory PQL or at concentrations which were below the applied site criteria within all samples with the following exceptions:
  - BH20A exceeded the ecological criterion for zinc, with a concentration in excess of the applied site criterion by 1.06 times.
- Organochlorine and organophosphorous pesticides were not reported above laboratory detection in any of the samples analysed.
- Herbicide compounds were not reported above laboratory detection in any of the samples analysed.
- PFAS concentrations were greater than the laboratory PQL in sample BH4A; however these were all below the current guideline criteria for residential human health and ecological criteria. Concentrations in BH2A and BH3A were below laboratory quantification.

Soil results in excess of the relevant ecological and human health criteria are presented in **Table 8**.

**Table 8** Soil Results above Relevant Criteria

| Sample Identification (depth) | Analyte                                  | Criteria as relevant for depth and stratum of the sample | Concentration |
|-------------------------------|--|--|---------------|
| BH13A (0.05m)                 | F2                                       | 110 <sup>a</sup>   | <b>129.5</b>  |
|                               | TRH C <sub>&gt;10</sub> -C <sub>16</sub> | 120 <sup>b</sup>   | 130           |
| BH17B (0.2m)                  | TRH C <sub>&gt;16</sub> -C <sub>34</sub> | 300 <sup>b</sup>   | 460           |

| Sample Identification (depth) | Analyte                             | Criteria as relevant for depth and stratum of the sample | Concentration |
|-------------------------------|-------------------------------------|--|---------------|
|                               | Carcinogenic PAH (B(a)P equivalent) | 3 <sup>c</sup>   | <b>13.6</b>   |
|                               | Benzo(a)pyrene                      | 0.7 <sup>d</sup>   | 10            |
| BH17C (1.2m)                  | Carcinogenic PAH (B(a)P equivalent) | 3 <sup>c</sup>   | <b>5.5</b>    |
|                               | Benzo(a)pyrene                      | 0.7 <sup>d</sup>   | 4.1           |
| BH18B (0.4m)                  | Benzo(a)pyrene                      | 0.7 <sup>d</sup>   | 1.0           |
| BH20A (0.05m)                 | Zinc                                | 230 <sup>b</sup>   | 244           |

All concentrations in mg/kg.

F2 = TRH C<sub>>10</sub>-C<sub>16</sub> minus naphthalene

<sup>a</sup> ASC NEPM 1999 (amended April 2013) Vapour Based Health Screening Levels (HSL) (Residential)

<sup>b</sup> ASC NEPM 1999 (amended April 2013) Ecological Screening Levels (ESL) URPOS (Urban Residential and Public Open Space)

<sup>c</sup> ASC NEPM 1999 (amended April 2013) Health Investigation Levels (HIL) 'A' (Residential)

<sup>d</sup> ASC NEPM 1999 (amended April 2013) Ecological Investigation Levels (EIL) URPOS (Urban Residential and Public Open Space)

Results shown in bold are in excess of the HSL/HIL.

Assessment of potential leaching, under neutral conditions (deionised water), from the two (2) samples within the fill mound which reported elevated PAH concentrations was conducted to determine whether there was potential for migration of contamination. Results are provided in **Appendix I** and were compared against the 99% or 95% fresh water protection under the ANZECC guidelines, depending on whether the compound is bioaccumulative. The following was observed:

- Leachable concentrations of a number of PAH compounds were reported above laboratory quantification in both BH17B and BH17C.
  - BH17B reported concentrations of phenanthrene and anthracene above the applied criteria.
  - BH17C reported a concentration of phenanthrene greater than the applied criterion.

It is noted that the detection limit was higher than the 99% criterion for phenanthrene and benzo(a)pyrene.

### 9.3 GROUNDWATER

- BTEX concentrations were below the PQL in all three (3) samples and as such are considered below the applied site criteria.
- TRH concentrations were below laboratory quantification in all three (3) samples and as such are considered below the applied site criteria.
- PAH concentrations were below laboratory quantification in all three (3) samples and as such are considered below the applied site criteria.

- It is noted that the PQL for benzo(a)pyrene is higher than the criterion.
- OCP & OPP concentrations were below laboratory quantification in all three (3) samples and as such are considered below the applied site criteria.
- PFAS compounds were not reported above laboratory PQL in any of the three (3) samples and as such are considered below the applied site criteria.
- Concentrations of metals were either below laboratory quantification or at low levels below the applied site criteria with the following exceptions:
  - MW1 reported chromium and zinc concentrations above the ecological guidelines for aquatic ecosystems.
  - MW2 reported cadmium, copper, nickel and zinc concentrations above the ecological criterion for aquatic ecosystems.

No exceedance of the human health ingestion guidelines was observed noting that the PQL for benzo(a)pyrene, and some pesticides were higher than the criteria.

Groundwater results in excess of the relevant ecological criteria are presented in **Table 9**.

**Table 9** Groundwater Results above Relevant Criteria

| Sample Identification<br>(depth of aquifer) | Analyte  | Criteria | Concentration |
|---|----------|----------|---------------|
| MW1 (1.21m)                                 | Chromium | 1        | 2             |
|   | Zinc     | 8        | 11            |
| MW2 (8.5m)                                  | Cadmium  | 0.2      | 0.5           |
|   | Copper   | 1.4      | 35            |
|   | Nickel   | 11       | 40            |
|   | Zinc     | 8        | 209           |

All concentrations in µg/L.

<sup>a</sup> ANZECC 2000 95% Protection Level for fresh water receiving waters

#### 9.4 ACID SULFATE SOILS

Screening of the eleven (11) soil samples collected for potential ASS indicated that most of the samples met one or more of the triggers which are as follows:

- pH drop of greater than 1 pH unit.
- pHfox value less than 4.
- Reaction rate.

Six (6) samples were sent to an external laboratory for chromium reducible sulphur (CRS) testing to determine the potential for acid sulfate soils and the neutralising capacity. Samples sent for further analysis were from the shallowest and deepest locations which met the triggers stated above at each location. Results are shown in **Table 10** below and laboratory report sheets from both the screening and CRS analysis are provided in **Appendix H**.

**Table 10** Acid Sulfate Soil Analysis

|  | MW1C  | MW1D  | MW2A  | MW2D  | MW3A  | MW3C         |
|--|-------|-------|-------|-------|-------|--------------|
| pH KCl   | 5.6   | 5.6   | 4.4   | 4.1   | 4.8   | 5.2          |
| Chromium Reducible Sulphur<br>(% S)<br><b>Guideline 0.03</b>                               | 0.026 | 0.022 | 0.005 | 0.005 | 0.006 | <b>0.053</b> |
| Acidity - Chromium Reducible<br>Sulphur<br>(mole H <sup>+</sup> /t)<br><b>Guideline 18</b> | 16    | 14    | <10   | <10   | <10   | <b>33</b>    |
| Sulfidic - Acid Neutralising Capacity<br>(% pyrite S)                                      | 0.02  | 0.02  | 0.22  | 0.19  | 0.03  | 0.06         |
| Liming Rate<br>(kg CaCO <sub>3</sub> /t)   | 1     | 1     | 10    | 9     | 1     | 3            |

Samples in excess of the guidelines (Ref [2]) are shown in **bold**.

## 10 SITE CONTAMINATION CHARACTERISATION

Samples were collected from twenty (23) locations across the accessible areas of the site, that were within the proposed Catholic College development footprint or proposed future residential Lots. This is not in accordance with the minimum eighty five (85) locations recommended by NSW EPA's Sampling Design Guidelines (Ref [19]) for a site of 6.7ha. This reduction in size was due to the limited contaminants of concern identified during the historical review of the site, and that the potential impacting contaminants would likely have been widely distributed across the site with no known point sources. RCA considers that the limited sampling strategy conducted is sufficient for adequate characterisation of the site.

RCA conducted a hazardous material assessment of the site with no materials considered to contain asbestos. The structures on the site are predominantly of an age in which asbestos was no longer being used. Synthetic mineral fibres (SMF) may be present within the roof or wall cavities as insulation, and therefore appropriate work health and safety measures and disposal should still be employed during demolition stage of works to limit workers exposure.

Hydrocarbon contamination was identified in the fill mounds situated on the western and northern side of the bituminous go-kart track in the central portion of the site and included concentrations of carcinogenic PAH at hotspot concentrations which require remediation and/or management. RCA considers that the identified concentrations may have come from asphalt within the stockpile, however assessment indicates that there is some potential for leaching of several PAH compounds to occur due to rainfall. While assessment of natural material below the fill indicates that it has not been impacted, RCA considers that the leachability assessment indicates some potential for impact to deeper soil profile, groundwater and surface water to occur. RCA therefore considers that the material within these mounds will require management and/or remediation and consider that the options include:

- Management in which the material remains on site in an area that will be sufficiently impermeable and inaccessible to prevent potential exposure and leaching.
- Disposal of the material to a licensed waste facility. Due to the presence of asphalt within the material, RCA considers that the material may be able to meet the pre-classification as general solid waste, however this should be confirmed with the facility receiving the waste. The chemical analysis undertaken to date classifies the material as hazardous waste.

Characterisation of the site soil material has indicated that there is limited contamination present at the site. The hydrocarbons identified in BH13a are semivolatile, however RCA notes that TRH is a measure of all recovered hydrocarbons and therefore the detected concentrations may not be indicative of petroleum hydrocarbons, rather may be indicative of organic material. Given the absence of any other detectable hydrocarbons within the site soils, RCA consider that this contamination is localised and unlikely to pose a risk to the proposed use of the site. RCA recommends some additional testing on soils in this area be undertaken to determine the specific nature of the hydrocarbons and to determine an extent if associated with petroleum. It is noted that BH13 is outside of the proposed Catholic College footprint buffer zone and is therefore not considered to pose a risk to that development.

The zinc concentration identified at BH20 is considered to be localised based on the low concentrations (<40mg/kg for all but BH18A in the fill mound) elsewhere on site and in the deeper sample at BH20. The concentration is well below the human health criterion and given its localised nature is considered unlikely to affect the ecology.

Analysis for potentially saline soils is considered to indicate that the soils are not saline and RCA do not consider that there are potential effects from salinity to plant species.

Groundwater flow direction was not determined as it was considered that the wells are situated in different aquifers: MW1 and MW3 within the 'Tea Gardens' aeolian profile, and MW2 within the 'Medowie' residual profile. There is some uncertainty regarding the hydrogeological relationship between the bores. The limited scope of the preliminary groundwater assessment conducted is not considered to be sufficient to be able to determine if there is or is not connectivity between the two (2) profiles. RCA considers that the regional groundwater flow would be towards the south or south east based on works undertaken in Williamtown and information published by the NSW EPA (Ref [9]).

Characterisation of the groundwater encountered indicates that contaminant concentrations assessed as part of this assessment are suitable for human ingestion at all three (3) locations noting some minor uncertainty with benzo(a)pyrene and some pesticides due to detection limit. RCA note that additional testing would be required prior to groundwater being used as a drinking water resource at the site.

Metals concentrations in MW1 and MW2 are in excess of those relevant for freshwater aquatic systems, however in the absence of significant metals concentrations in the soil and potential contamination activities at the site it is considered that these concentrations are likely a regional issue. In the understood absence of use of groundwater at the site RCA does not recommend remediation. The concentrations should be taken into account during construction, dewatering, or otherwise to ensure that the handling and disposal options are appropriate.

Soil samples collected from between 1.0mbgs and 4.0mbgs exhibited some indications of potential acid sulfate soil during screening, however only one of the samples exhibited acid sulfate soil properties in excess of the criteria. A further two (2) samples indicated results close to criteria for acid sulfate soil. These results indicate that an ASS management plan will need to be compiled and adhered to for earthworks undertaken at depths greater than two (2) metres at the site.

Based on the review of the available site history documents and in the absence of contamination at the majority of investigated locations, RCA considers that the site is suitable, or can be made suitable, for its proposed use as a Catholic College. RCA recommend:

- Management and/or remediation of the material within the fill mounds currently situated on the northern and western side of the bitumen go-kart track.
- Further assessment in the area of BH13 to determine the character of the identified hydrocarbons.
- Preparation, depending on the intended depth of excavations, of an acid sulfate soil management plan.

## 11 CONCLUSIONS

This report has presented the findings of a contamination assessment undertaken on Lots 412 & 413 DP 1063902, Medowie.

This assessment comprised a review of historical information by RCA which assessed potential contamination at the site, as well as on site soil and groundwater sampling.

The assessment identified concentrations of hydrocarbons in excess of the human health criteria within fill mounds encountered in the central portion of the site, and hydrocarbons at one surface location in the north of the site, outside the footprint of the Catholic College. The concentrations in the fill mounds are considered likely to be attributable to asphaltic gravels logged within the material and RCA has recommended further assessment to clarify this and determine whether the material can be used on site or requires off-site disposal. The concentrations in the north of the site are considered possibly due to organic content of the sample and RCA have recommended further assessment at the time of development.

The assessment identified concentrations of zinc in excess of the ecological criterion, however this was localised and is not considered to present a risk to the environment. Acid sulfate soils were identified at the site at 3.0m below the surface at one location and may commence from 2.0m below the surface. Depending on the extent of excavation being undertaken, an acid sulfate management plan may be required.

The assessment identified concentrations of metals in excess of the ecological criteria, however in the absence of significant concentrations in soil and the absence of a potential contaminating activity, RCA has considered these concentrations to be a regional issue. Should the use of groundwater and/or dewatering be required during the development stage or thereafter, appropriate testing and assessment for suitability of the intended use/disposal should be sought. Groundwater concentrations were compliant with the drinking water guidelines (Ref [17]) however it is noted that assessment of additional compounds would be required prior to the use of groundwater for drinking. Other approvals would also be required.

RCA considers that there is minimal potential for site contamination in those areas within the proposed development which were not sampled in the absence of any point sources of contamination. Standard 'unexpected finds' protocols should be implemented during construction works to address any potential uncertainty.

RCA considers the site is suitable for the proposed use as a Catholic College subject to:

- Management / remediation of the material within the fill mounds to minimise potential environmental impact and exposure for occupants and visitors to the site.
- Consideration of the extent of excavation and implementation of an acid sulfate soil management plan if excavation is likely to impact on acid sulfate soils.

## 12 LIMITATIONS

This report has been prepared for Catholic Diocese of Maitland Newcastle in accordance with an agreement with RCA Australia (RCA). The services performed by RCA have been conducted in a manner consistent with that generally exercised by members of its profession and consulting practice.

This report has been prepared for the sole use of Catholic Diocese of Maitland Newcastle, Webber Architects and for compilation of the EIS. The report may not contain sufficient information for purposes of other uses or for parties other than Catholic Diocese of Maitland Newcastle, Webber Architects and for compilation of the EIS. This report shall only be presented in full and may not be used to support objectives other than those stated in the report without written permission from RCA Australia.

The information in this report is considered accurate at the date of issue with regard to the current conditions of the site. Conditions can vary across any site that cannot be explicitly defined by investigation.

Environmental conditions including contaminant concentrations can change in a limited period of time. This should be considered if the report is used following a significant period of time after the date of issue.

Yours faithfully

**RCA AUSTRALIA**



Katy Shaw  
Environmental Scientist



Fiona Brooker  
Associate Environmental Engineer

## REFERENCES

- [1] Hunter Water, *Request for SEARS for a New Catholic College – 2 Kingfisher Close, Medowie, SSD 8989*, 11 January 2018. Ref HW2018-3.
- [2] Hunter Water, *Protecting our Drinking Water Catchments: Guidelines for Development in Drinking Water Catchments*, Version 4, March 2017.
- [3] NSW Office of Environment and Heritage, *Input into Secretary's Environmental Assessment Requirements – New Catholic College – Medowie – Port Stephens LGA (SSD 8989)*, 10 January 2018. Ref DOC17/631301-4.
- [4] ANZECC, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, October 2000.
- [5] NSW EPA, *Guidelines for Consultants Reporting on Contaminated Sites*, November 1997.
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- [7] Port Stephens Council, *Local Environment Plan 2013 under the Environmental Planning and Assessment Act 1979, Wetlands Map – Sheet WET\_004*, published October 2013.
- [8] Port Stephens Council, *Medowie Planning Strategy*, 13 December 2016.
- [9] NSW EPA, *Williamtown Management Area*, page last updated 23 January 2018 [ONLINE accessed 23 February 2018] <http://www.epa.nsw.gov.au/working-together/community-engagement/community-news/raaf-williamtown-contamination/williamtown-map>
- [10] Matthei, L. E., *Soil Landscapes of the Newcastle 1:100,000 Geological Map, Sheet 9232*, Department of Land and Water Conservation, Sydney, 1995.
- [11] Gorbert V. & Chesnut W., *Geological Survey of New South Wales, Sydney, Newcastle 1:100 000 Geological Sheet 9132*, provisional 1st edition, 1975.

- [12] Department of Land and Water Conservation, *Williamtown Acid Sulphate Risk Map-Edition 2*, December 1997.
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- [15] Department of Urban Affairs and Planning, *State Environmental Planning Policy (SEPP): Remediation of Land*, August 1998
- [16] Department of Land and Conservation, *Site Investigations for urban Salinity*, 2002.
- [17] National Health and Medical Research Council, *Australian Drinking Water Guidelines*, 2011.
- [18] NSW Acid Sulfate Soil Management Advisory Committee, *Acid Sulfate Soil Manual*, August 1998.
- [19] NSW EPA, *Sampling Design Guidelines*, September 1995.
- [20] CRC Care, *Technical Report 10, Health screening levels for petroleum in soil and groundwater*, September 2011.
- [21] ANZECC, *Australian Water Quality Guidelines for Fresh and Marine Waters*, November 1992.
- [22] DECC, *Waste Classification Guidelines, Part 1; Classifying Waste*, November 2014.
- [23] Standards Australia, *Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds*, AS 4482.1-2005.

## GLOSSARY

|          |  |
|----------|--|
| ANZECC   | Australian and New Zealand Environmental Conservation Council.   |
| ASC NEPM | National Environment Protection (Assessment of Site Contamination) Measure.  |
| DECC     | NSW Department of Environment and Climate Change   |
| DECCW    | NSW Department of Environment, Climate Change and Water  |
| DLWC     | Department of Land and Water Conservation.   |
| EIL      | Ecological investigation level. Relates to soil concentrations which may pose a risk to ecological health.                 |
| ESL      | Ecological screening level. Relates to vapour risk from petroleum hydrocarbons which may pose a risk to ecological health. |
| GIL      | Groundwater investigation levels.  |
| HIL      | Health investigation level. Relates to soil concentrations which may pose a risk to human health in soil.                  |
| Hotspot  | A sample, or location, where contaminant concentrations exceed 250% of the appropriate criterion.                          |

|                 |   |
|-----------------|---|
| HSL             | Health screening level. Relates to the vapour risk from petroleum hydrocarbons which may pose a risk to human health in soil.   |
| In-Situ         | In place, without excavation.   |
| Interlaboratory | A sample sent to two different laboratories for comparative analysis.   |
| Intralaboratory | A sample split into two and sent blind to the sample laboratory for comparative analysis.   |
| ISL             | Investigation screening levels for soil. Comprised of HIL/EIL and HSL/ESL   |
| kg              | kilogram, 1000 gram.  |
| Leachate        | Fluid that has passed through a soil stratum, possibly collects contaminants.   |
| LEP             | Local environment plan. A planning tool for the Local Government.   |
| µg              | microgram, 1/1000 milligram.  |
| mg              | milligram, 1/1000 gram.   |
| NAPL            | Non-aqueous phase liquid. This can be lighter than water (LNAPL), or more dense than water (DNAPL).   |
| NEPC            | National Environment Protection Council.  |
| NHMRC           | National Health and Medical Research Council.   |
| NOW             | NSW Office of Water.  |
| NSW EPA         | NSW Environment Protection Authority – formerly a component of DECC, DECCW, OEH but made a separate entity in 2011 to regulates the contaminated land industry.   |
| OEH             | NSW Office of Environment and Heritage.   |
| PID             | Photoionisation detector. Measures volatile gases in air or emanating from soil or water.   |
| PPE             | Personal Protective Equipment.  |
| PQL             | Practical Quantitation Limit.   |
| QA              | Quality Assurance.  |
| QC              | Quality Control.  |
| RPD             | Relative Percentage Difference.   |
| TCLP            | Toxicity characteristic leaching procedure. An analysis designed to mimic the transfer of contaminants from soil into water.<br>Undertaken in acidic environment and used to determine impact in landfill conditions. |

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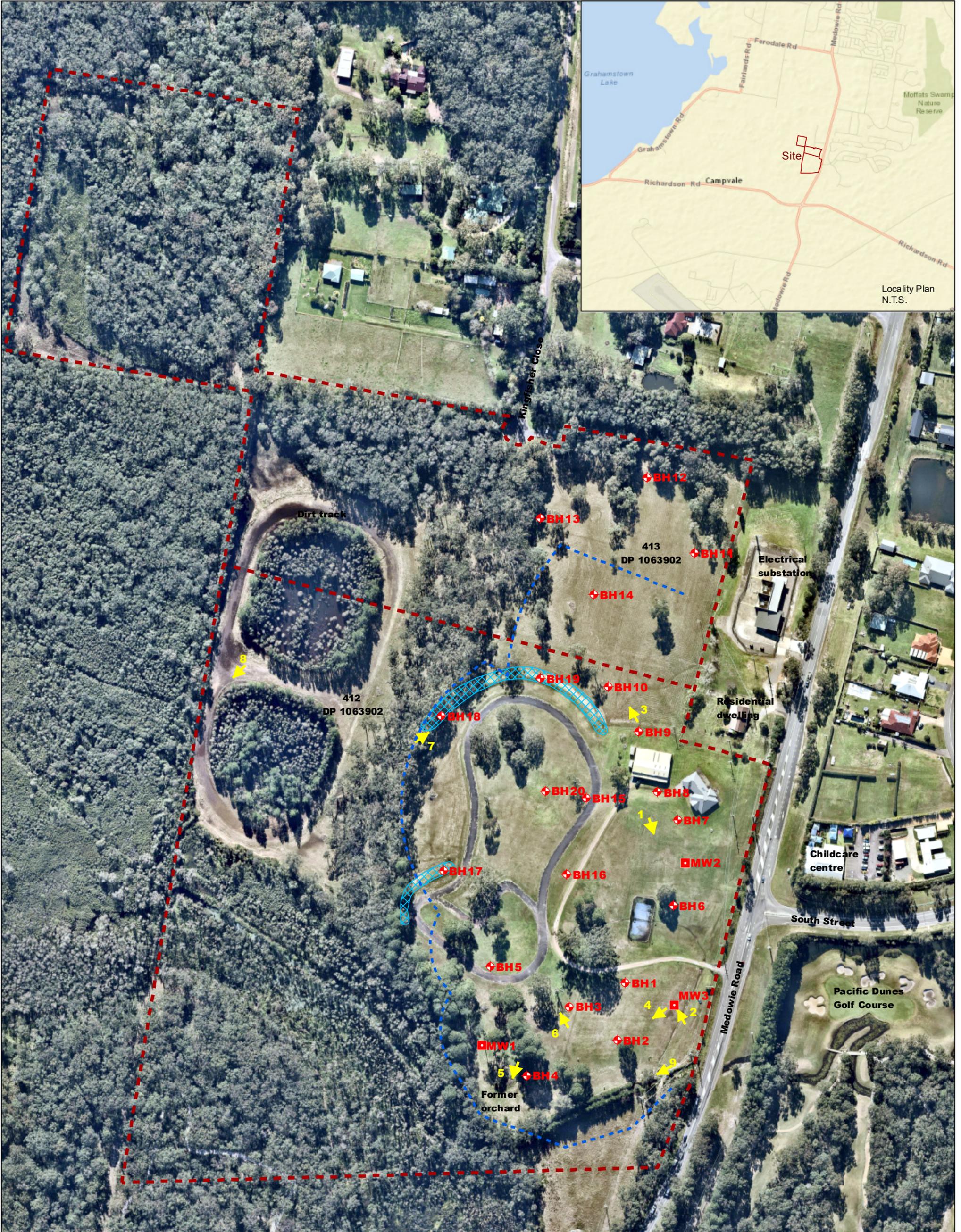
Chemical Compounds

|      |  |
|------|--|
| BTEX | Benzene, toluene, ethylbenzene, xylene.  |
| OCP  | Organochlorin pesticides.  |
| OPP  | Organophosphorous pesticides.  |
| PAH  | Polycyclic aromatic hydrocarbons. Multi-ring compounds found in fuels, oils and creosote. These are also common combustion products. |
| TDS  | Total dissolved solids. Also known as non filterable residue (NFR).  |
| TPH  | Total petroleum hydrocarbons.  |
| TRH  | Total recoverable hydrocarbons   |

# Appendix A

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Drawings



- LEGEND**
- - - Approximate site boundary location
  - Approximate monitoring well location
  - ⊕ Approximate borehole location
  - ▨ Approximate fill mound location

➔ Approximate photograph location and direction

- - - Approximate location of 50m asset protection zone (considered extent of potential development)

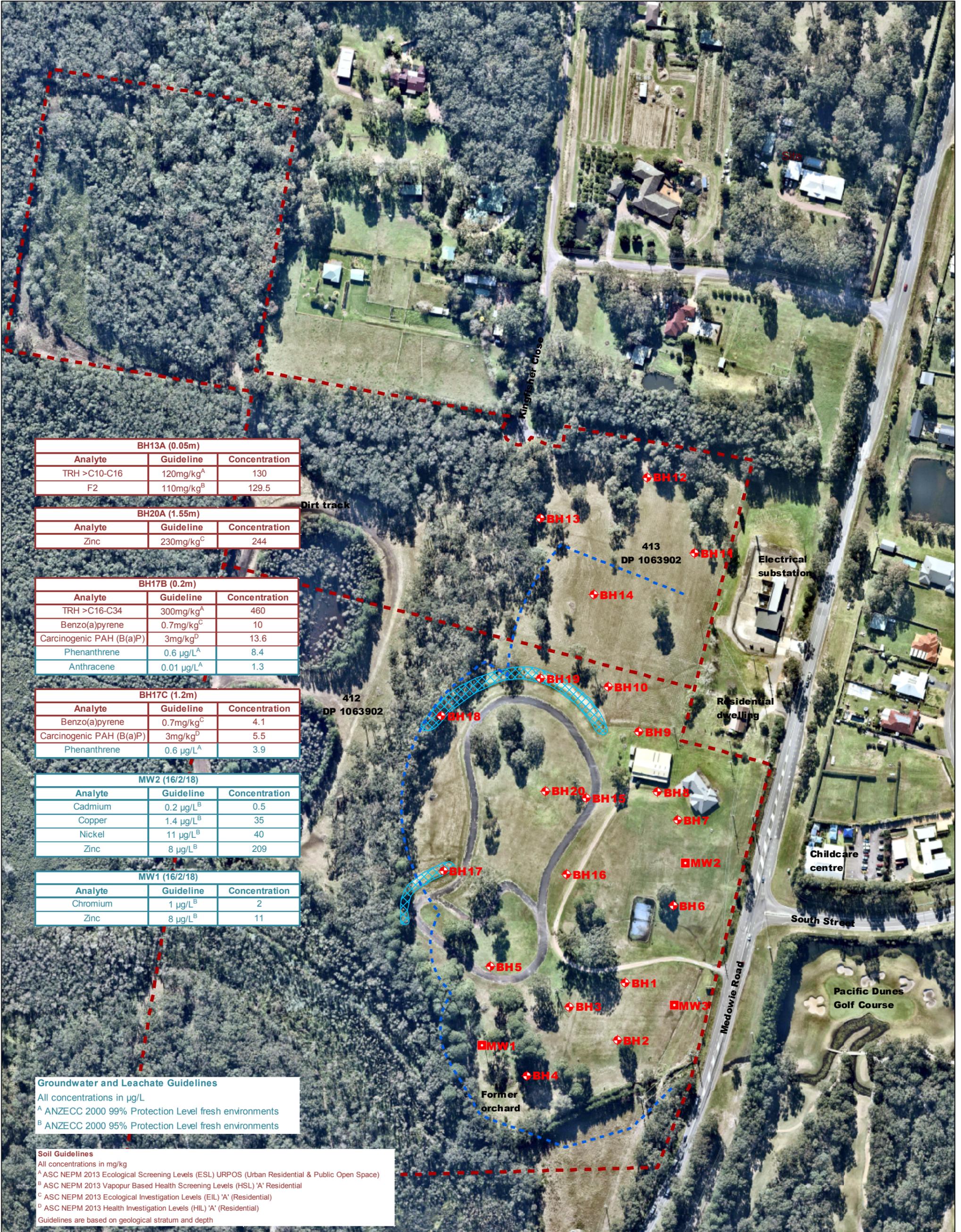
NOTE:  
Aerial image taken from Nearmap July 5 2017  
(used in accordance with commercial licence)

0 75 150  
metres



**SITE AND TEST LOCATION PLAN  
CONTAMINATION ASSESSMENT  
LOTS 412 & 413 DP10663902  
MEDOWIE**

|  |           |              |
|--|-----------|--------------|
| CLIENT Diocese of Maitland-Newcastle c/o Webber Architects | RCA Ref   | 13156-401/1  |
| DRAWN BY KS  | SCALE     | 1:2,500 (A3) |
| APPROVED BY FB   | DATE      | 27/03/2018   |
| DRAWING  | 1         | REV 0        |
| OFFICE   | NEWCASTLE |              |



| BH13A (0.05m) |                       |               |
|---------------|-----------------------|---------------|
| Analyte       | Guideline             | Concentration |
| TRH >C10-C16  | 120mg/kg <sup>A</sup> | 130           |
| F2            | 110mg/kg <sup>B</sup> | 129.5         |

| BH20A (1.55m) |                       |               |
|---------------|-----------------------|---------------|
| Analyte       | Guideline             | Concentration |
| Zinc          | 230mg/kg <sup>C</sup> | 244           |

| BH17B (0.2m)             |                        |               |
|--------------------------|------------------------|---------------|
| Analyte                  | Guideline              | Concentration |
| TRH >C16-C34             | 300mg/kg <sup>A</sup>  | 460           |
| Benzo(a)pyrene           | 0.7mg/kg <sup>C</sup>  | 10            |
| Carcinogenic PAH (B(a)P) | 3mg/kg <sup>D</sup>    | 13.6          |
| Phenanthrene             | 0.6 µg/L <sup>A</sup>  | 8.4           |
| Anthracene               | 0.01 µg/L <sup>A</sup> | 1.3           |

| BH17C (1.2m)             |                       |               |
|--------------------------|-----------------------|---------------|
| Analyte                  | Guideline             | Concentration |
| Benzo(a)pyrene           | 0.7mg/kg <sup>C</sup> | 4.1           |
| Carcinogenic PAH (B(a)P) | 3mg/kg <sup>D</sup>   | 5.5           |
| Phenanthrene             | 0.6 µg/L <sup>A</sup> | 3.9           |

| MW2 (16/2/18) |                       |               |
|---------------|-----------------------|---------------|
| Analyte       | Guideline             | Concentration |
| Cadmium       | 0.2 µg/L <sup>B</sup> | 0.5           |
| Copper        | 1.4 µg/L <sup>B</sup> | 35            |
| Nickel        | 11 µg/L <sup>B</sup>  | 40            |
| Zinc          | 8 µg/L <sup>B</sup>   | 209           |

| MW1 (16/2/18) |                     |               |
|---------------|---------------------|---------------|
| Analyte       | Guideline           | Concentration |
| Chromium      | 1 µg/L <sup>B</sup> | 2             |
| Zinc          | 8 µg/L <sup>B</sup> | 11            |

**Groundwater and Leachate Guidelines**  
 All concentrations in µg/L  
<sup>A</sup> ANZECC 2000 99% Protection Level fresh environments  
<sup>B</sup> ANZECC 2000 95% Protection Level fresh environments

**Soil Guidelines**  
 All concentrations in mg/kg  
<sup>A</sup> ASC NEPM 2013 Ecological Screening Levels (ESL) URPOS (Urban Residential & Public Open Space)  
<sup>B</sup> ASC NEPM 2013 Vapour Based Health Screening Levels (HSL) 'A' Residential  
<sup>C</sup> ASC NEPM 2013 Ecological Investigation Levels (EIL) 'A' (Residential)  
<sup>D</sup> ASC NEPM 2013 Health Investigation Levels (HIL) 'A' (Residential)  
 Guidelines are based on geological stratum and depth

**LEGEND**

- Approximate site boundary location
- Approximate monitoring well location
- Approximate borehole location
- Approximate fill mound location
- Approximate location of 50m asset protection zone (considered extent of potential development)

NOTE:  
 Aerial image taken from Nearmap July 5 2017 (used in accordance with commercial licence)

0 75 150 metres

**RCA AUSTRALIA**  
 GEOTECHNICAL • ENVIRONMENTAL

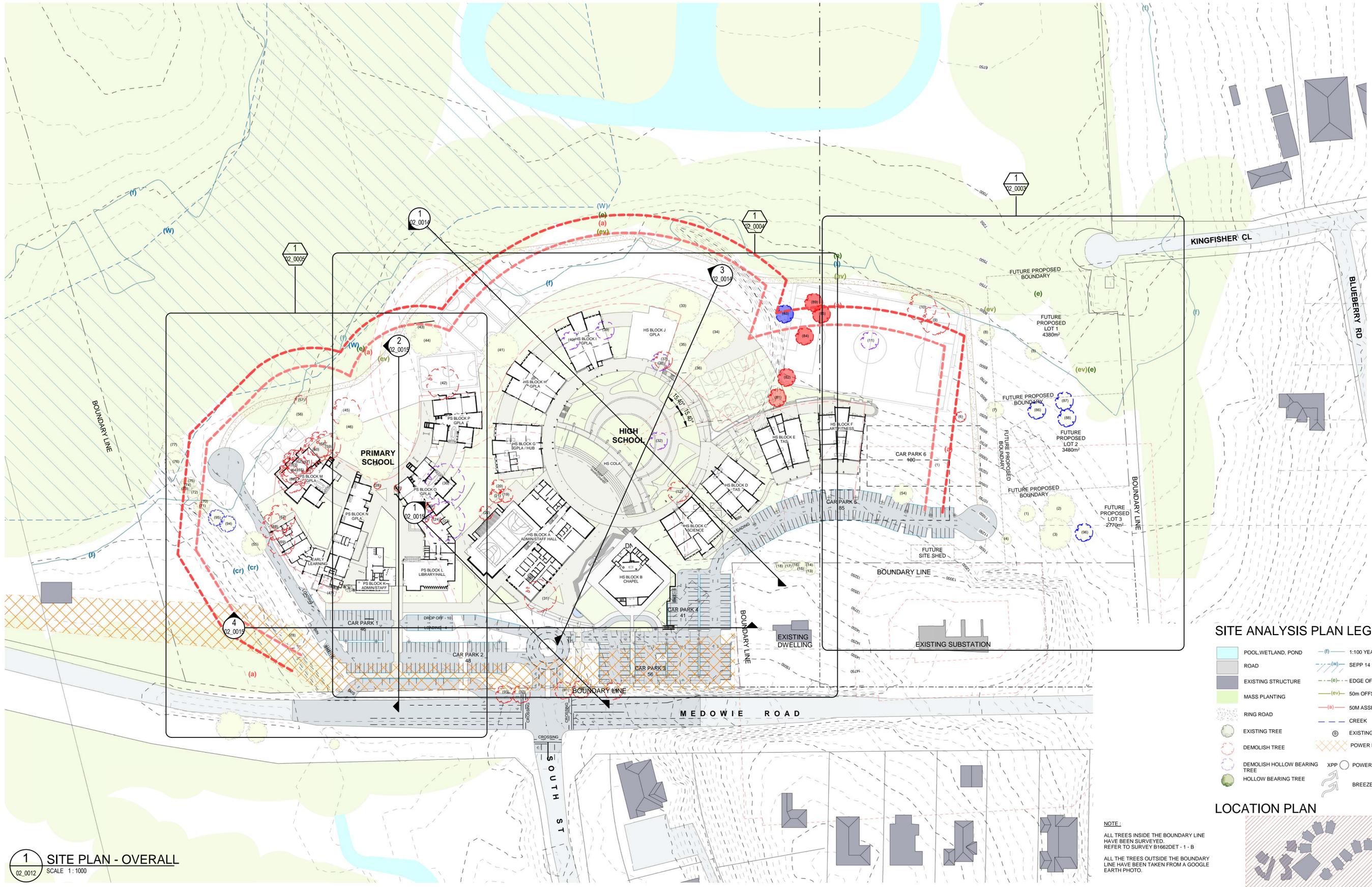
**SITE CRITERIA EXCEEDENCES CONTAMINATION ASSESSMENT**  
 LOTS 412 & 413 DP10663902  
 MEDOWIE

|  |           |              |
|--|-----------|--------------|
| CLIENT Diocese of Maitland-Newcastle c/o Webber Architects | RCA Ref   | 13156-401/1  |
| DRAWN BY KS  | SCALE     | 1:2,500 (A3) |
| APPROVED BY FB   | DATE      | 27/03/2018   |
| DRAWING  | 2         | REV 0        |
| OFFICE   | NEWCASTLE |              |

# Appendix B

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Client Supplied Proposed Development Plans



**1 SITE PLAN - OVERALL**  
02\_0012 SCALE 1:1000

**SITE ANALYSIS PLAN LEGEND**

- POOL, WETLAND, POND
- ROAD
- EXISTING STRUCTURE
- MASS PLANTING
- RING ROAD
- EXISTING TREE
- DEMOLISH TREE
- DEMOLISH HOLLOW BEARING TREE
- HOLLOW BEARING TREE
- 1:100 YEAR FLOOD LINE
- SEPP 14 WETLANDS
- EDGE OF VEGETATION
- 50M OFFSET VEGETATION
- 50M ASSET PROTECTION ZONE
- CREEK
- EXISTING BUS STOP
- POWER LINES
- XPP
- POWER POLE
- BREEZES

**LOCATION PLAN**



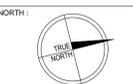
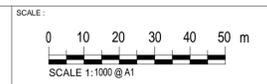
**NOTE:**  
ALL TREES INSIDE THE BOUNDARY LINE HAVE BEEN SURVEYED. REFER TO SURVEY B1662DET - 1 - B  
ALL THE TREES OUTSIDE THE BOUNDARY LINE HAVE BEEN TAKEN FROM A GOOGLE EARTH PHOTO.

| REV | DATE       | DESCRIPTION                 | BY | CHK |
|-----|------------|-----------------------------|----|-----|
| K   | 12.09.2017 | FOR PIC MEETING             | PS |     |
| L   | 13.10.2017 | FOR COORDINATION            | CA |     |
| M   | 03.11.2017 | FOR CONSULTANT COORDINATION | PS |     |
| N   | 09.11.2017 | FOR CLIENT REVIEW           | CA |     |
| O   | 16.11.2017 | FOR COORDINATION            | PS |     |
| P   | 20.11.2017 | FOR PRE DA MEETING          | PS |     |
| Q   | 05.12.2017 | FOR PIC MEETING             | PS |     |
| R   | 16.01.2018 | FOR STAKEHOLDER MEETING     | CH |     |
| S   | 18.01.2018 | FOR CONSULTANT COORDINATION | CA |     |

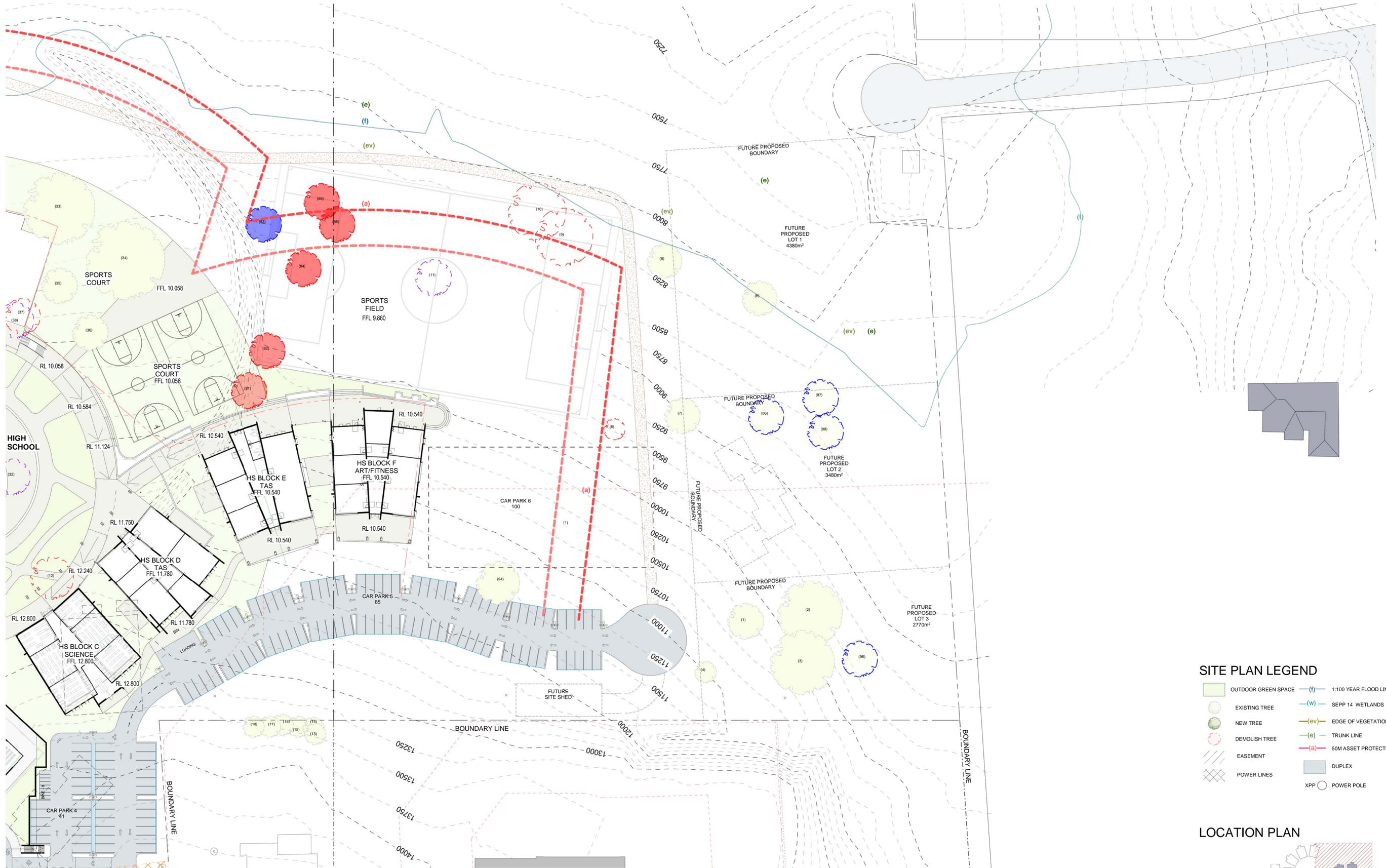


**SITE PLAN - OVERALL**  
**MEDOWIE CATHOLIC COLLEGE**  
**CATHERINE MCAULEY CATHOLIC COLLEGE**  
507 MEDOWIE ROAD

ISSUED:  
**PRELIMINARY**

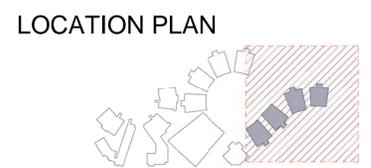


PROJECT COMMENCEMENT DATE: 01.05.2017  
SHEET NUMBER: **2544\_DA\_02\_0002\_S**



**1 PART SITE PLAN - NORTH**  
 02\_0002 SCALE 1:500

- SITE PLAN LEGEND**
- OUTDOOR GREEN SPACE
  - EXISTING TREE
  - NEW TREE
  - DEMOLISH TREE
  - EASEMENT
  - POWER LINES
  - 1:100 YEAR FLOOD LINE
  - SEPP 14 WETLANDS
  - EDGE OF VEGETATION
  - TRUNK LINE
  - 50M ASSET PROTECTION ZONE
  - DUPLEX
  - XPP
  - POWER POLE

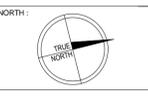
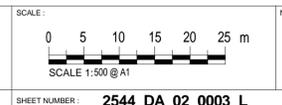


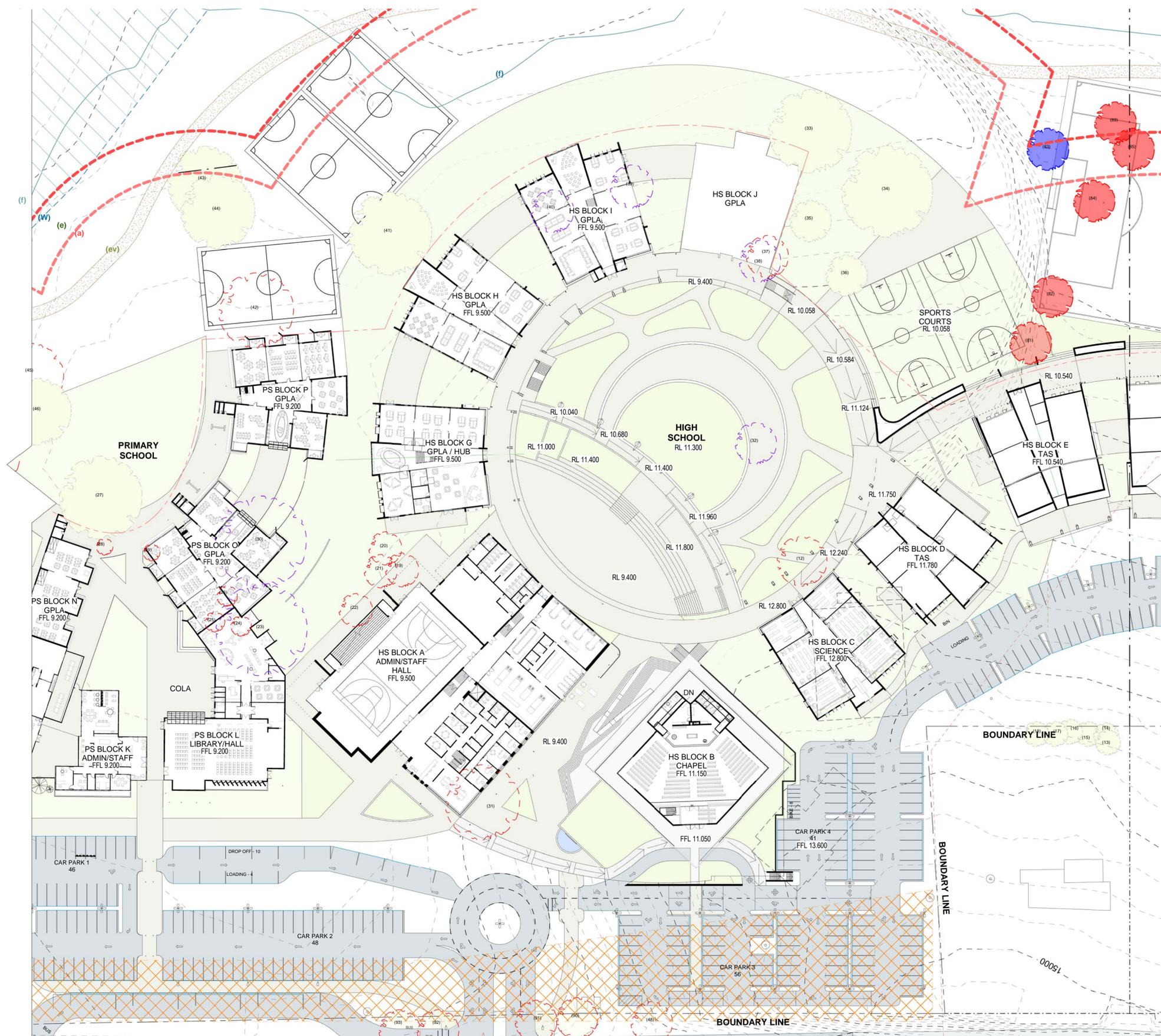
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|-----|------------|-----------------------------|----|-----|
| D   | 28.08.2017 | FOR MEETING                 | PS |     |
| E   | 12.09.2017 | FOR PIC MEETING             | PS |     |
| F   | 13.10.2017 | FOR COORDINATION            | CA |     |
| G   | 03.11.2017 | FOR CONSULTANT COORDINATION | PS |     |
| H   | 09.11.2017 | FOR CLIENT REVIEW           | CA |     |
| I   | 20.11.2017 | FOR PRE DA MEETING          | PS |     |
| J   | 05.12.2017 | FOR PIC MEETING             | PS |     |
| K   | 16.01.2018 | FOR STAKEHOLDER MEETING     | CA |     |
| L   | 18.01.2018 | FOR CONSULTANT COORDINATION | CA |     |



**PART SITE PLAN - NORTH**  
**MEDOWIE CATHOLIC COLLEGE**  
**CATHERINE MCAULEY CATHOLIC COLLEGE**  
 507 MEDOWIE ROAD

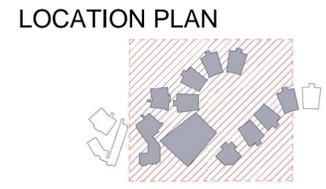
ISSUED: **PRELIMINARY**  
 PROJECT COMMENCEMENT DATE: 01.05.2017





**SITE PLAN LEGEND**

|  |                     |  |                           |
|--|---------------------|--|---------------------------|
|  | OUTDOOR GREEN SPACE |  | 1:100 YEAR FLOOD LINE     |
|  | EXISTING TREE       |  | SEPP 14 WETLANDS          |
|  | NEW TREE            |  | EDGE OF VEGETATION        |
|  | DEMOLISH TREE       |  | TRUNK LINE                |
|  | EASEMENT            |  | 50M ASSET PROTECTION ZONE |
|  | POWER LINES         |  | DUPLEX                    |
|  | XPP                 |  | POWER POLE                |



**1 PART SITE PLAN - CENTRAL**  
SCALE 1:500

| REV | DATE       | DESCRIPTION                 | BY | CHK |
|-----|------------|-----------------------------|----|-----|
| D   | 28.08.2017 | FOR MEETING                 | PS |     |
| E   | 12.09.2017 | FOR PIC MEETING             | PS |     |
| F   | 13.10.2017 | FOR COORDINATION            | CA |     |
| G   | 03.11.2017 | FOR CONSULTANT COORDINATION | PS |     |
| H   | 09.11.2017 | FOR CLIENT REVIEW           | CA |     |
| I   | 20.11.2017 | FOR PRE DA MEETING          | PS |     |
| J   | 05.12.2017 | FOR PIC MEETING             | PS |     |
| K   | 16.01.2018 | FOR STAKEHOLDER MEETING     | CH |     |
| L   | 18.01.2018 | FOR CONSULTANT COORDINATION | CA |     |

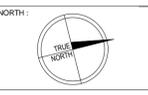
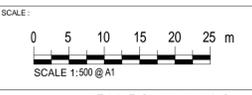


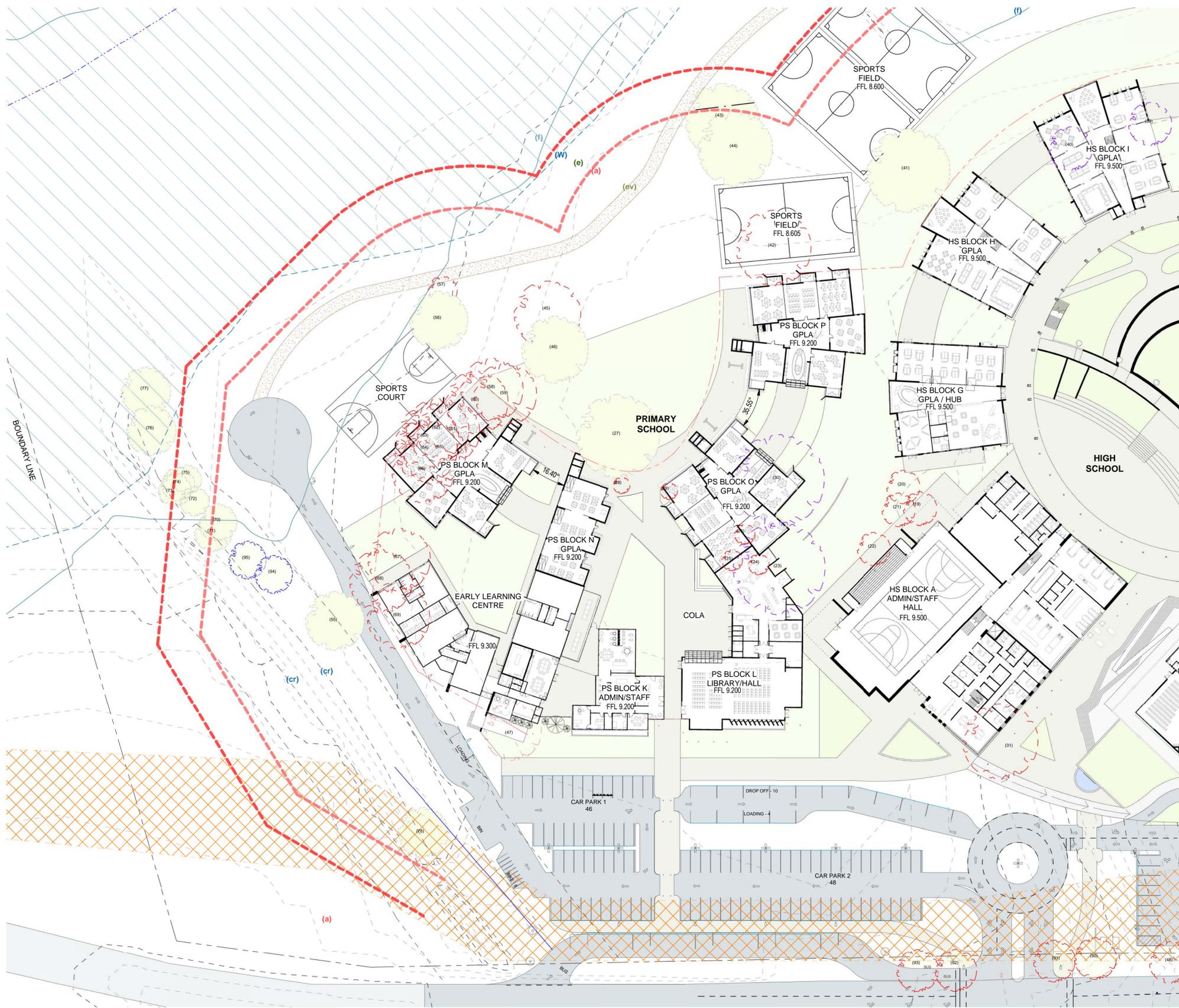
**webberarchitects**  
commercial and residential

Suite 3, Level 1 498 Hunter St Newcastle • PO Box 807 The Junction 2291  
t 01 432 4824 • f 07 8 432 4824 • www.webberarchitects.com

**PART SITE PLAN - CENTRAL**  
**MEDOWIE CATHOLIC COLLEGE**  
**CATHERINE MCAULEY CATHOLIC COLLEGE**  
507 MEDOWIE ROAD

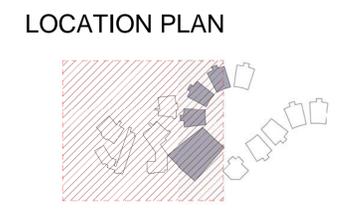
ISSUED:  
**PRELIMINARY**  
**NOT FOR CONSTRUCTION**





**SITE PLAN LEGEND**

|  |                     |  |                           |
|--|---------------------|--|---------------------------|
|  | OUTDOOR GREEN SPACE |  | 1:100 YEAR FLOOD LINE     |
|  | EXISTING TREE       |  | SEPP 14 WETLANDS          |
|  | NEW TREE            |  | EDGE OF VEGETATION        |
|  | DEMOLISH TREE       |  | TRUNK LINE                |
|  | EASEMENT            |  | 50M ASSET PROTECTION ZONE |
|  | POWER LINES         |  | DUPLEX                    |
|  |                     |  | XPP POWER POLE            |



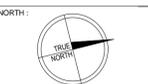
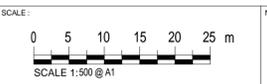
**1 PART SITE PLAN - SOUTH**  
02\_0002 SCALE 1:500

| REV | DATE       | DESCRIPTION                 | BY | CHK |
|-----|------------|-----------------------------|----|-----|
| D   | 28.08.2017 | FOR MEETING                 | PS |     |
| E   | 12.09.2017 | FOR PIC MEETING             | PS |     |
| F   | 13.10.2017 | FOR COORDINATION            | CA |     |
| G   | 03.11.2017 | FOR CONSULTANT COORDINATION | PS |     |
| H   | 09.11.2017 | FOR CLIENT REVIEW           | CA |     |
| I   | 20.11.2017 | FOR PRE DA MEETING          | PS |     |
| J   | 05.12.2017 | FOR PIC MEETING             | PS |     |
| K   | 16.01.2018 | FOR STAKEHOLDER MEETING     | CH |     |
| L   | 18.01.2018 | FOR CONSULTANT COORDINATION | CA |     |



**PART SITE PLAN - SOUTH**  
**MEDOWIE CATHOLIC COLLEGE**  
CATHERINE MCAULEY CATHOLIC COLLEGE  
507 MEDOWIE ROAD

ISSUED:  
**PRELIMINARY**



# Appendix C

---

Historical Photographs



1954



1967



1977



1984



1993



1993



1998



2004

# Appendix D

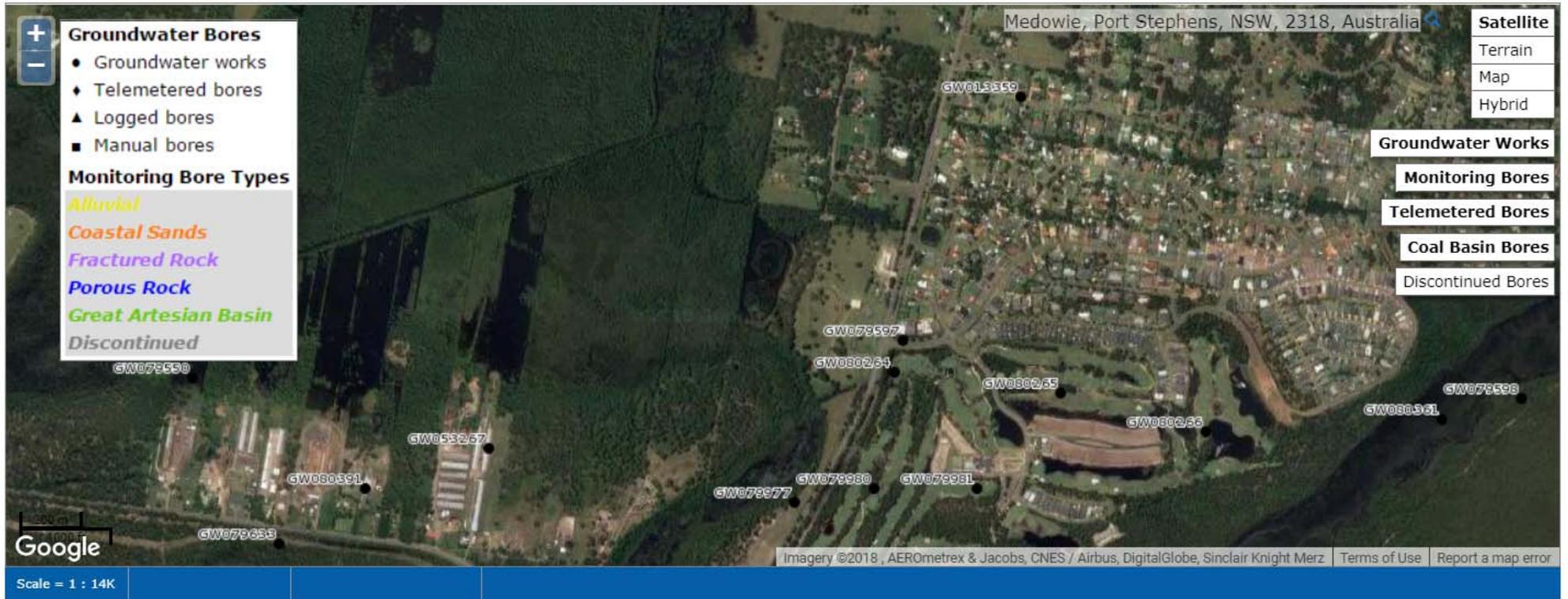
---

## Registered Groundwater Well Information

# All Groundwater Map

All data times are Eastern Standard Time

Map Info



# NSW Office of Water

## Work Summary

**GW080264**

**Licence:** 20BL168422

**Licence Status:** ACTIVE

**Authorised Purpose(s):** TEST BORE  
**Intended Purpose(s):** TEST BORE

**Work Type:** Bore

**Work Status:**

**Construct.Method:**

**Owner Type:** Private

**Commenced Date:**

**Completion Date:** 15/08/2002

**Final Depth:**

**Drilled Depth:**

**Contractor Name:**

**Driller:**

**Assistant Driller:**

**Property:** N/A

**GWMA:** -

**GW Zone:** -

**Standing Water Level (m):**

**Salinity Description:**

**Yield (L/s):**

## Site Details

**Site Chosen By:**

**County**  
**Form A:** GLOUC  
**Licensed:** GLOUCESTER

**Parish**  
GLOUC.040  
STOWELL

**Cadastre**  
LT125 DP1014528  
Whole Lot 1//1040349

**Region:** 20 - Hunter

**CMA Map:** 9232-2N

**River Basin:** 210 - HUNTER RIVER  
**Area/District:**

**Grid Zone:**

**Scale:**

**Elevation:** 0.00 m (A.H.D.)  
**Elevation Source:** (Unknown)

**Northing:** 6374219.0  
**Easting:** 393713.0

**Latitude:** 32°45'53.2"S  
**Longitude:** 151°51'54.9"E

**GS Map:** -

**MGA Zone:** 0

**Coordinate Source:** Unknown

## Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure

Cemented; S-Sump; CE-Centralisers

| Hole | Pipe | Component | Type | From (m) | To (m) | Outside Diameter (mm) | Inside Diameter (mm) | Interval | Details |
|------|------|-----------|------|----------|--------|-----------------------|----------------------|----------|---------|
|------|------|-----------|------|----------|--------|-----------------------|----------------------|----------|---------|

### Water Bearing Zones

| From (m) | To (m) | Thickness (m) | WBZ Type | S.W.L. (m) | D.D.L. (m) | Yield (L/s) | Hole Depth (m) | Duration (hr) | Salinity (mg/L) |
|----------|--------|---------------|----------|------------|------------|-------------|----------------|---------------|-----------------|
|----------|--------|---------------|----------|------------|------------|-------------|----------------|---------------|-----------------|

### Geologists Log

#### Drillers Log

| From (m) | To (m) | Thickness (m) | Drillers Description | Geological Material | Comments |
|----------|--------|---------------|----------------------|---------------------|----------|
|----------|--------|---------------|----------------------|---------------------|----------|

### Remarks

---

\*\*\* End of GW080264 \*\*\*

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

# NSW Office of Water

## Work Summary

GW079981

Licence:

Licence Status:

Authorised Purpose(s):  
Intended Purpose(s):

Work Type: Bore

Work Status:

Construct.Method:

Owner Type:

Commenced Date:

Completion Date:

Final Depth:

Drilled Depth:

Contractor Name:

Driller:

Assistant Driller:

Property:

GWMA:

GW Zone:

Standing Water Level (m):

Salinity Description:

Yield (L/s):

## Site Details

Site Chosen By:

County  
Form A: GLOUC  
Licensed:

Parish  
GLOUC.049

Cadastre

Region: 20 - Hunter

River Basin: - Unknown  
Area/District:

CMA Map:

Grid Zone:

Scale:

Elevation: 9.40 m (A.H.D.)  
Elevation Source: Unknown

Northing: 6373886.0  
Easting: 393956.0

Latitude: 32°46'04.1"S  
Longitude: 151°52'04.1"E

GS Map: -

MGA Zone: 0

Coordinate Source: Unknown

## Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure

Cemented; S-Sump; CE-Centralisers

| Hole | Pipe | Component | Type | From (m) | To (m) | Outside Diameter (mm) | Inside Diameter (mm) | Interval | Details |
|------|------|-----------|------|----------|--------|-----------------------|----------------------|----------|---------|
|------|------|-----------|------|----------|--------|-----------------------|----------------------|----------|---------|

### Water Bearing Zones

| From (m) | To (m) | Thickness (m) | WBZ Type | S.W.L. (m) | D.D.L. (m) | Yield (L/s) | Hole Depth (m) | Duration (hr) | Salinity (mg/L) |
|----------|--------|---------------|----------|------------|------------|-------------|----------------|---------------|-----------------|
|----------|--------|---------------|----------|------------|------------|-------------|----------------|---------------|-----------------|

### Geologists Log

### Drillers Log

| From (m) | To (m) | Thickness (m) | Drillers Description | Geological Material | Comments |
|----------|--------|---------------|----------------------|---------------------|----------|
|----------|--------|---------------|----------------------|---------------------|----------|

### Remarks

15/02/2000: Form A Remarks:  
RZM MONITORING BORE SK 8110  
01/12/2009: Reviewed data - nothing to update.

\*\*\* End of GW079981 \*\*\*

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

# NSW Office of Water

## Work Summary

**GW079980**

---

**Licence:**

**Licence Status:**

**Authorised Purpose(s):**  
**Intended Purpose(s):**

**Work Type:** Bore

**Work Status:**

**Construct.Method:**

**Owner Type:**

**Commenced Date:**

**Completion Date:**

**Final Depth:**

**Drilled Depth:**

**Contractor Name:**

**Driller:**

**Assistant Driller:**

**Property:**

**GWMA:**

**GW Zone:**

**Standing Water Level (m):**

**Salinity Description:**

**Yield (L/s):**

## Site Details

---

**Site Chosen By:**

**County**  
**Form A:** GLOUC  
**Licensed:**

**Parish**  
GLOUC.049

**Cadastre**

**Region:** 20 - Hunter

**River Basin:** - Unknown  
**Area/District:**

**CMA Map:**

**Grid Zone:**

**Scale:**

**Elevation:** 9.10 m (A.H.D.)  
**Elevation Source:** Unknown

**Northing:** 6373881.0  
**Easting:** 393657.0

**Latitude:** 32°46'04.2"S  
**Longitude:** 151°51'52.6"E

**GS Map:** -

**MGA Zone:** 0

**Coordinate Source:** Unknown

## Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure

Cemented; S-Sump; CE-Centralisers

| Hole | Pipe | Component | Type | From (m) | To (m) | Outside Diameter (mm) | Inside Diameter (mm) | Interval | Details |
|------|------|-----------|------|----------|--------|-----------------------|----------------------|----------|---------|
|------|------|-----------|------|----------|--------|-----------------------|----------------------|----------|---------|

### Water Bearing Zones

| From (m) | To (m) | Thickness (m) | WBZ Type | S.W.L. (m) | D.D.L. (m) | Yield (L/s) | Hole Depth (m) | Duration (hr) | Salinity (mg/L) |
|----------|--------|---------------|----------|------------|------------|-------------|----------------|---------------|-----------------|
|----------|--------|---------------|----------|------------|------------|-------------|----------------|---------------|-----------------|

### Geologists Log

#### Drillers Log

| From (m) | To (m) | Thickness (m) | Drillers Description | Geological Material | Comments |
|----------|--------|---------------|----------------------|---------------------|----------|
|----------|--------|---------------|----------------------|---------------------|----------|

### Remarks

15/02/2000: Form A Remarks:  
RZM MONITORING BORE SK 8108  
01/12/2009: Reviewed data - nothing to update.

\*\*\* End of GW079980 \*\*\*

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

# NSW Office of Water

## Work Summary

**GW079977**

---

**Licence:**

**Licence Status:**

**Authorised Purpose(s):**  
**Intended Purpose(s):**

**Work Type:** Bore

**Work Status:**

**Construct.Method:**

**Owner Type:**

**Commenced Date:**

**Completion Date:**

**Final Depth:**

**Drilled Depth:**

**Contractor Name:**

**Driller:**

**Assistant Driller:**

**Property:**

**GWMA:**

**GW Zone:**

**Standing Water Level (m):**

**Salinity Description:**

**Yield (L/s):**

## Site Details

---

**Site Chosen By:**

**County**  
**Form A:** GLOUC  
**Licensed:**

**Parish**  
GLOUC.049

**Cadastre**

**Region:** 20 - Hunter

**River Basin:** - Unknown  
**Area/District:**

**CMA Map:**

**Grid Zone:**

**Scale:**

**Elevation:** 8.58 m (A.H.D.)  
**Elevation Source:** Unknown

**Northing:** 6373841.0  
**Easting:** 393422.0

**Latitude:** 32°46'05.4"S  
**Longitude:** 151°51'43.5"E

**GS Map:** -

**MGA Zone:** 0

**Coordinate Source:** Unknown

## Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure

Cemented; S-Sump; CE-Centralisers

| Hole | Pipe | Component | Type | From (m) | To (m) | Outside Diameter (mm) | Inside Diameter (mm) | Interval | Details |
|------|------|-----------|------|----------|--------|-----------------------|----------------------|----------|---------|
|------|------|-----------|------|----------|--------|-----------------------|----------------------|----------|---------|

### Water Bearing Zones

| From (m) | To (m) | Thickness (m) | WBZ Type | S.W.L. (m) | D.D.L. (m) | Yield (L/s) | Hole Depth (m) | Duration (hr) | Salinity (mg/L) |
|----------|--------|---------------|----------|------------|------------|-------------|----------------|---------------|-----------------|
|----------|--------|---------------|----------|------------|------------|-------------|----------------|---------------|-----------------|

### Geologists Log

#### Drillers Log

| From (m) | To (m) | Thickness (m) | Drillers Description | Geological Material | Comments |
|----------|--------|---------------|----------------------|---------------------|----------|
|----------|--------|---------------|----------------------|---------------------|----------|

### Remarks

15/02/2000: Form A Remarks:  
RZM MONITORING BORE SK 8105  
01/12/2009: Reviewed data - nothing to update.

\*\*\* End of GW079977 \*\*\*

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

# NSW Office of Water

## Work Summary

**GW079597**

---

**Licence:**

**Licence Status:**

**Authorised Purpose(s):**  
**Intended Purpose(s):**

**Work Type:** Bore

**Work Status:**

**Construct.Method:**

**Owner Type:**

**Commenced Date:**

**Completion Date:**

**Final Depth:**

**Drilled Depth:**

**Contractor Name:**

**Driller:**

**Assistant Driller:**

**Property:**

**GWMA:**

**GW Zone:**

**Standing Water Level (m):**

**Salinity Description:**

**Yield (L/s):**

## Site Details

---

**Site Chosen By:**

| County               | Parish | Cadastre |
|----------------------|--------|----------|
| Form A:<br>Licensed: | .      |          |

**Region:** 20 - Hunter

**River Basin:** - Unknown  
**Area/District:**

**CMA Map:**

**Grid Zone:**

**Scale:**

**Elevation:** 0.00 m (A.H.D.)  
**Elevation Source:** Unknown

**Northing:** 6374313.0  
**Easting:** 393735.0

**Latitude:** 32°45'50.2"S  
**Longitude:** 151°51'55.8"E

**GS Map:** -

**MGA Zone:** 0

**Coordinate Source:** Unknown

## Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure

Cemented; S-Sump; CE-Centralisers

| Hole | Pipe | Component | Type | From (m) | To (m) | Outside Diameter (mm) | Inside Diameter (mm) | Interval | Details |
|------|------|-----------|------|----------|--------|-----------------------|----------------------|----------|---------|
|------|------|-----------|------|----------|--------|-----------------------|----------------------|----------|---------|

### Water Bearing Zones

| From (m) | To (m) | Thickness (m) | WBZ Type | S.W.L. (m) | D.D.L. (m) | Yield (L/s) | Hole Depth (m) | Duration (hr) | Salinity (mg/L) |
|----------|--------|---------------|----------|------------|------------|-------------|----------------|---------------|-----------------|
|----------|--------|---------------|----------|------------|------------|-------------|----------------|---------------|-----------------|

### Geologists Log

#### Drillers Log

| From (m) | To (m) | Thickness (m) | Drillers Description | Geological Material | Comments |
|----------|--------|---------------|----------------------|---------------------|----------|
|----------|--------|---------------|----------------------|---------------------|----------|

### Remarks

26/10/1999: Form A Remarks:  
HUNTER WATER CORPORATION  
TOMAGO  
BORE: SK4935  
30/11/2009: Reviewed data - nothing to update.

\*\*\* End of GW079597 \*\*\*

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

# Appendix E

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Site Photographs



**PHOTOGRAPH 1** *The slope of the site falls to the south from the dwelling and shed. Taken 7 February 2018, looking approximately to the south towards the tennis court.*



**PHOTOGRAPH 2** *The topography of the southern portion of the site, showing the dwelling on the elevated portion. A drainage channel runs approximately north-south once it comes under Medowie Road. Taken 7 February 2018, facing an approximate northerly direction.*

**Client:** Catholic Diocese of Maitland Newcastle,  
c/o Webber Architects

**RCA Australia**

**Project:** Contamination Assessment

**Location:** Lots 412 & 413 DP1063902, Medowie, NSW

**RCA ref:** 13156-401/1



**PHOTOGRAPH 3** *Northern portion of the site, which has a slight gradient falling to the north west, taken 7 February 2018.*



**PHOTOGRAPH 4** *Exotic pine trees observed in the southern portion of the site, taken looking approximately south west.*

**Client:** Catholic Diocese of Maitland Newcastle,  
c/o Webber Architects

**RCA Australia**

**Project:** Contamination Assessment

**Location:** Lots 412 & 413 DP1063902, Medowie, NSW

**RCA ref:** 13156-401/1



**PHOTOGRAPH 5** *Fruit trees within the former orchard area, located adjacent to the drainage channel/ creek, looking approximately to the south.*



**PHOTOGRAPH 6** *The bituminous track and windmill located within the central portion of the site, taken looking approximately north westerly.*

**Client:** Catholic Diocese of Maitland Newcastle,  
c/o Webber Architects

**RCA Australia**

**Project:** Contamination Assessment

**Location:** Lots 412 & 413 DP1063902, Medowie, NSW

**RCA ref:** 13156-401/1



**PHOTOGRAPH 7** *The northern mound and portion of the bituminous track, with the electrical substation behind (LHS) and large onsite shed (RHS), taken looking approximately north easterly.*



**PHOTOGRAPH 8** *The revegetation that is occurring on the dirt track located in the western portion of the site, taken looking approximately south westerly.*

**Client:** Catholic Diocese of Maitland Newcastle,  
c/o Webber Architects

**RCA Australia**

**Project:** Contamination Assessment

**Location:** Lots 412 & 413 DP1063902, Medowie, NSW

**RCA ref:** 13156-401/1



**PHOTOGRAPH 9** *Water pooled within the creek/ drainage channel that runs north east- south westerly is present in the southern portion of the site, taken looking approximately south westerly.*



**PHOTOGRAPH 10** *Chemicals stored on the dirt/ grassed floor of the shed.*

**Client:** Catholic Diocese of Maitland Newcastle,  
c/o Webber Architects

**RCA Australia**

**Project:** Contamination Assessment

**Location:** Lots 412 & 413 DP1063902, Medowie, NSW

**RCA ref:** 13156-401/1



**PHOTOGRAPH 11** *Exterior of the shed and two (2) demountable structures.*



**PHOTOGRAPH 12** *Interior of the southern demountable which was primarily constructed of Masonite and laminate.*

**Client:** Catholic Diocese of Maitland Newcastle,  
c/o Webber Architects

**RCA Australia**

**Project:** Contamination Assessment

**Location:** Lots 412 & 413 DP1063902, Medowie, NSW

**RCA ref:** 13156-401/1



**PHOTOGRAPH 13** *Ceiling of the southern demountable which had been waterlogged.*



**PHOTOGRAPH 14** *Interior of the northern demountable which was clad in timber and underlain with laminate flooring.*

**Client:** Catholic Diocese of Maitland Newcastle,  
c/o Webber Architects

**RCA Australia**

**Project:** Contamination Assessment

**Location:** Lots 412 & 413 DP1063902, Medowie, NSW

**RCA ref:** 13156-401/1



**PHOTOGRAPH 15** Exterior of the northern demountable which was painted metal (weathered).



**PHOTOGRAPH 16** Concrete former septic tank located to the east of the demountable sheds.

**Client:** Catholic Diocese of Maitland Newcastle,  
c/o Webber Architects

**RCA Australia**

**Project:** Contamination Assessment

**Location:** Lots 412 & 413 DP1063902, Medowie, NSW

**RCA ref:** 13156-401/1



**PHOTOGRAPH 17** Northern aspect of the steel industrial sized shed. The far left portion (open door) was the only portion which was not underlain with concrete hardstand.



**PHOTOGRAPH 18** Materials being used to the line the dirt included masonite boards, rubber matting and fibrous concrete. One (1) bulk sample was collected for the asbestos identification in from the fibrous concrete which did not indicate the presence of asbestos.

**Client:** Catholic Diocese of Maitland Newcastle,  
c/o Webber Architects

**RCA Australia**

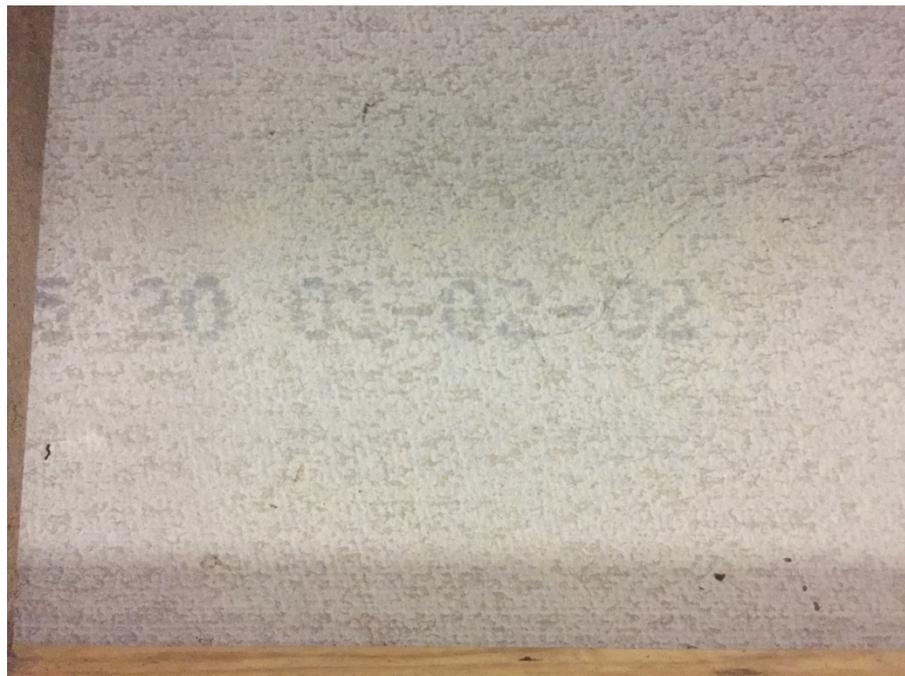
**Project:** Contamination Assessment

**Location:** Lots 412 & 413 DP1063902, Medowie, NSW

**RCA ref:** 13156-401/1



**PHOTOGRAPH 19** Interior of the shed (south eastern section). Construction materials included concrete floor, steel walls, roof and door. The shed was segregated into different areas using cement sheeting.



**PHOTOGRAPH 20** Date stamp on the back of the interior material used for area separation in the shed indicates it was 2002 and therefore unlikely to potentially contain asbestos. A sample was collected and subjected through the burn test and RCA considers that this material is not potential ACM. The same material was encountered on interior walls throughout the western portion of the shed.

**Client:** Catholic Diocese of Maitland Newcastle,  
c/o Webber Architects

**RCA Australia**

**Project:** Contamination Assessment

**Location:** Lots 412 & 413 DP1063902, Medowie, NSW

**RCA ref:** 13156-401/1



**PHOTOGRAPH 21** Ceramic tiles and underlying cement sheeting located within the toilet and bathroom in the shed that is considered to be the same material as Photographs 19 and 20.



**PHOTOGRAPH 22** Exterior of the dwelling situated on the site constructed of brick and steel.

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c/o Webber Architects

**RCA Australia**

**Project:** Contamination Assessment

**Location:** Lots 412 & 413 DP1063902, Medowie, NSW

**RCA ref:** 13156-401/1



**PHOTOGRAPH 23** *Plasterboard walls and ceiling identified within the lounge area that was representative of the interior building materials.*



**PHOTOGRAPH 24** *Interior kitchen, with ceramic tile flooring that was encountered during the HMA.*

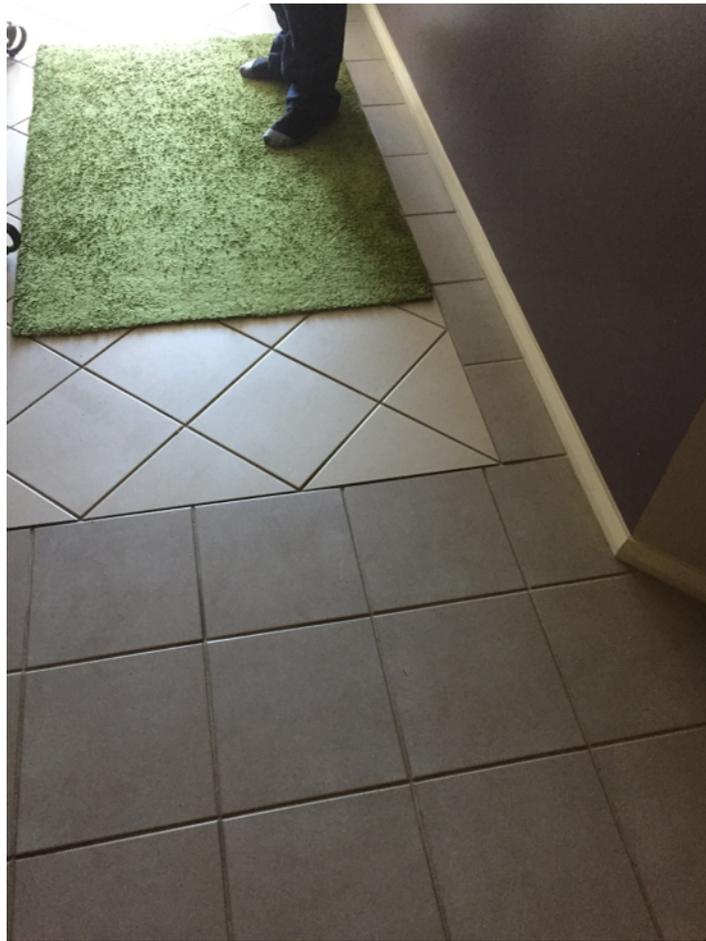
**Client:** Catholic Diocese of Maitland Newcastle,  
c/o Webber Architects

**RCA Australia**

**Project:** Contamination Assessment

**Location:** Lots 412 & 413 DP1063902, Medowie, NSW

**RCA ref:** 13156-401/1



**PHOTOGRAPH 25** *Ceramic tiles observed in the hallway with plasterboard walls.*



**PHOTOGRAPH 26** *Close up photograph of the plasterboard used for the interior walls.*

**Client:** Catholic Diocese of Maitland Newcastle,  
c/o Webber Architects

**RCA Australia**

**Project:** Contamination Assessment

**Location:** Lots 412 & 413 DP1063902, Medowie, NSW

**RCA ref:** 13156-401/1

# Appendix F

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## Screening Levels and Guidelines

## NATIONAL ENVIRONMENT PROTECTION (ASSESSMENT OF SITE CONTAMINATION) MEASURE 1999 AS AMENDED 2013

### Soil

The investigation and screening levels (ISL) utilised for the assessment of the soil on site were sourced from the National Environment Protection Measure for the Assessment of Site Contamination (ASC NEPM, Ref [14]). These ISL are not derived as acceptance criteria for contamination at a site, but as levels above which specific consideration of risk, based on the site use and potential exposure, is required. If a risk is determined as present, then remediation and/or management must be undertaken.

Assessment ISL are based on:

- Human Health.

Intentionally conservative health investigation levels (HIL) have been derived for four (4) generic land use settings.

- HIL 'A' - Residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake (no poultry). This category includes children's day care centres, preschools and primary schools.
- HIL 'B' - Residential with minimal opportunities for soil access includes dwellings with fully and permanently paved yard space such as high rise buildings and flats.
- HIL 'C' - Public open space such as parks, playgrounds, playing fields (e.g. ovals) secondary schools and footpaths. It does not include undeveloped public open space (such as urban bushland and reserves).
- HIL 'D' - Commercial/industrial such as shops, offices, factories and industrial sites.

The exposure scenario for the derivation of the relevant land use setting is set out in the table below.

Health screening levels (HSL) have been determined for risks associated from vapour intrusion from petroleum<sup>4</sup> compound contamination for the same land use settings. These HSL are additionally based on the fraction of compound, the soil texture and the depth of the encountered soil.

Direct hydrocarbon contact criteria are not provided in the ASC NEPM, however these are provided in CRC Care Technical Report 10 (Ref [20]) which is the source document for the HSL.

- Ecological Health

These levels are considered to apply to soil within two (2) metres of the surface, the root zone and habitation zone of many species.

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<sup>4</sup> Laboratory analysis of hydrocarbons is being reported as total recoverable hydrocarbons (TRH). This testing method includes all forms of hydrocarbons, not just petroleum hydrocarbons and therefore can be considered a conservative measure against the chosen TPH criteria. Further laboratory analysis using a silica gel clean up (TRH<sub>sg</sub>) is considered to enable a better identification of the extent of petroleum based contamination.

Ecological investigation levels (EIL) have been determined for arsenic, copper, chromium III, DDT, naphthalene, nickel, lead and zinc in soil based on species sensitivity model and for three (3) generic land use settings:

- Areas of ecological significance – for areas where the primary intention is for the conservation and protection of the natural environment. Protection level of 99%.
- Urban residential areas and public open space – broadly equivalent to the HIL A, HIL B and HIL C land use settings. Protection level of 80%.
- Commercial and industrial land uses – considered to be broadly equivalent to HIL D land use setting. Protection level of 60%.

Methodology for the derivation of EIL for other contaminants is available in the ASC NEPM and requires additional soil character data.

Ecological screening levels (ESL) have been determined for petroleum compound contamination. Due to limitations in the data only moderate reliability ESL have been determined for fractions  $<C_{16}$ , applied generically in fine and coarse grained soils. ESL for petroleum fractions  $> C_{16}$ , BTEX and naphthalene are consider low reliability.

- Aesthetics

Aesthetic considerations operate separately to the HIL/HSL and EIL/ESL assessment. Issues to be considered include:

- Highly malodorous soils or extracted groundwater (e.g. strong residual petroleum hydrocarbon odours, hydrogen sulphide in soil or extracted groundwater, organosulfur compounds).
- Hydrocarbon sheen on surface water.
- Discoloured chemical deposits or soil staining with chemical waste other than of a very minor nature.
- Large monolithic deposits of otherwise low-risk material, e.g. gypsum as powder or plasterboard, cement kiln dust.
- Presence of putrescible refuse including material that may generate hazardous levels of methane such as a deep-fill profile of green waste or large quantities of timber waste.
- Soils containing residue from animal burial (e.g. former abattoir sites).

Site assessment requires consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity. For example, higher expectations for soil quality would apply to residential properties with gardens compared with industrial settings.

Tier 1 assessment comprises the comparison of the soil data with the HIL/HSL and EIL/ESL. In the event that some concentrations are in excess of the relevant criteria, the summary statistics of the data set may be utilised for assessment purpose. Consideration of a range of statistics is recommended; at a minimum the 95%UCL<sub>ave</sub> should be compared to the relevant criteria as long as:

- No single value exceeds 250% of the relevant criterion.

- The standard deviation of the results for each analyte is less than 50% of the relevant criterion.

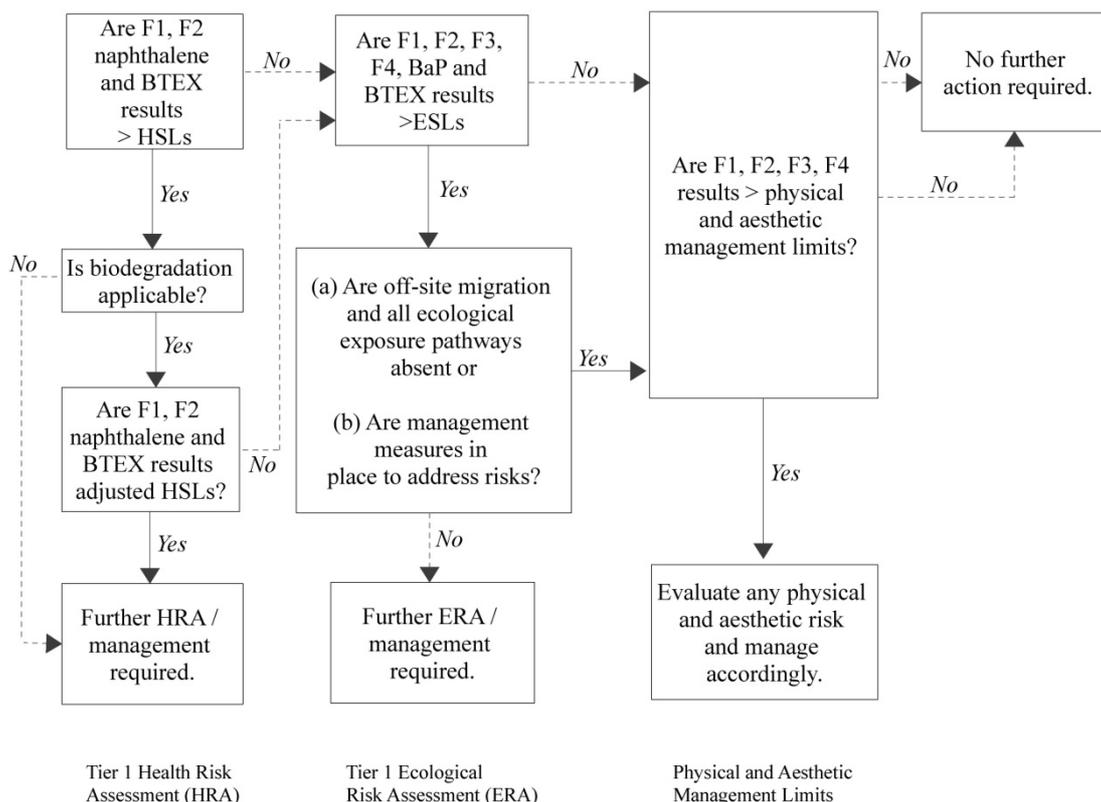
In addition to appropriate consideration and application of the HSL and ESL, there are a number of policy considerations which reflect the nature and properties of petroleum hydrocarbons:

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

The ASC NEPM (Ref [14]) has therefore provided management limits, the application of which will require consideration of site-specific factors such as the depth of building basements and services and depth to groundwater, to determine the maximum depth to which the limits should apply. The management limits may have less relevance at operating industrial sites (including mine sites) which have no or limited sensitive receptors in the area of potential impact. When the management limits are exceeded, further site-specific assessment and management may enable any identified risk to be addressed.

The presence of site hydrocarbon contamination at the levels of the management limits does not imply that there is no need for administrative notification or controls in accordance with jurisdiction requirements.

The following figure has been taken from the ASC NEPM (Ref [14]) to illustrate the assessment methodology in regards to petroleum contamination.



**Figure 1** Flowchart for the Tier 1 human and ecological risk assessment of petroleum hydrocarbon contamination – application of HSL and ESL and consideration of management limits

## Water

Schedule B6 of the ASC NEPM provides generic groundwater investigation levels (GIL) which are defined as ‘the concentration of a contaminant in groundwater above which further investigation is required’. Selected GIL are tabulated in Table 1C of Schedule B1 and are sourced from the:

- Australian water quality guidelines for fresh and marine water (AWQG, Ref [4]).
- Australian drinking water guidelines (ADWG, Ref [17]).
- Guidelines for managing risk in recreational water (Ref [21]).

The GIL are designed to avoid unacceptable impact to exposed populations or ecosystems under a range of circumstances. The aquatic ecosystem protection GIL presented in Table 1C of Schedule B1 are applicable to ‘slightly - moderately disturbed’ ecosystems. The AWQG (Ref [4]) should be consulted for additional values for protection of disturbed ecosystems and pristine ecosystems.

Schedule B1 of the ASC NEPM (Ref [14]) provides generic health screening levels (HSL) for groundwater, for protection of human health from petroleum hydrocarbon<sup>5</sup> vapours, based on the following land use scenarios as detailed earlier in the **Appendix**.

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<sup>5</sup> Laboratory analysis of hydrocarbons is reported as total recoverable hydrocarbons (TRH). This testing method includes all forms of hydrocarbons, not just petroleum hydrocarbons and therefore can be considered a conservative measure against the chosen TPH criteria. Further laboratory analysis using a silica gel clean up (TRH<sub>sg</sub>) is considered to enable a better identification of the extent of petroleum based contamination

### Residential with Garden/Accessible soil

| Summary of Exposure Pathways                | Abbreviations                        | Units                   | Parameters                       |                  |
|---|--------------------------------------|-------------------------|----------------------------------|------------------|
|   |                                      |                         | Adult                            | Child            |
| Body weight                                 | BW <sub>A</sub> or BW <sub>C</sub>   | kg                      | 70                               | 15               |
| Exposure duration                           | ED <sub>A</sub> or ED <sub>C</sub>   | years                   | 29                               | 6                |
| Exposure frequency                          | EF                                   | days                    | 365                              | 365              |
| Soil/dust ingestion rate <sup>1</sup>       | IR <sub>SA</sub> or IR <sub>SC</sub> | mg/day                  | 50 <sup>2</sup>                  | 100 <sup>2</sup> |
| Soil/dust to skin adherence factor          | AF                                   | mg/cm <sup>2</sup> /day | 0.5                              | 0.5              |
| Skin surface area                           | SA <sub>A</sub> or SA <sub>C</sub>   | cm <sup>2</sup>         | 20 000                           | 6100             |
| Fraction of skin exposed                    | F <sub>s</sub>                       | %                       | 31.5                             | 44.3             |
| Dermal absorption factor                    | DAF                                  | %                       | Chemical specific values applied |                  |
| Time spent indoors on site each day         | ET <sub>i</sub>                      | hours                   | 20                               | 20               |
| Time spent outdoors on site each day        | ET <sub>o</sub>                      | hours                   | 4                                | 4                |
| Home-grown fraction of vegetables consumed  | F <sub>HG</sub>                      | %                       | 10                               | 10               |
| Vegetable & fruit consumption rate          | C <sub>y</sub> (veg and fruit)       | g/day                   | 400                              | 280              |
| Averaging time for carcinogens ('lifetime') | AT <sub>NT</sub>                     | years                   | 70                               | 70               |
| Dust lung retention factor                  | RF                                   | %                       | 37.5                             | 37.5             |

Soil ingestion rates for children are based on a child aged 2-3 years where normal hand-to-mouth activity is assumed and does not account for pica behaviour

Soil ingestion rates for the HIL A scenario include the ingestion of both outdoor soil, including soil adhering to home-grown produce, and indoor dust (derived from outdoor soil tracked indoors)

### Public Open Space/Recreational Areas

| Summary of Exposure Pathways                | Abbreviations                        | Units                   | Parameters                       |                 |
|---|--------------------------------------|-------------------------|----------------------------------|-----------------|
|   |                                      |                         | Adult                            | Child           |
| Body weight                                 | BW <sub>A</sub> or BW <sub>C</sub>   | kg                      | 70                               | 15              |
| Exposure duration                           | ED <sub>A</sub> or ED <sub>C</sub>   | years                   | 29                               | 6               |
| Exposure frequency                          | EF                                   | days                    | 365                              | 365             |
| Soil/dust ingestion rate <sup>1</sup>       | IR <sub>SA</sub> or IR <sub>SC</sub> | mg/day                  | 25 <sup>4</sup>                  | 50 <sup>4</sup> |
| Soil/dust to skin adherence factor          | AF                                   | mg/cm <sup>2</sup> /day | 0.5                              | 0.5             |
| Skin surface area                           | SA <sub>A</sub> or SA <sub>C</sub>   | cm <sup>2</sup>         | 20 000                           | 6100            |
| Fraction of skin exposed                    | F <sub>s</sub>                       | %                       | 31.5                             | 44.3            |
| Dermal absorption factor                    | DAF                                  | %                       | Chemical specific values applied |                 |
| Time spent indoors on site each day         | ET <sub>i</sub>                      | hours                   | 0                                | 0               |
| Time spent outdoors on site each day        | ET <sub>o</sub>                      | hours                   | 2                                | 2               |
| Home-grown fraction of vegetables consumed  | F <sub>HG</sub>                      | %                       | 0                                | 0               |
| Vegetable & fruit consumption rate          | C <sub>y</sub> (veg and fruit)       | g/day                   | -                                | -               |
| Averaging time for carcinogens ('lifetime') | AT <sub>NT</sub>                     | years                   | 70                               | 70              |
| Dust lung retention factor                  | RF                                   | %                       | 37.5                             | 37.5            |

Soil ingestion rates for children are based on a child aged 2-3 years where normal hand-to-mouth activity is assumed and does not account for pica behaviour.

Soil ingestion rates for the HIL C scenario are based on the assumption that half of the HIL A soil/dust ingestion occurs, i.e. ingestion of outdoor soil only (no indoor dust)

## DECCW 2014, WASTE CLASSIFICATION GUIDELINES

The waste classification guidelines (Ref [22]) are designed to ensure waste streams are managed appropriately and in accordance with the Protection of the Environment Operations Act 1997 (the POEO Act) and its associated regulations. The guidelines classify waste into groups which pose similar risks to the environment and human health; and facilitate their management and appropriate disposal.

Six waste classes are used:

- Special waste:
  - Clinical or related waste, asbestos waste, waste tyres.
- Liquid waste:
  - As defined by angle of repose, temperature at which it is free flowing and physical composition.
- Hazardous waste.
- Restricted solid waste.
- General solid waste (putrescible).
- General solid waste (non-putrescible).

Classification begins with determination of whether the waste is 'special waste'. If not determination of whether material is classified as liquid waste is then required. Material which is not liquid waste, or is special waste due to asbestos content, must be compared to pre-classification definitions. Without pre-classification, the potential for hazardous characteristics (such as explosives, gases, flammable materials, oxidising, toxic and corrosive substances) must be established. If material cannot be classified as hazardous, assessment by chemical analysis must be undertaken. Without assessment, material must be managed as if hazardous waste.

Chemical classification is two tiered. The first set of criteria is based on total contaminant concentrations, whereas the second set of criteria is based on a leachable (TCLP) concentration and a total contaminant concentration. The total concentrations criteria are generally higher in conjunction with TCLP testing than if it was not undertaken.

## DECC 2007, GUIDELINES FOR THE ASSESSMENT AND MANAGEMENT OF GROUNDWATER CONTAMINATION

These groundwater quality guidelines have been introduced by the NSW DECC (Ref [xx]) and recommend that AWQG (Ref [21]) investigation levels be adopted as groundwater investigation levels (GIL) for aquatic ecosystems and ADWG (Ref [17]) for drinking water GIL.

The AWQG are complex guidelines that consider not only the level of protection (e.g. 99% or 95%) but also the state of the receiving water (e.g. moderately disturbed). For the protection of aquatic ecosystems the DECC recommend the use of 95% protection for all analytes with the exception of carcinogenic analytes for which the 99% protection value should be used. The following comments are additionally made:

- Where the existing generic GIL is below the naturally occurring background concentration of a particular contaminant, the background concentration becomes the default GIL.
- Where PQL are greater than the recommended GIL the PQL is adopted as the GIL. Where background concentrations are proven to be greater than the GIL, the background concentration is adopted as the GIL.
- Where there is insufficient data for the derivation of marine water criteria it is allowable to use fresh water criteria (Section 8.3.4.5, pg 8.3-36, (Ref [21])).

The ADWG 2011 document provides a framework for drinking water quality management and assessment. The framework provided in this document has been adopted for the evaluation of contaminants in groundwater where groundwater can be, or is being, extracted and used for drinking water purpose.

RCA note that the ASC NEPM (Ref [14]) endorses the guidelines for use as GIL.

# Appendix G

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Bore logs and Field Sheets

PROJECT No: 13156

CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects

PROJECT: Contamination Assessment

LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 09/02/2018

DATE COMPLETED: 09/02/2018

SURFACE RL:

COORDS:

DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |                        |           | Field Material Information   |  |           |   |   |
|----------------------|-----------------|------------|------------------------|-----------|--|--|-----------|---|---|
| METHOD               | WATER           | FIELD TEST | SAMPLE                 | DEPTH (m) | GRAPHIC LOG  | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING<br>CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH1a<br>0.10m |           |  | SAND, fine to coarse grained, grey and white, sub angular to sub rounded, trace of silt  | 0.5       | D   | NATURAL<br>Rootlets, no odour                       |
|                      |                 |            | 0.30m<br>BH1b<br>0.40m |           |  | SAND, fine to medium grained, pale grey-white  | 0.2       |   |   |
|                      |                 |            | 0.50m<br>BH1c<br>0.60m | 0.5       |  | Becoming fine to medium grained, white/pale brown, sub rounded   |           | SM  |   |
|                      |                 |            |                        | 0.80      |  | Silty SAND, fine to medium grained, dark brown-white, with white sand grains   | 0         |   |   |
|                      |                 |            |                        | 1.00      |  | BOREHOLE BH1 TERMINATED AT 1.00 m  |           |   |   |
|                      |                 |            |                        | 1.5       |  |  |           |   |   |
|                      |                 |            |                        | 2.0       |  |  |           |   |   |
|                      |                 |            |                        | 2.5       |  |  |           |   |   |

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CHECKED: FB

DATE: 28/02/2018

PROJECT No: 13156  
 CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects  
 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 09/02/2018  
 DATE COMPLETED: 09/02/2018  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |                        |           | Field Material Information   |  |           |                         |   |   |
|----------------------|-----------------|------------|------------------------|-----------|--|--|-----------|-------------------------|---|---|
| METHOD               | WATER           | FIELD TEST | SAMPLE                 | DEPTH (m) | GRAPHIC LOG  | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING | CONSISTENCY/<br>RELATIVE DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH2a<br>0.10m |           |   | SAND, dark brown with white sand grains, with silt   | -3.6      | D                       |   | NATURAL<br>Rootlets, organic odour                  |
|                      |                 |            | 0.50m<br>BH2b<br>0.60m | 0.5       |   | SAND, fine grained, brown, with trace silt   |           |                         |   | Rootlets, no odour                                  |
|                      |                 |            | 0.80m<br>BH2c<br>0.90m | 0.80      |  | Silty Sandy CLAY, dark brown   | -0.8      | M                       |   | No odour  |
|                      |                 |            |                        | 1.00      |  | BOREHOLE BH2 TERMINATED AT 1.00 m  |           |                         |   |   |
|                      |                 |            |                        | 1.5       |  |  |           |                         |   |   |
|                      |                 |            |                        | 2.0       |  |  |           |                         |   |   |
|                      |                 |            |                        | 2.5       |  |  |           |                         |   |   |

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DATE: 28/02/2018

PROJECT No: 13156  
 CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects  
 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 09/02/2018  
 DATE COMPLETED: 09/02/2018  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |               |           | Field Material Information   |  |           |  |  |   |
|----------------------|-----------------|------------|---------------|-----------|--|--|-----------|--|--|---|
| METHOD               | WATER           | FIELD TEST | SAMPLE        | DEPTH (m) | GRAPHIC LOG  | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING                                      | CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH3a | 0.10m     |  | SAND, fine to coarse grained, brown with white, sub angular to sub rounded, with silt, trace gravels   | 0.4       | D  |  | NATURAL<br>Rootlets, no odour                       |
|                      |                 |            | 0.40m<br>BH3b |           |  | 0.50m  | 0.5       | SAND, fine to medium grained, pale brown/grey, trace of silt | 0.4  |   |
|                      |                 |            |               | 1.00      |  | Becoming medium to coarse grained, brown   |           |  |  | No odour  |
|                      |                 |            |               | 1.00      |  | BOREHOLE BH3 TERMINATED AT 1.00 m  |           |  |  |   |
|                      |                 |            |               | 1.5       |  |  |           |  |  |   |
|                      |                 |            |               | 2.0       |  |  |           |  |  |   |
|                      |                 |            |               | 2.5       |  |  |           |  |  |   |
| LOGGED: KS/ZL        |                 |            |               |           | CHECKED: FB  |  |           |  |  | DATE: 28/02/2018                                    |

PROJECT No: 13156  
 CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects  
 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 09/02/2018  
 DATE COMPLETED: 09/02/2018  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig

| Borehole Information |       |            |                        |           | Field Material Information   |  |           |   |   |
|----------------------|-------|------------|------------------------|-----------|--|--|-----------|---|---|
| METHOD               | WATER | FIELD TEST | SAMPLE                 | DEPTH (m) | GRAPHIC LOG  | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING<br>CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |
| Not Encountered      |       |            | 0.05m<br>BH4a<br>0.10m |           |   | TOPSOIL, Silty LOAM, dark brown, organic   | -3.8      | SM  | TOPSOIL<br>Rootlets                                 |
|                      |       |            | 0.30m<br>BH4b<br>QA1   | 0.30      |   | Sandy SILT/Silty SAND, fine to medium grained, brown, sub angular to sub rounded   | -3.1      |   | NATURAL   |
|                      |       |            | 0.50m                  | 0.50      |  | SAND, fine to coarse grained, white, sub angular to sub rounded  |           |   |   |
|                      |       |            |                        | 0.60      |  |  |           |   |   |
|                      |       |            |                        | 1.00      |  | BOREHOLE BH4 TERMINATED AT 1.00 m  |           |   |   |
|                      |       |            |                        | 1.5       |  |  |           |   |   |
|                      |       |            |                        | 2.0       |  |  |           |   |   |
|                      |       |            |                        | 2.5       |  |  |           |   |   |

LOGGED: KS/ZL

CHECKED: FB

DATE: 28/02/2018

PROJECT No: 13156  
 CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects  
 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 09/02/2018  
 DATE COMPLETED: 09/02/2018  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |                        |           | Field Material Information   |  |           |                         |   |   |
|----------------------|-----------------|------------|------------------------|-----------|--|--|-----------|-------------------------|---|---|
| METHOD               | WATER           | FIELD TEST | SAMPLE                 | DEPTH (m) | GRAPHIC LOG  | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING | CONSISTENCY/<br>RELATIVE DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH5a<br>0.10m |           |  | Silty SAND, fine to coarse grained, brown/white, sub angular to sub rounded  | -2.1      | D                       |   | NATURAL<br>Rootlets, no odour                       |
|                      |                 |            | 0.40m<br>BH5b<br>0.50m | 0.5       |  | Becoming SAND, fine to medium grained, pale brown/grey, trace silt   | -1.5      |                         |   |   |
|                      |                 |            |                        |           |  | Becoming brown   |           | SM - M                  |   |   |
|                      |                 |            |                        | 1.00      |  | BOREHOLE BH5 TERMINATED AT 1.00 m  |           |                         |   |   |
|                      |                 |            |                        | 1.5       |  |  |           |                         |   |   |
|                      |                 |            |                        | 2.0       |  |  |           |                         |   |   |
|                      |                 |            |                        | 2.5       |  |  |           |                         |   |   |

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DATE: 28/02/2018

PROJECT No: 13156

CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects

PROJECT: Contamination Assessment

LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 09/02/2018

DATE COMPLETED: 09/02/2018

SURFACE RL:

COORDS:

DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |                        |             | Field Material Information  |  |           |                         |  |   |
|----------------------|-----------------|------------|------------------------|-------------|---|--|-----------|-------------------------|--|---|
| METHOD               | WATER           | FIELD TEST | SAMPLE                 | DEPTH (m)   | GRAPHIC LOG   | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING | CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH6a<br>0.10m |             |    | Sandy SILT, brown, trace of clay   | 2.6       | D                       |  | NATURAL<br>Rootlets, no odour                       |
|                      |                 |            | 0.30m<br>BH6b<br>0.40m | 0.30        |    | Clayey SILT, grey  | 2.3       |                         |  | No odour  |
|                      |                 |            |                        | 0.5<br>0.60 |   | Silty CLAY, brown<br><br>Becoming consolidated and stiff   |           |                         |  | No odour  |
|                      |                 |            |                        | 1.0<br>1.25 |  | Becoming heavily mottled red/orange, extremely weathered bedrock   |           | St - VSt                | No odour   |   |
|                      |                 |            |                        | 1.25        |   | BOREHOLE BH6 TERMINATED AT 1.25 m  |           |                         |  |   |
|                      |                 |            |                        | 1.5         |   |  |           |                         |  |   |
|                      |                 |            |                        | 2.0         |   |  |           |                         |  |   |
|                      |                 |            |                        | 2.5         |   |  |           |                         |  |   |

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DATE: 28/02/2018

PROJECT No: 13156  
 CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects  
 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 09/02/2018  
 DATE COMPLETED: 09/02/2018  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |                        |           | Field Material Information  |  |           |   |   |
|----------------------|-----------------|------------|------------------------|-----------|---|--|-----------|---|---|
| METHOD               | WATER           | FIELD TEST | SAMPLE                 | DEPTH (m) | GRAPHIC LOG   | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING<br>CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH7a<br>0.10m | 0.05      |  | TOPSOIL, Sandy LOAM, dark brown, organic rich  | -0.2      | D   | TOPSOIL<br>Rootlets, ants, no odour                 |
|                      |                 |            | 0.30m<br>BH7b<br>0.40m | 0.20      |  | Sandy Clayey SILT, brown/red, with clayey nodules, brown/red   | 0         |   | NATURAL<br>No odour                                 |
|                      |                 |            |                        | 0.50      |  | Silty CLAY, red/brown  |           | St - VSt  | No odour  |
|                      |                 |            |                        | 0.70      |   |  |           |   |   |
|                      |                 |            |                        | 1.00      |   | BOREHOLE BH7 TERMINATED AT 1.00 m  |           |   |   |
|                      |                 |            |                        | 1.50      |   |  |           |   |   |
|                      |                 |            |                        | 2.00      |   |  |           |   |   |
|                      |                 |            |                        | 2.50      |   |  |           |   |   |

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DATE: 28/02/2018

PROJECT No: 13156  
 CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects  
 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 09/02/2018  
 DATE COMPLETED: 09/02/2018  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |               |           | Field Material Information   |  |           |   |   |
|----------------------|-----------------|------------|---------------|-----------|--|--|-----------|---|---|
| METHOD               | WATER           | FIELD TEST | SAMPLE        | DEPTH (m) | GRAPHIC LOG  | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING<br>CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH8a | 0.10m     |   | FILL, Sandy Gravelly SILT, pale brown, fine to coarse grained sand, gravels consist of siltstone and chert<br><br>Gravels decreasing, some clayey nodules                  | 0         | D   | FILL<br>Grass, rootlets, no odour                   |
|                      |                 |            | 0.40m<br>BH8b | 0.50m     |   | Sandy SILT, pale brown, fine to coarse grained sand  | 0         |   | NATURAL<br>No odour                                 |
|                      |                 |            |               | 0.70m     |  | Silty CLAY, red  |           | St  |   |
|                      |                 |            |               | 1.00m     |  | BOREHOLE BH8 TERMINATED AT 1.00 m  |           |   |   |
|                      |                 |            |               | 1.5       |  |  |           |   |   |
|                      |                 |            |               | 2.0       |  |  |           |   |   |
|                      |                 |            |               | 2.5       |  |  |           |   |   |

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DATE: 28/02/2018

PROJECT No: 13156

CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects

PROJECT: Contamination Assessment

LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 09/02/2018

DATE COMPLETED: 09/02/2018

SURFACE RL:

COORDS:

DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |               |           | Field Material Information   |  |           |   |   |
|----------------------|-----------------|------------|---------------|-----------|--|--|-----------|---|---|
| METHOD               | WATER           | FIELD TEST | SAMPLE        | DEPTH (m) | GRAPHIC LOG  | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING<br>CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH9a | 0.05      |   | TOPSOIL, Silty LOAM, fine to medium grained, brown   | 0.5       | D   | TOPSOIL<br>Grass, rootlets, no odour                |
|                      |                 |            | 0.10m         | 0.10      |  |  |           |   |   |
|                      |                 |            | 0.40m<br>BH9b | 0.40      |   | Becoming Sandy SILT with clay nodules, pale brown/yellow   | 0         |   | NATURAL<br>No odour                                 |
|                      |                 |            | 0.50m         | 0.50      |  |  |           |   |   |
|                      |                 |            |               | 0.80      |  | Silty CLAY, red/brown  |           | VSt   | No odour  |
|                      |                 |            |               | 1.00      |  | BOREHOLE BH9 TERMINATED AT 1.00 m  |           |   |   |
|                      |                 |            |               | 1.5       |  |  |           |   |   |
|                      |                 |            |               | 2.0       |  |  |           |   |   |
|                      |                 |            |               | 2.5       |  |  |           |   |   |

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DATE: 28/02/2018

PROJECT No: 13156  
 CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects  
 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 09/02/2018  
 DATE COMPLETED: 09/02/2001  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |                         |           | Field Material Information   |  |           |                         |   |   |  |
|----------------------|-----------------|------------|-------------------------|-----------|--|--|-----------|-------------------------|---|---|--|
| METHOD               | WATER           | FIELD TEST | SAMPLE                  | DEPTH (m) | GRAPHIC LOG  | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING | CONSISTENCY/<br>RELATIVE DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |  |
| Solid Flight Auger   | Not Encountered |            | 0.10m<br>BH10a<br>0.20m | 0.10      |   | TOPSOIL, Sandy LOAM, fine to medium grained, grey-brown  | 0.1       | D                       |   | TOPSOIL<br>Organic material, no odour               |  |
|                      |                 |            | 0.40m<br>BH10b<br>0.50m | 0.5       |   |  |           |                         |   |   |  |
|                      |                 |            |                         | 0.70      |  | Silty CLAY, red-brown  |           |                         |   | NATURAL<br>No odour                                 |  |
|                      |                 |            |                         | 1.00      |  | BOREHOLE BH10 TERMINATED AT 1.00 m   |           |                         |   |   |  |
|                      |                 |            |                         | 1.5       |  |  |           |                         |   |   |  |
|                      |                 |            |                         | 2.0       |  |  |           |                         |   |   |  |
|                      |                 |            |                         | 2.5       |  |  |           |                         |   |   |  |
| LOGGED: KS/ZL        |                 |            |                         |           | CHECKED: FB  |  |           | DATE: 28/02/2018        |   |   |  |

PROJECT No: 13156

CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects

PROJECT: Contamination Assessment

LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 12/02/2018

DATE COMPLETED: 12/02/2018

SURFACE RL:

COORDS:

DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |                         |             | Field Material Information   |  |           |   |   |
|----------------------|-----------------|------------|-------------------------|-------------|--|--|-----------|---|---|
| METHOD               | WATER           | FIELD TEST | SAMPLE                  | DEPTH (m)   | GRAPHIC LOG  | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING<br>CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH11a<br>0.10m | 0.05        |   | TOPSOIL, Sandy LOAM, fine to medium grained, brown   | 0.2       | D   | TOPSOIL<br>Organic matter, no odour                 |
|                      |                 |            | 0.40m<br>BH11b<br>0.50m | 0.25<br>0.5 |  | Silty CLAY, brown-red, trace gravels   | 0.2       |   | NATURAL<br>No odour                                 |
|                      |                 |            |                         | 1.00        |  | BOREHOLE BH11 TERMINATED AT 1.00 m   |           |   |   |
|                      |                 |            |                         | 1.5         |  |  |           |   |   |
|                      |                 |            |                         | 2.0         |  |  |           |   |   |
|                      |                 |            |                         | 2.5         |  |  |           |   |   |

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PROJECT No: 13156  
 CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects  
 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 12/02/2018  
 DATE COMPLETED: 12/02/2018  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |                                |           | Field Material Information   |  |                                    |   |   |
|----------------------|-----------------|------------|--------------------------------|-----------|--|--|------------------------------------|---|---|
| METHOD               | WATER           | FIELD TEST | SAMPLE                         | DEPTH (m) | GRAPHIC LOG  | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm)                          | MOISTURE/<br>WEATHERING<br>CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH12a<br>QA2<br>0.10m | 0.05      |   | TOPSOIL, sandy LOAM, fine to medium grained, brown-grey  | 0.3                                | D   | TOPSOIL<br>Organic material, no odour               |
|                      |                 |            | 0.40m<br>BH12b<br>0.50m        | 0.30      |   | Becoming Sandy SILT, with clay nodules, brown  | 0.2                                |   | NATURAL   |
|                      |                 |            |                                | 0.70      |  | Silty CLAY, grey mottled with red and brown  |                                    | M   |   |
|                      |                 |            |                                | 1.00      |  |  | BOREHOLE BH12 TERMINATED AT 1.00 m |   |   |
|                      |                 |            |                                | 1.5       |  |  |                                    |   |   |
|                      |                 |            |                                | 2.0       |  |  |                                    |   |   |
|                      |                 |            |                                | 2.5       |  |  |                                    |   |   |

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DATE: 28/02/2018

PROJECT No: 13156  
 CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects  
 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 12/02/2018  
 DATE COMPLETED: 12/02/2018  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |                         |           | Field Material Information   |  |                                    |                         |   |   |
|----------------------|-----------------|------------|-------------------------|-----------|--|--|------------------------------------|-------------------------|---|---|
| METHOD               | WATER           | FIELD TEST | SAMPLE                  | DEPTH (m) | GRAPHIC LOG  | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm)                          | MOISTURE/<br>WEATHERING | CONSISTENCY/<br>RELATIVE DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH13a<br>0.10m |           |   | TOPSOIL, Sandy LOAM, fine to medium grained, brown   | 0.3                                | D                       |   | TOPSOIL<br>Organic material, no odour               |
|                      |                 |            | 0.40m<br>BH13b<br>0.50m | 0.35      |   | Becoming Sandy SILT, clay nodules  | 0.1                                |                         |   | NATURAL<br>No odour                                 |
|                      |                 |            |                         | 0.70      |  | Silty CLAY, mottled with brown-red and grey  |                                    | M                       |   | No odour  |
|                      |                 |            |                         | 1.00      |  |  | BOREHOLE BH13 TERMINATED AT 1.00 m |                         |   |   |
|                      |                 |            |                         | 1.5       |  |  |                                    |                         |   |   |
|                      |                 |            |                         | 2.0       |  |  |                                    |                         |   |   |
|                      |                 |            |                         | 2.5       |  |  |                                    |                         |   |   |

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DATE: 28/02/2018

PROJECT No: 13156  
 CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects  
 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 12/02/2018  
 DATE COMPLETED: 12/02/2018  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |                |           | Field Material Information   |  |           |   |   |
|----------------------|-----------------|------------|----------------|-----------|--|--|-----------|---|---|
| METHOD               | WATER           | FIELD TEST | SAMPLE         | DEPTH (m) | GRAPHIC LOG  | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING<br>CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH14a | 0.10m     |   | TOPSOIL, Sandy LOAM, fine to medium grained, brown   | 0         | D   | TOPSOIL<br>Organic material, no odour               |
|                      |                 |            | 0.40m<br>BH14b | 0.50m     |   | Becoming Sandy SILT, fine to medium grained, brown   | 0         |   | NATURAL   |
|                      |                 |            |                |           |   | With clay nodules  |           |   |   |
|                      |                 |            |                |           |  | Clayey SILT, brown-red   |           | D - SM  | No odour  |
|                      |                 |            |                | 1.00      |  | BOREHOLE BH14 TERMINATED AT 1.00 m   |           |   |   |
|                      |                 |            |                | 1.5       |  |  |           |   |   |
|                      |                 |            |                | 2.0       |  |  |           |   |   |
|                      |                 |            |                | 2.5       |  |  |           |   |   |

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DATE: 28/02/2018

PROJECT No: 13156

CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects

PROJECT: Contamination Assessment

LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 12/02/2018

DATE COMPLETED: 12/02/2018

SURFACE RL:

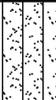
COORDS:

DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |                         |           | Field Material Information   |  |           |   |   |  |
|----------------------|-----------------|------------|-------------------------|-----------|--|--|-----------|---|---|--|
| METHOD               | WATER           | FIELD TEST | SAMPLE                  | DEPTH (m) | GRAPHIC LOG  | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING<br>CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |  |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH15a<br>0.10m |           |  | Sandy SILT, fine to medium grained, brown, trace clay nodules  | 0         | D   | NATURAL<br>Organic material, no dour                |  |
|                      |                 |            | 0.40m<br>BH15b<br>0.50m | 0.5       |  | Becoming Clayey SILT, brown-red  | 0         |   | No odour  |  |
|                      |                 |            |                         | 0.70      |  |  |           |   |   |  |
|                      |                 |            |                         | 1.00      |  | BOREHOLE BH15 TERMINATED AT 1.00 m   |           |   |   |  |
|                      |                 |            |                         | 1.5       |  |  |           |   |   |  |
|                      |                 |            |                         | 2.0       |  |  |           |   |   |  |
|                      |                 |            |                         | 2.5       |  |  |           |   |   |  |
| LOGGED: KS/ZL        |                 |            |                         |           | CHECKED: FB  |  |           | DATE: 28/02/2018  |   |  |

PROJECT No: 13156  
 CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects  
 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 12/02/2018  
 DATE COMPLETED: 12/02/2018  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |                         |           | Field Material Information  |  |           |                         |  |   |
|----------------------|-----------------|------------|-------------------------|-----------|---|--|-----------|-------------------------|--|---|
| METHOD               | WATER           | FIELD TEST | SAMPLE                  | DEPTH (m) | GRAPHIC LOG   | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING | CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH16a<br>0.10m | 0.05      |  | Sandy SILT, fine to medium grained, brown  | 0.3       | D                       |  | NATURAL<br>Organic material, no odour               |
|                      |                 |            |                         | 0.20      |  | Clayey SILT, brown-red, with sand  |           |                         |  | No odour  |
|                      |                 |            | 0.40m<br>BH16b<br>0.50m | 0.40      |  | Silty CLAY, red-brown and grey mottling  | 0.2       |                         |  | No odour  |
|                      |                 |            |                         | 0.60      |   |  |           |                         |  |   |
|                      |                 |            |                         | 1.00      |   | BOREHOLE BH16 TERMINATED AT 1.00 m   |           |                         |  |   |
|                      |                 |            |                         | 1.5       |   |  |           |                         |  |   |
|                      |                 |            |                         | 2.0       |   |  |           |                         |  |   |
|                      |                 |            |                         | 2.5       |   |  |           |                         |  |   |
| LOGGED: KS/ZL        |                 |            |                         |           | CHECKED: FB   |  |           |                         |  | DATE: 28/02/2018                                    |

PROJECT No: 13156  
 CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects  
 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 12/02/2018  
 DATE COMPLETED: 12/02/2018  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |                         |   | Field Material Information  |  |  |  |  |  |
|----------------------|-----------------|------------|-------------------------|---|---|--|--|--|--|--|
| METHOD               | WATER           | FIELD TEST | SAMPLE                  | DEPTH (m)   | GRAPHIC LOG   | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm)  | MOISTURE/<br>WEATHERING<br>CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH        | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS  |  |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH17a<br>0.10m | 0.10  |  | TOPSOIL/FILL, Sandy LOAM, fine to medium grained, brown, trace gravel  | -0.3   | D  | TOPSOIL / FILL<br>Organic material, no odour   |  |
|                      |                 |            | 0.20m<br>BH17b<br>0.30m |   |   | 0.20   |  |  |                       | FILL, Silty SAND, fine to coarse grained, with gravels, includes brick, stone and concrete |
|                      |                 |            |                         | 0.40  |  |  | FILL, Silty Gravelly SAND, fine to coarse grained, gravel include chert, stone and rock, sub rounded <50mm |  |  |  |
|                      |                 |            |                         |   |   | 1.0  |                           |  |  |  |
|                      |                 |            |                         | 1.20m<br>BH17c  | 1.20  |  |  |  | FILL, Silty Gravelly Sandy CLAY, fine to coarse grained sand, trace asphalt, brick, stone and concrete |  |
|                      |                 |            |                         | 1.40m<br>BH17d<br>1.50m   | 1.40  |   | Silty CLAY, brown  |  |  |  |
|                      |                 |            | 1.5                     |  | Becoming grey   |  |  |  |  |  |
|                      |                 |            | 2.00                    |   |   | BOREHOLE BH17 TERMINATED AT 2.00 m   |  |  |  |  |
|                      |                 |            |                         | 2.5   |   |  |  |  |  |  |

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DATE: 28/02/2018

PROJECT No: 13156  
 CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects  
 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 12/02/2018  
 DATE COMPLETED: 12/02/2018  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |                |           | Field Material Information  |  |  |   |   |          |
|----------------------|-----------------|------------|----------------|-----------|---|--|--|---|---|----------|
| METHOD               | WATER           | FIELD TEST | SAMPLE         | DEPTH (m) | GRAPHIC LOG   | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm)  | MOISTURE/<br>WEATHERING<br>CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |          |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>TP18a | 0.10m     |    | FILL, Silty CLAY, brown, with gravel, fine to coarse, includes stone, brick and asphalt, trace organic material  | -3.4   | D   | FILL<br>Roots, grass, no odour                      |          |
|                      |                 |            | 0.40m<br>TP18b |           |   |  |  |   |   | 0.50m    |
|                      |                 |            | 0.80m<br>TP18c | 0.90m     |   | 0.80   | FILL, Silty CLAY, grey and red mottling              | 0.8   | M   | No odour |
|                      |                 |            |                |           |   | 1.00   | FILL, Silty Clayey GRAVEL, brown-red, includes stone |   |   | No odour |
|                      |                 |            |                |           |   | 1.5  |  |   |   |          |
|                      |                 |            |                | 2.0       |   |  |  |   |   |          |
|                      |                 |            |                | 2.20      |  | Silty CLAY, brown-red  |  |   | NATURAL<br>No odour                                 |          |
|                      |                 |            |                | 2.50      |   | BOREHOLE BH18 TERMINATED AT 2.50 m   |  |   |   |          |

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DATE: 28/02/2018

PROJECT No: 13156

CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects

PROJECT: Contamination Assessment

LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 12/02/2018

DATE COMPLETED: 12/02/2018

SURFACE RL:

COORDS:

DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |                                |           | Field Material Information  |  |           |                         |  |   |
|----------------------|-----------------|------------|--------------------------------|-----------|---|--|-----------|-------------------------|--|---|
| METHOD               | WATER           | FIELD TEST | SAMPLE                         | DEPTH (m) | GRAPHIC LOG   | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING | CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH19a<br>QA3<br>0.10m |           |   | FILL, Sandy SILT, fine to medium grained, brown, trace gravel  | -0.3      | D                       |  | FILL<br>Organic material, rootlets,<br>no odour     |
|                      |                 |            | 0.40m<br>BH19b<br>0.50m        | 0.5       |   |  |           | 0                       |  |   |
|                      |                 |            |                                | 1.0       |   |  |           |                         |  |   |
|                      |                 |            |                                | 1.5       |   |  |           |                         |  |   |
|                      |                 |            |                                | 1.60      |  | Silty CLAY, red-brown, trace sand  |           |                         |  | NATURAL<br>No odour                                 |
|                      |                 |            |                                | 2.00      |   |  |           |                         |  |   |
|                      |                 |            |                                | 2.5       |   | BOREHOLE BH19 TERMINATED AT 2.00 m   |           |                         |  |   |

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DATE: 28/02/2018

PROJECT No: 13156

CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects

PROJECT: Contamination Assessment

LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 12/02/2018

DATE COMPLETED: 12/02/2018

SURFACE RL:

COORDS:

DRILL MODEL: Truck mounted drill rig

| Borehole Information |                 |            |                |           | Field Material Information   |  |           |                         |  |   |
|----------------------|-----------------|------------|----------------|-----------|--|--|-----------|-------------------------|--|---|
| METHOD               | WATER           | FIELD TEST | SAMPLE         | DEPTH (m) | GRAPHIC LOG  | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING | CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | STRUCTURE/AESTHETICS AND<br>ADDITIONAL OBSERVATIONS |
| Solid Flight Auger   | Not Encountered |            | 0.05m<br>BH20a | 0.10m     |  | Sandy SILT, brown, trace gravel (stone)  | 0         | D                       |  | NATURAL<br>Organic material, rootlets,<br>no odour  |
|                      |                 |            | 0.20m<br>BH20b | 0.30m     |  |  | 0         |                         |  | No odour  |
|                      |                 |            |                | 0.5       |  | Becoming Clayey SILT, brown-red, with sand   |           |                         |  |   |
|                      |                 |            |                | 0.80      |  | Silty CLAY, red-brown  |           |                         |  | No odour  |
|                      |                 |            |                | 1.00      |  | BOREHOLE BH20 TERMINATED AT 1.00 m   |           |                         |  |   |
|                      |                 |            |                | 1.5       |  |  |           |                         |  |   |
|                      |                 |            |                | 2.0       |  |  |           |                         |  |   |
|                      |                 |            |                | 2.5       |  |  |           |                         |  |   |

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DATE: 28/02/2018

PROJECT No: 13156

CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects

PROJECT: Contamination Assessment

LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 09/02/2018

DATE COMPLETED: 09/02/2018

SURFACE RL:

COORDS:

DRILL MODEL: Truck mounted drill rig

DRILLER NAME: Shaun Currie from FCO Drilling

| Borehole Information |       |            |        | Field Material Information |   |  |           |   |  |
|----------------------|-------|------------|--------|----------------------------|---|--|-----------|---|--|
| METHOD               | WATER | FIELD TEST | SAMPLE | DEPTH (m)                  | GRAPHIC LOG   | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING<br>CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | BORE CONSTRUCTION                          |
|                      |       |            |        | 0.00                       |  | TOPSOIL, Sandy LOAM, fine to medium grained, dark brown/black organic rich<br>Rootlets, no odour   |           | SM  | (Stickup PVC pipe 0.56m AGL)<br>← Backfill |
|                      |       |            |        | 0.20                       |  | NATURAL, Silty SAND, fine to medium grained, grey-brown<br>No odour  |           |   | ← Bentonite                                |
|                      |       |            |        | 0.30                       |  | NATURAL, Silty SAND, brown, orange mottles, trace silty clay lumps<br>No odour   |           |   |  |
|                      |       |            |        | 0.50                       |  | NATURAL, Clayey Silty SAND, fine to medium grained, orange/brown<br>No odour   |           |   | ← 5mm washed river gravel                  |
|                      |       |            |        | 0.60                       |  | NATURAL, SAND, fine to coarse grained, pale grey-brown, with trace silt<br>No odour  |           |   |  |
|                      |       |            | MW1a   | 0.90m                      |   |  |           |   |  |
|                      |       |            |        | 1.00m                      |   |  |           |   |  |
|                      |       |            | MW1b   | 1.20m                      |   | Becoming paler   |           | M   |  |
|                      |       |            |        | 1.30m                      |   |  |           | VM  |  |
|                      |       |            |        | 1.50m                      |   |  |           | S   |  |
|                      |       |            | MW1c   | 2.00m                      |   |  |           |   |  |
|                      |       |            |        | 2.10m                      |   |  |           |   | ← Screen                                   |
|                      |       |            | MW1d   | 2.90m                      |   |  |           |   |  |
|                      |       |            |        | 3.00m                      |   |  |           |   |  |
|                      |       |            |        | 3.30                       |   | BOREHOLE MW1 TERMINATED AT 3.30 m  |           |   |  |

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DATE: 28/02/2018

PROJECT No: 13156  
 CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects  
 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 09/02/2018  
 DATE COMPLETED: 09/02/2018  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig  
 DRILLER NAME: Shaun Currie from FCO Drilling

| Borehole Information |       |            |                        |           | Field Material Information  |  |           |                         |   |  |
|----------------------|-------|------------|------------------------|-----------|---|--|-----------|-------------------------|---|--|
| METHOD               | WATER | FIELD TEST | SAMPLE                 | DEPTH (m) | GRAPHIC LOG   | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING | CONSISTENCY/<br>RELATIVE DENSITY/<br>STRENGTH | BORE CONSTRUCTION  |
|                      |       |            |                        | 0.50      |    | TOPSOIL, Sandy Silty CLAY, fine to medium grained, brown<br>Rootlets, no odour<br><br>Silty clay lumps present   |           |                         |   | (Stickup PVC pipe 0.57m AGL)<br>Bentonite<br><br>5mm washed river gravel |
|                      |       |            | 1.00m<br>MW2a<br>1.10m | 1.0       |   | NATURAL, Silty CLAY, brown, heavy red/orange mottling<br>No odour  |           |                         |   | Bentonite  |
|                      |       |            | 1.90m<br>MW2b<br>2.10m | 1.20      |  | NATURAL, Silty CLAY, pale grey with red mottling<br>No odour   |           |                         |   |  |
|                      |       |            |                        | 1.5       |  | Becoming pale grey with red mottling<br>No odour   |           |                         |   |  |
|                      |       |            | 2.90m<br>MW2c<br>3.10m | 2.0       |  | Red mottling decreasing  |           |                         |   | 5mm washed river sand - to the bottom of well                            |
|                      |       |            |                        | 2.5       |  |  |           |                         |   | Screen with 5mm washed river gravel                                      |
|                      |       |            |                        | 3.0       |  |  |           |                         |   |  |

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Solid Flight Auger

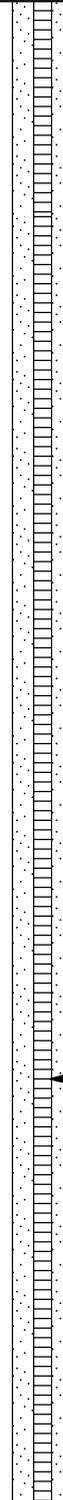
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DATE: 28/02/2018

PROJECT No: 13156  
 CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects  
 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 09/02/2018  
 DATE COMPLETED: 09/02/2018  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig  
 DRILLER NAME: Shaun Currie from FCO Drilling

| Borehole Information |       |            |        |           | Field Material Information   |  |           |                         |  |  |  |
|----------------------|-------|------------|--------|-----------|--|--|-----------|-------------------------|--|--|--|
| METHOD               | WATER | FIELD TEST | SAMPLE | DEPTH (m) | GRAPHIC LOG  | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING | CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | BORE CONSTRUCTION  |  |
|                      |       |            |        | 3.90m     |  | NATURAL, Silty CLAY, pale grey with red mottling<br>No odour   |           |                         |  |  |  |
|                      |       |            | MW2d   | 4.0       |  |  |           |                         |  |  |  |
|                      |       |            |        | 4.10m     |  |  |           |                         |  |  |  |
|                      |       |            |        | 4.50m     |  | NATURAL, Silty CLAY, reddish/brown<br>No odour   |           | D                       |  |  |  |
|                      |       |            |        | 5.0       |  |  |           |                         |  |  |  |
|                      |       |            |        | 5.5       |  |  |           |                         |  |  |  |
|                      |       |            |        | 6.0       |  |  |           |                         |  |  |  |
|                      |       |            |        | 6.5       |  |  |           |                         |  |  |  |
| LOGGED: KS/ZL        |       |            |        |           |  | CHECKED: FB  |           |                         | DATE: 28/02/2018                                 |  |  |

Solid Flight Auger

Screen with 5mm washed river gravel

PROJECT No: 13156

CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects

PROJECT: Contamination Assessment

LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 09/02/2018

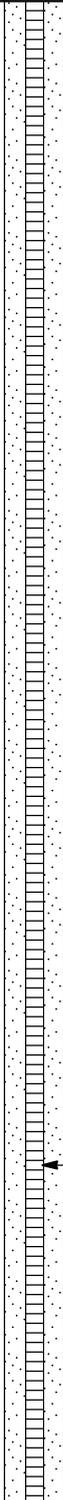
DATE COMPLETED: 09/02/2018

SURFACE RL:

COORDS:

DRILL MODEL: Truck mounted drill rig

DRILLER NAME: Shaun Currie from FCO Drilling

| Borehole Information |       |            |        | Field Material Information |  |  |           |                         |  |                                     |
|----------------------|-------|------------|--------|----------------------------|--|--|-----------|-------------------------|--|-------------------------------------|
| METHOD               | WATER | FIELD TEST | SAMPLE | DEPTH (m)                  | GRAPHIC LOG  | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING | CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH                                     | BORE CONSTRUCTION                   |
|                      |       |            |        | 7.00                       |  | NATURAL, Silty CLAY, grey heavy red mottles<br>No odour  |           | SM                      |  |                                     |
|                      |       |            |        | 7.5                        |  |  |           |                         |  |                                     |
|                      |       |            |        | 8.0                        |  |  |           | M                       |  |                                     |
|                      |       |            |        | 8.50                       |  | NATURAL, Sandy Silty CLAY, grey/yellow, fine grained sand<br>No odour  |           |                         |  |                                     |
|                      |       |            |        | 9.00                       |  | NATURAL, Silty CLAY, red<br>No odour   |           |                         |  |                                     |
|                      |       |            |        | 9.5                        |  |  |           |                         |  |                                     |
|                      |       |            |        | 10.00                      |  | NATURAL, Sandy Silty CLAY, grey<br>No odour  |           |                         |  |                                     |
|                      |       |            |        |                            |  |  |           |                         |  | Screen with 5mm washed river gravel |

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Solid Flight Auger

09/02/18

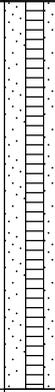
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DATE: 28/02/2018

PROJECT No: 13156  
 CLIENT: Diocese of Maitland-Newcastle c/o Webber Architects  
 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 09/02/2018  
 DATE COMPLETED: 09/02/2018  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig  
 DRILLER NAME: Shaun Currie from FCO Drilling

| Borehole Information |       |            |        |           | Field Material Information  |  |           |                         |  |   |
|----------------------|-------|------------|--------|-----------|---|--|-----------|-------------------------|--|---|
| METHOD               | WATER | FIELD TEST | SAMPLE | DEPTH (m) | GRAPHIC LOG   | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING | CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | BORE CONSTRUCTION   |
| Solid Flight Auger   |       |            |        | 11.0      |  | NATURAL, Sandy Silty CLAY, grey<br>No odour  |           | M                       |  |  |
|                      |       |            |        | 11.40     |  | Bedrock encountered presumed siltstone   |           |                         |  |   |
|                      |       |            |        | 11.5      |   | BOREHOLE MW2 TERMINATED AT 11.40 m   |           |                         |  |   |
|                      |       |            |        | 12.0      |   |  |           |                         |  |   |
|                      |       |            |        | 12.5      |   |  |           |                         |  |   |
|                      |       |            |        | 13.0      |   |  |           |                         |  |   |
|                      |       |            |        | 13.5      |   |  |           |                         |  |   |

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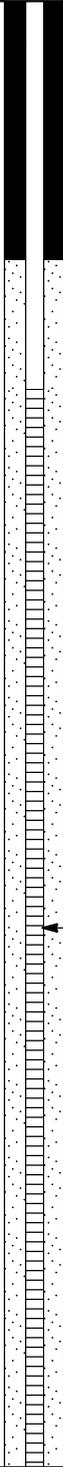
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DATE: 28/02/2018

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 PROJECT: Contamination Assessment  
 LOCATION: Lots 412 & 413 DP 1063902, Medowie

DATE COMMENCED: 12/02/2018  
 DATE COMPLETED: 12/02/2018  
 SURFACE RL:  
 COORDS:  
 DRILL MODEL: Truck mounted drill rig  
 DRILLER NAME: Shaun Currie from FCO Drilling

| Borehole Information |          |            |                        | Field Material Information |   |  |           |   |  |
|----------------------|----------|------------|------------------------|----------------------------|---|--|-----------|---|--|
| METHOD               | WATER    | FIELD TEST | SAMPLE                 | DEPTH (m)                  | GRAPHIC LOG   | DESCRIPTION<br>(SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents)<br>(ROCK NAME; grain size, colour, minor constituents) | PID (ppm) | MOISTURE/<br>WEATHERING<br>CONSISTENCY/<br>RELATIVE<br>DENSITY/<br>STRENGTH | BORE CONSTRUCTION  |
| Solid Flight Auger   | 12/02/18 |            | MW3a<br>0.90m<br>1.10m | 0.00                       |    | TOPSOIL, Sandy LOAM, brown<br>Grass, rootlets, no odour  |           | D   |  <p>(Stickup PVC pipe 0.1.7m AGL)</p> <p>← Bentonite</p> <p>← 5mm washed river gravel</p> <p>← Screen with 5mm washed river gravel</p> |
|                      |          |            |                        | 0.20                       |    | NATURAL, Silty SAND, fine to coarse grained,<br>brown/white<br>No odour  |           | SM  |  |
|                      |          |            |                        | 0.50                       |    | NATURAL, Sandy CLAY, orange/brown, fine to medium<br>grained sand, with silt<br>Rootlets, no odour   |           | M   |  |
|                      |          |            |                        | 0.70                       |   | Sand content increasing, becoming Clayey SAND, grey<br>mottled yellow  |           |   |  |
|                      |          |            |                        | 1.10                       |  | NATURAL, SAND, fine to coarse grained, grey<br>No odour  |           | VM - S  |  |
|                      |          |            | MW3b<br>2.00m<br>2.10m | 2.0                        |  |  |           |   |  |
|                      |          |            | MW3c<br>3.00m<br>3.10m | 3.0                        |  |  |           |   |  |
|                      |          |            |                        | 3.40                       |   | BOREHOLE MW3 TERMINATED AT 3.40 m  |           |   |  |

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DATE: 28/02/2018

1115

**ENGINEERING FIELD SHEET**  
**WATER SAMPLING RECORD**

CLIENT: \_\_\_\_\_ DATE: 16/2/15.  
 PROJECT: Contamination Assessment. PROJECT No: 13156-102  
 LOCATION: 807 Meadowie Rd & 2 Kingfisher Close, Meadowie. CLIENT REF: \_\_\_\_\_  
 WATER METER USED: ENV-10137  
 DATE & TYPE OF LAST CALIBRATION (1PT OR FULL): \_\_\_\_\_  
 METHOD OF SAMPLING: low flow.  
 PRESERVATION & STORAGE (TICK): Field Temp  Chilled (<4°C)  Frozen   
 Un-preserved  Preserved:  Acid (H<sub>2</sub>SO<sub>4</sub>)  Acid (HNO<sub>3</sub>)  Alkaline (NaOH)  Filtered   
 TESTS REQUIRED: \_\_\_\_\_  
 OTHER DETAILS: \_\_\_\_\_

BORE OR LOCATION ID: MW1  
 TIME: 10:30 TO \_\_\_\_\_  
 BORE DEPTH: 3.59m (TOP) HEIGHT ABOVE GROUND LEVEL: \_\_\_\_\_  
 DEPTH TO AQUIFER: 1.71m (TOP) VOLUME PURGED: 5L+2.  
 RESULTS OF WATER QUALITY CHECK:

| Check No. | pH          | Conductivity (mS/cm) | Turbidity      | Dissolved O <sub>2</sub> (mg/L) | Temperature (°C) | Salinity (%) |
|-----------|-------------|----------------------|----------------|---------------------------------|------------------|--------------|
| 1/        | <u>5.11</u> | <u>0.426</u>         | <u>&gt;999</u> | <u>/ / / / /</u>                | <u>22.0</u>      | <u>0.01</u>  |
| 2/        | <u>4.96</u> | <u>0.426</u>         | <u>&gt;999</u> | <u>/ / / / /</u>                | <u>21.9</u>      | <u>0.01</u>  |
| 3/        | <u>4.87</u> | <u>0.426</u>         | <u>&gt;999</u> | <u>/ / / / /</u>                | <u>21.7</u>      | <u>0.01</u>  |
| 4/        | <u>4.86</u> | <u>0.426</u>         | <u>&gt;999</u> | <u>/ / / / /</u>                | <u>21.7</u>      | <u>0.01</u>  |
| 5/        |             |                      |                | <u>/ / / / /</u>                |                  |              |
| 6/        |             |                      |                |                                 |                  |              |

Sample Appearance: Brown turbid, H<sub>2</sub>S odour.  
 Duplicate/Equipment Wash Identification and Other Remarks: \_\_\_\_\_

BORE OR LOCATION ID: MW2  
 TIME: 11:05 TO \_\_\_\_\_  
 BORE DEPTH: 11.996m (TOP) HEIGHT ABOVE GROUND LEVEL: +0.58m  
 DEPTH TO AQUIFER: 9.08m (TOP) VOLUME PURGED: 1.5L + 1 + 1  
 RESULTS OF WATER QUALITY CHECK:

| Check No. | pH          | Conductivity (mS/cm) | Turbidity | Dissolved O <sub>2</sub> (mg/L) | Temperature (°C) | Salinity (%) |
|-----------|-------------|----------------------|-----------|---------------------------------|------------------|--------------|
| 1/        | <u>4.68</u> | <u>7.92</u>          | <u>57</u> | <u>/ / / / /</u>                | <u>24.2</u>      | <u>0.43</u>  |
| 2/        | <u>4.68</u> | <u>7.95</u>          | <u>58</u> | <u>/ / / / /</u>                | <u>24.0</u>      | <u>0.43</u>  |
| 3/        | <u>4.68</u> | <u>7.96</u>          | <u>64</u> | <u>/ / / / /</u>                | <u>23.7</u>      | <u>0.43</u>  |
| 4/        |             |                      |           | <u>/ / / / /</u>                |                  |              |
| 5/        |             |                      |           | <u>/ / / / /</u>                |                  |              |
| 6/        |             |                      |           |                                 |                  |              |

Sample Appearance: Clear, clear no odour.  
 Duplicate/Equipment Wash Identification and Other Remarks: \_\_\_\_\_

|                           |                   |                |
|---------------------------|-------------------|----------------|
| RCA Australia             | Sampled by:       | Date:          |
| Office: <u>Newcastle.</u> | <u>Katy Shaw.</u> | <u>16/2/15</u> |

BORE OR LOCATION ID: MW3.  
 TIME: 11:50. TO \_\_\_\_\_  
 BORE DEPTH: 4.12m (TOP). HEIGHT ABOVE GROUND LEVEL: +0.52m (G)  
 DEPTH TO AQUIFER: 1.92m (TOP). VOLUME PURGED: 5+  
 RESULTS OF WATER QUALITY CHECK:

| Check No. | pH   | Conductivity (mS/cm) | Turbidity | Dissolved O <sub>2</sub> (mg/L) | Temperature (°C) | Salinity (%) |
|-----------|------|----------------------|-----------|---------------------------------|------------------|--------------|
| 1/        | 5.35 | 0.259                | >999      | ///                             | 23.9             | 0.01         |
| 2/        | 5.31 | 0.261                | >999      | ///                             | 23.7             | 0.01         |
| 3/        | 5.26 | 0.263                | >999      | ///                             | 23.7             | 0.01         |
| 4/        | 5.24 | 0.263                | >999      | ///                             | 23.7             | 0.01         |
| 5/        |      |                      |           |                                 |                  |              |
| 6/        |      |                      |           |                                 |                  |              |

Sample Appearance: Dark brown, turbid, no odor.  
 Duplicate/Equipment Wash Identification and Other Remarks: Double sample provided for lab QA.

BORE OR LOCATION ID: \_\_\_\_\_  
 TIME: \_\_\_\_\_ TO \_\_\_\_\_  
 BORE DEPTH: \_\_\_\_\_ HEIGHT ABOVE GROUND LEVEL: \_\_\_\_\_  
 DEPTH TO AQUIFER: \_\_\_\_\_ VOLUME PURGED: \_\_\_\_\_  
 RESULTS OF WATER QUALITY CHECK:

| Check No. | pH | Conductivity (mS/cm) | Turbidity | Dissolved O <sub>2</sub> (mg/L) | Temperature (°C) | Salinity (%) |
|-----------|----|----------------------|-----------|---------------------------------|------------------|--------------|
| 1/        |    |                      |           |                                 |                  |              |
| 2/        |    |                      |           |                                 |                  |              |
| 3/        |    |                      |           |                                 |                  |              |
| 4/        |    |                      |           |                                 |                  |              |
| 5/        |    |                      |           |                                 |                  |              |
| 6/        |    |                      |           |                                 |                  |              |

Sample Appearance: \_\_\_\_\_  
 Duplicate/Equipment Wash Identification and Other Remarks: \_\_\_\_\_

BORE OR LOCATION ID: \_\_\_\_\_  
 TIME: \_\_\_\_\_ TO \_\_\_\_\_  
 BORE DEPTH: \_\_\_\_\_ HEIGHT ABOVE GROUND LEVEL: \_\_\_\_\_  
 DEPTH TO AQUIFER: \_\_\_\_\_ VOLUME PURGED: \_\_\_\_\_  
 RESULTS OF WATER QUALITY CHECK:

| Check No. | pH | Conductivity (mS/cm) | Turbidity | Dissolved O <sub>2</sub> (mg/L) | Temperature (°C) | Salinity (%) |
|-----------|----|----------------------|-----------|---------------------------------|------------------|--------------|
| 1/        |    |                      |           |                                 |                  |              |
| 2/        |    |                      |           |                                 |                  |              |
| 3/        |    |                      |           |                                 |                  |              |
| 4/        |    |                      |           |                                 |                  |              |
| 5/        |    |                      |           |                                 |                  |              |
| 6/        |    |                      |           |                                 |                  |              |

Sample Appearance: \_\_\_\_\_  
 Duplicate/Equipment Wash Identification and Other Remarks: \_\_\_\_\_

# Appendix H

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Quality Assurance Review and  
Laboratory Report Sheets

The collection of all soil and groundwater samples was undertaken in compliance with the details provided in **Section 6** with the exception of additional samples and depth assessed within the fill mounds encountered surrounding the bitumen go-kart track.

A total of three (3) soil duplicate samples were submitted blind to the laboratory for analysis with each batch of samples, including one (1) interlaboratory and two (2) intralaboratory duplicates. This represents a percentage of 12%, which is in accordance with the frequency recommended by the Australian Standard AS 4482.1-2005 (Ref [23]) and RCA protocol.

Due to the limited number of samples, no duplicates were collected which is not in accordance with the frequency recommended for soil samples by the Australian Standard AS 4482.1-2005 (Ref [23]) and RCA protocol.

One (1) water trip blank and water trip spike were submitted. This submission is in accordance with recommended by the Australian Standard AS 4482.1-2005 (Ref [23]) and RCA protocol for the water methodology. Trip blanks and trip spikes were omitted from the soil samples due to the low potential for cross-contamination and volatile loss during the transport process respectively, with hydrocarbon impact not considered to be a primary contaminant across the site.

RCA omitted the collection of field blanks and equipment washes due to the low potential for cross contamination during the sampling process and equipment respectively.

Results, as shown further in this **Appendix**, indicate a total of one (1) soil which reported RPD in excess of the acceptance criteria:

- BH12A/QA2 Reported an elevated RPD for OPP compound Monocrotophos. This was an interlaboratory duplicate, however both of the results were below laboratory quantification and therefore the elevated RPD is not considered to be significant and is due to the different PQL reporting of the two laboratories.
- Herbicide concentrations between the interlaboratory duplicate reported elevated RPD however this is considered to be due laboratory procedures and reporting and is not considered to be a cause of uncertainty.

ALS was chosen as the primary laboratory and Eurofins mgt was chosen as the secondary laboratory. Both laboratories used for analysis are NATA accredited and are experienced in the analytical requirements for potentially contaminated soil and groundwater.

ALS undertook internal quality assurance testing. Results are contained within the laboratory report sheets, included in this **Appendix**. **Table 11** presents a summary of their review.

**Table 11** Internal Quality Assurance Review

|                                     | Number Samples<br>(including QA) | Laboratory<br>Duplicates | Spikes    | Laboratory<br>Control Samples | Laboratory<br>Blanks   |
|-------------------------------------|----------------------------------|--------------------------|-----------|-------------------------------|------------------------|
| <b>Requirement</b>                  |                                  | <b>10%</b>               | <b>5%</b> | <b>One every batch</b>        | <b>One every batch</b> |
| <b>Soil</b>                         |                                  |                          |           |                               |                        |
| Metals (As, Cd, Cr, Cu, Ni, Pb, Zn) | 38                               | 4 (2)                    | 2 (1)     | 3                             | 3                      |

|  | Number Samples<br>(including QA) | Laboratory<br>Duplicates | Spikes  | Laboratory<br>Control Samples | Laboratory<br>Blanks |
|--|----------------------------------|--------------------------|---------|-------------------------------|----------------------|
| Requirement                              |                                  | 10%                      | 5%      | One every batch               | One every<br>batch   |
| Mercury                                  | 38                               | 4 (2)                    | 2 (1)   | 3                             | 3                    |
| Electrical conductivity                  | 38                               | 6 (4)                    | 0       | 6                             | 6                    |
| TRH C <sub>6</sub> -C <sub>10</sub>      | 25                               | 3 (3)                    | 2 (1)   | 3                             | 3                    |
| TRH C <sub>&gt;10</sub> -C <sub>40</sub> | 25                               | 3 (0)                    | 3 (0)   | 3                             | 3                    |
| BTEX                                     | 25                               | 3 (3)                    | 2 (1)   | 3                             | 3                    |
| PAH                                      | 25                               | 4 (0)                    | 3 (0)   | 3                             | 3                    |
| OCP                                      | 35                               | 4 (2)                    | 2 (1)   | 3                             | 2                    |
| OPP                                      | 35                               | 4 (2)                    | 2 (1)   | 3                             | 2                    |
| Herbicides                               | 35                               | pending                  | pending | pending                       | pending              |
| Chromium suite for ASS                   | 6                                | 0 (2)                    | 1       | 1                             | 1                    |
| <b>Water</b>                             |                                  |                          |         |                               |                      |
| Metals (As, Cd, Cr, Cu,<br>Ni, Pb, Zn)   | 3                                | 0 (2)                    | 1       | 1                             | 1                    |
| Mercury                                  | 3                                | 0 (1)                    | 1       | 1                             | 1                    |
| TRH C <sub>6</sub> -C <sub>10</sub>      | 5                                | 1 (1)                    | 1       | 1                             | 1                    |
| TRH C <sub>&gt;10</sub> -C <sub>40</sub> | 3                                | 1 (0)                    | 1       | 1                             | 1                    |
| BTEX                                     | 5                                | 1 (0)                    | 1       | 1                             | 1                    |
| PAH                                      | 3                                | 1 (0)                    | 1       | 1                             | 1                    |
| OCP                                      | 3                                | 1 (0)                    | 1       | 1                             | 1                    |
| OPP                                      | 3                                | 1 (0)                    | 1       | 1                             | 1                    |
| Herbicides                               | 3                                | 0 (1)                    | 1       | 1                             | 1                    |
| PFAS                                     | 3                                | 1 (0)                    | 1       | 1                             | 1                    |

Numbers in brackets refer the tests undertaken on samples not from this project but within the same laboratory batch.

Examination of the above table reveals that ALS have undertaken laboratory quality assurance testing in accordance with the ASC NEPM (Ref [14]). The results for PFAS and herbicides in soil have yet to be issued and therefore quality assurance information is not available.

- Recoveries of Surrogates were within acceptance criteria of 70-130% with the exception of:
  - ES1804838 OPP surrogate DEF in BH11B, BH13A, BH15B, and QA3 which reported recoveries of between 64.2 and 68.9%. This is considered to indicate be a minor non-compliance. The results were all below laboratory quantification and well below relevant OPP criteria and as such the uncertainty is not considered significant.

- ES1805085 OCP and OPP surrogates dibromo-DDE and DEF respectively in samples BH18C, BH19B reported recoveries between 60.1% and 68.9%. This is considered to indicate some uncertainty with the results. The results were all below laboratory quantification and well below relevant criteria and as such the uncertainty is not considered significant.
- ES1805085 PAH surrogate in MW1 and MW2 reporting recoveries of 56.6% and 68.6% respectively. There is considered to be some uncertainty with the results. However the other two (2) PAH surrogates were reported in the acceptable range and both samples reported concentrations below quantification and applied guidelines and therefore any uncertainty is not considered to be significant.
- ES1805085 Herbicide surrogate in MW2 reported a recovery of 64.6%. This is considered to indicate some uncertainty with the results. The results were all below laboratory quantification and as such the uncertainty is not considered significant.
- ES1805085 PFAS surrogates in MW1 reported a recovery of 61.7% and 67.2%. This is considered to indicate some uncertainty with the results. The results were all below laboratory quantification and well below relevant criteria and as such the uncertainty is not considered significant.
- Holding Times were within laboratory specified time frames with the exception of:
  - ES1805085 Electrical conductivity in QA1 was five (5) days after the lapse of holding time. This sample was a duplicate, with the primary sample and duplicate result reporting an RPD within the acceptable range and therefore this is not considered to raise uncertainty with the result.
- Recoveries of laboratory control samples were within the acceptance criteria of 70-130% with the exception of:
  - ES1804838 Azinphos Methyl in soil reported recoveries of 64.0%. This is considered to indicate some uncertainty with the results. The rest of the quality assurance conducted was acceptable and as the batch results were all either well within the relevant criteria or in already in excess of the criteria, the uncertainty is not considered significant.
  - ES1804838 Indeno (1.2.3.cd)pyrene in soil reported recoveries of 67.2%. This is considered a minor non-compliance and therefore the uncertainty is not considered significant.
  - ES1805085 Azinphos Methyl in soil reported recoveries of 60.8%. This is considered to indicate some uncertainty with the results. The rest of the quality assurance conducted was acceptable and as the batch results were all either well within the relevant criteria or in already in excess of the criteria, the uncertainty is not considered significant.
  - ES1805085 Indeno (1.2.3.cd)pyrene in soil reported recoveries of 69.5%. This is considered a minor non-compliance and therefore the uncertainty is not considered significant.

- ES1805085 Monocrotophos reported recoveries of 24.7%. This is considered to indicate some uncertainty with the results. The rest of the quality assurance conducted was acceptable as were the recoveries on the other OPP compounds. As no OPP compounds were reportable in any of the water samples, the uncertainty is not considered significant.
- ES1805085 Naphthalene and Acenaphthene in water reported recoveries of 69.4% and 67.4%. These are considered a minor non-compliance and therefore the uncertainty is not considered significant.
- ES1805085 Triclopyr, 2,4,5-T and Picloram herbicides in water reported recoveries of between 60.2% and 66.2%. This is considered to indicate some uncertainty with the results. The rest of the quality assurance conducted was acceptable as were the recoveries on the other herbicides compounds. As no herbicide compounds were reportable in any of the water samples, the uncertainty is not considered significant.
- Recoveries of Spikes were within acceptance criteria of 70-130% with the exception of:
  - ES1805085 Four (4) herbicide compounds in water from an anonymous sample reported recoveries between 54.5% and 66.0%. The spike was conducted on a sample outside of this project and RCA cannot make any assessment of uncertainty.
  - ES1805085 Perfluorobutane sulfonic acid (PFBS) in an anonymous water sample reported a recovery of 54.4%. The spike was conducted on a sample outside of this project and RCA cannot make any assessment of uncertainty.
- Relative Percentage Differences for duplicates were within acceptance criteria as defined for intralaboratory duplicates further in this **Appendix**.
- No Laboratory Blank result was detected above the practical quantification limit (PQL).

It is therefore considered that the data obtained from this testing is accurate and reliable in as far as it can be ascertained.

| Sample Identification                                | Primary PQL                              | Secondary PQL | BH4B          | QA1   | RPD % | BH12A   | QA2   | RPD % | BH19A           | QA3   | RPD %   |  |
|--|--|---------------|---------------|-------|-------|---|-------|-------|-----------------|-------|---|--|
|  |  |               | 0.3<br>9/2/18 |       |       | 0.05<br>12/2/18   |       |       | 0.05<br>12/2/18 |       |   |  |
| Sample Depth (m)                                     |  |               |               |       |       |   |       |       |                 |       |   |  |
| Date   |  |               |               |       |       |   |       |       |                 |       |   |  |
| Sample Profile                                       | TOPSOIL, Silty LOAM, dark brown, organic |               | RPD %         |       |       | TOPSOIL, sandy LOAM, fine to medium grained, brown-grey |       | RPD % |                 |       | FILL, Sandy SILT, fine to medium grained, brown, trace gravel |  |
| Sample collected by                                  | RCA - KS/ZL                              |               |               |       |       | RCA - KS/ZL   |       |       |                 |       | RCA - KS/ZL   |  |
| Duplicate Type                                       | Intralaboratory                          |               |               |       |       | Interlaboratory   |       |       |                 |       | Intralaboratory   |  |
| <b>Benzene, Toluene, Ethylbenzene, Xylene (BTEX)</b> |  |               |               |       |       |   |       |       |                 |       |   |  |
| Benzene  | 0.2                                      | --            | --            | --    | --    | --  | --    | --    | 0.1             | 0.1   | 0.0   |  |
| Toluene  | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| Ethylbenzene   | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| meta- and para-Xylene                                | 0.5                                      | -             | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| ortho-Xylene   | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| <b>Polycyclic Aromatic Hydrocarbons (PAH)</b>        |  |               |               |       |       |   |       |       |                 |       |   |  |
| Naphthalene  | 1  | --            | --            | --    | --    | --  | --    | --    | 0.5             | 0.5   | 0.0   |  |
| <b>Total Recoverable Hydrocarbons (TRH)</b>          |  |               |               |       |       |   |       |       |                 |       |   |  |
| TRH C <sub>6</sub> -C <sub>10</sub>                  | 10                                       | --            | --            | --    | --    | --  | --    | --    | 5               | 5     | 0.0   |  |
| TRH >C <sub>10</sub> -C <sub>16</sub>                | 50                                       | --            | --            | --    | --    | --  | --    | --    | 25              | 25    | 0.0   |  |
| TRH >C <sub>16</sub> -C <sub>34</sub>                | 100                                      | --            | --            | --    | --    | --  | --    | --    | 50              | 50    | 0.0   |  |
| TRH >C <sub>34</sub> -C <sub>40</sub>                | 100                                      | --            | --            | --    | --    | --  | --    | --    | 50              | 50    | 0.0   |  |
| <b>Electrical Conductivity</b>                       |  |               |               |       |       |   |       |       |                 |       |   |  |
| Electrical Conductivity                              | 1  | 10            | 9             | 13    | 36.4  | 48  | 45    | 6.5   | 87              | 83    | 4.7   |  |
| <b>Polycyclic Aromatic Hydrocarbons (PAH)</b>        |  |               |               |       |       |   |       |       |                 |       |   |  |
| Naphthalene  | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| Acenaphthylene                                       | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| Acenaphthene   | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| Fluorene   | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| Phenanthrene   | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| Anthracene   | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| Fluoranthene   | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| Pyrene   | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| Benz(a)anthracene                                    | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| Chrysene   | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| Benzo(b)&(j)&(k)fluoranthene                         | 1.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| Benzo(a) pyrene                                      | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| Indeno(1,2,3-c,d)pyrene                              | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| Dibenz(a,h)anthracene                                | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| Benzo(g,h,i)perylene                                 | 0.5                                      | --            | --            | --    | --    | --  | --    | --    | 0.25            | 0.25  | 0.0   |  |
| <b>Metals</b>  |  |               |               |       |       |   |       |       |                 |       |   |  |
| Arsenic  | 5  | 2             | 2.5           | 2.5   | 0.0   | 2.5   | 1     | 85.7  | 2.5             | 2.5   | 0.0   |  |
| Cadmium  | 1  | 0.4           | 0.5           | 0.5   | 0.0   | 0.5   | 0.2   | 85.7  | 0.5             | 0.5   | 0.0   |  |
| Chromium   | 2  | 5             | 1             | 1     | 0.0   | 15  | 14    | 6.9   | 30              | 30    | 0.0   |  |
| Copper   | 5  | 5             | 2.5           | 2.5   | 0.0   | 2.5   | 2.5   | 0.0   | 2.5             | 2.5   | 0.0   |  |
| Mercury  | 0.1                                      | 0.1           | 0.05          | 0.05  | 0.0   | 0.05  | 0.05  | 0.0   | 0.05            | 0.05  | 0.0   |  |
| Lead   | 5  | 5             | 2.5           | 2.5   | 0.0   | 10  | 10    | 0.0   | 9               | 9     | 0.0   |  |
| Nickel   | 2  | 5             | 1             | 1     | 0.0   | 4   | 2.5   | 46.2  | 5               | 5     | 0.0   |  |
| Zinc   | 5  | 5             | 2.5           | 2.5   | 0.0   | 11  | 10    | 9.5   | 14              | 13    | 7.4   |  |
| <b>Pesticides</b>                                    |  |               |               |       |       |   |       |       |                 |       |   |  |
| alpha-BHC  | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| Hexachlorobenzene (HCB)                              | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| beta-BHC   | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| gamma-BHC  | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| delta-BHC  | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| Heptachlor   | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| Aldrin   | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| Heptachlor epoxide                                   | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| Total Chlordane (sum)                                | 0.05                                     | 0.1           | 0.025         | 0.025 | 0.0   | 0.025   | 0.05  | 66.7  | 0.025           | 0.025 | 0.0   |  |
| trans-Chlordane                                      | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | --    | --    | 0.025           | 0.025 | 0.0   |  |
| alpha-Endosulfan                                     | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| cis-Chlordane  | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | --    | --    | 0.025           | 0.025 | 0.0   |  |
| Dieldrin   | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| 4,4'-DDE   | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| Endrin   | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| beta-Endosulfan                                      | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| 4,4'-DDD   | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| Endrin aldehyde                                      | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| Endosulfan sulfate                                   | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| 4,4'-DDT   | 0.2                                      | 0.05          | 0.1           | 0.1   | 0.0   | 0.1   | 0.025 | 120.0 | 0.1             | 0.1   | 0.0   |  |
| Endrin ketone  | 0.05                                     | 0.05          | 0.025         | 0.025 | 0.0   | 0.025   | 0.025 | 0.0   | 0.025           | 0.025 | 0.0   |  |
| Methoxychlor   | 0.2                                      | 0.05          | 0.1           | 0.1   | 0.0   | 0.1   | 0.025 | 120.0 | 0.1             | 0.1   | 0.0   |  |
| <b>Organophosphorous Pesticides (OPP)</b>            |  |               |               |       |       |   |       |       |                 |       |   |  |
| Dichlorvos   | 0.05                                     | 0.2           | 0.025         | 0.025 | 0.0   | 0.025   | 0.1   | 120.0 | 0.025           | 0.025 | 0.0   |  |
| Demeton-S-methyl                                     | 0.05                                     | 0.2           | 0.025         | 0.025 | 0.0   | 0.025   | 0.1   | 120.0 | 0.025           | 0.025 | 0.0   |  |
| Monocrotophos  | 0.2                                      | 2             | 0.1           | 0.1   | 0.0   | 0.1   | 1     | 163.6 | 0.1             | 0.1   | 0.0   |  |
| Dimethoate   | 0.05                                     | 0.2           | 0.025         | 0.025 | 0.0   | 0.025   | 0.1   | 120.0 | 0.025           | 0.025 | 0.0   |  |
| Diazinon   | 0.05                                     | 0.2           | 0.025         | 0.025 | 0.0   | 0.025   | 0.1   | 120.0 | 0.025           | 0.025 | 0.0   |  |
| Chlorpyrifos-methyl                                  | 0.05                                     | 0.2           | 0.025         | 0.025 | 0.0   | 0.025   | 0.1   | 120.0 | 0.025           | 0.025 | 0.0   |  |
| Parathion-methyl                                     | 0.2                                      | 0.2           | 0.1           | 0.1   | 0.0   | 0.1   | 0.1   | 0.0   | 0.1             | 0.1   | 0.0   |  |
| Malathion  | 0.05                                     | 0.2           | 0.025         | 0.025 | 0.0   | 0.025   | 0.1   | 120.0 | 0.025           | 0.025 | 0.0   |  |
| Fenthion   | 0.05                                     | 0.2           | 0.025         | 0.025 | 0.0   | 0.025   | 0.1   | 120.0 | 0.025           | 0.025 | 0.0   |  |
| Chlorpyrifos   | 0.05                                     | 0.2           | 0.025         | 0.025 | 0.0   | 0.025   | 0.1   | 120.0 | 0.025           | 0.025 | 0.0   |  |
| Parathion  | 0.2                                      | --            | 0.1           | 0.1   | 0.0   | 0.1   | --    | --    | 0.1             | 0.1   | 0.0   |  |
| Pirimphos-ethyl                                      | 0.05                                     | 0.2           | 0.025         | 0.025 | 0.0   | 0.025   | 0.1   | 120.0 | 0.025           | 0.025 | 0.0   |  |
| Chlorfenvinphos                                      | 0.05                                     | 0.2           | 0.025         | 0.025 | 0.0   | 0.025   | 0.1   | 120.0 | 0.025           | 0.025 | 0.0   |  |
| Bromophos-ethyl                                      | 0.05                                     | --            | 0.025         | 0.025 | 0.0   | 0.025   | --    | --    | 0.025           | 0.025 | 0.0   |  |
| Fenamiphos   | 0.05                                     | --            | 0.025         | 0.025 | 0.0   | 0.025   | --    | --    | 0.025           | 0.025 | 0.0   |  |
| Prothiofos   | 0.05                                     | --            | 0.025         | 0.025 | 0.0   | 0.025   | --    | --    | 0.025           | 0.025 | 0.0   |  |
| Ethion   | 0.05                                     | 0.2           | 0.025         | 0.025 | 0.0   | 0.025   | 0.1   | 120.0 | 0.025           | 0.025 | 0.0   |  |
| Carbophenothion                                      | 0.05                                     | --            | 0.025         | 0.025 | 0.0   | 0.025   | --    | --    | 0.025           | 0.025 | 0.0   |  |
| Azinphos Methyl                                      | 0.05                                     | 0.2           | 0.025         | 0.025 | 0.0   | 0.025   | 0.1   | 120.0 | 0.025           | 0.025 | 0.0   |  |
| <b>Herbicides</b>                                    |  |               |               |       |       |   |       |       |                 |       |   |  |
| 2,4,5-T  | 0.04                                     | 0.5           | 0.02          | 0.01  | 66.7  | 0.02  | 0.25  | 170.4 | 0.02            | 0.02  | 0.0   |  |
| 2,4-D  | 0.04                                     | 0.5           | 0.02          | 0.01  | 66.7  | 0.02  | 0.25  | 170.4 | 0.02            | 0.02  | 0.0   |  |
| MCPA   | 0.04                                     | 0.5           | 0.02          | 0.01  | 66.7  | 0.02  | 0.25  | 170.4 | 0.02            | 0.02  | 0.0   |  |
| MCPB   | 0.04                                     | 0.5           | 0.02          | 0.01  | 66.7  | 0.02  | 0.25  | 170.4 | 0.02            | 0.02  | 0.0   |  |
| Mecoprop   | 0.04                                     | 1             | 0.02          | 0.01  | 66.7  | 0.02  | 0.5   | 184.6 | 0.02            | 0.02  | 0.0   |  |
| Picloram   | 0.04                                     | --            | 0.02          | 0.01  | 66.7  | 0.02  | --    | --    | 0.02            | 0.02  | 0.0   |  |

All units in mg/kg except for electrical conductivity in  $\mu\text{S/cm}$

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

Results underlined were not detected and are reported as half the detection limit for statistical purpose.

**BOLD identifies where RPD**

intralaboratory interlaboratory

|              |      |   |
|--------------|------|---|
| >50          | >60  | where sample results are >10 x PQL              |
| >75          | >85  | where sample results are > 5 to $\leq 10$ x PQL |
| >100         | >100 | where sample results are >2 to $\leq 5$ x PQL   |
| AD>2.5 * PQL |      | where sample results are $\leq 2$ x PQL         |

Where results are within two of the above ranges the most conservative criteria have been used to assess duplicate performance

|                       |     |               |               |
|-----------------------|-----|---------------|---------------|
| Sample Identification | PQL | TS 15/02      | TB 15/02      |
| Date                  |     | 15/02/2018    | 15/02/2018    |
| Duplicate Type        |     | Trip<br>Blank | Trip<br>Spike |
| Sample Description    |     |               |               |
| Sample Fate           |     |               |               |
| Sample Purpose        |     |               |               |
| Sample Collected by   |     |               |               |

| <b>Benzene, Toluene, Ethylbenzene, Xylene (BTEX)</b> |    |     |      |
|--|----|-----|------|
| Benzene  | 1  | <1  | 95%  |
| Toluene  | 2  | <2  | 90%  |
| Ethylbenzene   | 2  | <2  | 85%  |
| meta- & para-Xylene                                  | 2  | <2  | 90%  |
| Ortho-xylene   | 2  | <2  | 90%  |
| <b>Polycyclic Aromatic Hydrocarbons (PAH)</b>        |    |     |      |
| Naphthalene  | 5  | <5  | 100% |
| <b>Total Recoverable Hydrocarbons (TRH)</b>          |    |     |      |
| TRH C <sub>6</sub> -C <sub>10</sub>                  | 20 | <20 | --   |

Note all units in mg/L except for trip spikes results in % recovery

PQL = Practical Quantitation Limit.

Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

Results underlined were not detected and are reported as half the detection limit for statistical purpose.

**BOLD identified where** blanks >0

**BOLD identified where** spikes outside of 70-130% recovery range

RCA Australia  
92 Hill Street  
CARRINGTON 2294

Attention: Katy Shaw

**Project:** RCA ref 13156-102/701  
**Date:** 16/02/2018  
**Client reference:** Diocese of Maitland-Newcastle c/o Webber Architects - ASS Screen Testing  
**Received date:** 13/02/18 **Number of samples:** 11  
**Client order number:** Not Supplied **Testing commenced:** 15/02/2018

## CERTIFICATE OF ANALYSIS

### 1 ANALYTICAL TEST METHODS

| ANALYSIS                            | METHOD      | UNITS | ANALYSING LABORATORY             | NATA ANALYSIS / NON NATA |
|-------------------------------------|-------------|-------|----------------------------------|--------------------------|
| Acid Sulfate Soil Screening Testing | ENV-LAB032* | pH    | RCA Laboratories - Environmental | NATA                     |

\* The analytical procedures used by RCA Laboratories - Environmental are based on established internationally recognised procedures such as APHA and Australian Standards

## 2 RESULTS

| ANALYSIS                                | UNITS   | MW1a              | MW1b              | MW1c              | MW1d              | MW2a              | MW2b              |
|---|---------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Acid Sulfate Soil Screening Test</b> |         |                   |                   |                   |                   |                   |                   |
| Sample Number                           | -       | 021813156-102-001 | 021813156-102-002 | 021813156-102-003 | 021813156-102-004 | 021813156-102-005 | 021813156-102-006 |
| Date Sampled                            | -       | 09/02/18          | 09/02/18          | 09/02/18          | 09/02/18          | 09/02/18          | 09/02/18          |
| pH <sub>F</sub>                         | pH unit | 4.99              | 5.30              | 4.92              | 4.61              | 5.04              | 4.72              |
| pH <sub>FOX</sub>                       | pH unit | 4.29              | 4.34              | 2.30              | 2.32              | 3.90              | 3.60              |
| pH <sub>F</sub> – pH <sub>FOX</sub>     | pH unit | 0.70              | 0.96              | 2.62              | 2.29              | 1.14              | 1.12              |
| Reaction Rate <sup>^</sup>              | -       | 1                 | NR                | 1                 | 2                 | 2                 | 2                 |
| Soil Type                               | -       | Not Supplied      |
| ANALYSIS                                | UNITS   | MW2c              | MW2d              | MW3a              | MW3b              | MW3c              |                   |
| <b>Acid Sulfate Soil Screening Test</b> |         |                   |                   |                   |                   |                   |                   |
| Sample Number                           | -       | 021813156-102-007 | 021813156-102-008 | 021813156-102-009 | 021813156-102-010 | 021813156-102-011 |                   |
| Date Sampled                            | -       | 09/02/18          | 09/02/18          | 12/02/18          | 12/02/18          | 12/02/18          |                   |
| pH <sub>F</sub>                         | pH unit | 4.81              | 4.55              | 5.53              | 5.51              | 5.82              |                   |
| pH <sub>FOX</sub>                       | pH unit | 3.67              | 3.65              | 3.97              | 2.30              | 1.70              |                   |
| pH <sub>F</sub> – pH <sub>FOX</sub>     | pH unit | 1.14              | 0.90              | 1.56              | 3.21              | 4.12              |                   |
| Reaction Rate <sup>^</sup>              | -       | 1                 | 2                 | 2                 | 4                 | 3                 |                   |
| Soil Type                               | -       | Not Supplied      |                   |

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

### Acid Sulfate Soil Screening

Note: This screening test only provides an indication of the likely presence and severity of Acid Sulfate Soils. This test should not be used as a substitute for laboratory analysis which would positively identify the presence of Acid Sulfate Soils (ASS) for assessment purposes.

NATA Scope of Accreditation does not cover the sampling of soils by the client or by RCA Employees.

Analysis for pH and Acid Sulphate Screen Testing is covered by RCA Laboratories – Environmental NATA Scope of Accreditation.

Analysis on samples is on an as received basis.

### Acid Sulfate Soil Screening Test Reaction Rate

^Reaction Rate: 0 = No Reaction, 1 = Slight, 2 = Moderate, 3 = High, 4 = Very Vigorous

Note: Due to the subjectivity the assessment of the Reaction Rate is not covered by our NATA Scope of Accreditation.

## 3 QUALITY CONTROL RESULTS

### Acid Sulfate Soil Screening Test Quality Control

| DATE       | ANALYSIS                              | METHOD     | UNITS | QUALITY CONTROL STANDARD VALUE | QUALITY CONTROL ACCEPTANCE CRITERIA | QUALITY CONTROL STANDARD RESULT |
|------------|---------------------------------------|------------|-------|--------------------------------|-------------------------------------|---------------------------------|
| 15/02/2018 | pH – Acid Sulfate Soil Screen Testing | ENV-LAB032 | pH    | 7.00                           | 6.95 - 7.05                         | 6.97                            |

### Acid Sulfate Soil Screening Test Duplicate Analysis

| SAMPLE NUMBER     | DATE       | ANALYSIS                              | METHOD     | UNITS | LOR | SAMPLE RESULT | SAMPLE DUPLICATE RESULT | ACCEPTANCE CRITERIA RESULT |
|-------------------|------------|---------------------------------------|------------|-------|-----|---------------|-------------------------|----------------------------|
| 021813156-102-001 | 15/02/2018 | pH – Acid Sulfate Soil Screen Testing | ENV-LAB032 | pH    | N/A | 4.99          | 5.00                    | 0.1%                       |
| 021813156-102-010 | 15/02/2018 | pH – Acid Sulfate Soil Screen Testing | ENV-LAB032 | pH    | N/A | 5.51          | 5.50                    | 0.1%                       |

Please contact the undersigned if you have any queries.

Yours sincerely



Neena Tewari  
Senior Environmental Microbiologist  
Robert Carr & Associates Pty Ltd Trading as  
RCA Laboratories – Environmental



Matthew Deegan  
Environmental Scientist  
Robert Carr & Associates Pty Ltd Trading as  
RCA Laboratories - Environmental

## RCA Internal Quality Review

### General

1. Laboratory QC results for Method Blanks, Duplicates and Laboratory Control Samples are included in this QC report where applicable. Additional QC data maybe available on request.
2. RCA QC Acceptance / Rejection Criteria are available on request.
3. Proficiency Trial results are available on request.
4. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
5. When individual results are qualified in the body of a report, refer to the qualifier descriptions that follow.
6. Samples were analysed on an 'as received' basis.
7. Sampled dates in this report are those listed on the COC or sample jars; if no sample dates are noted, the date the samples are received at the laboratory have been used.
8. All soil results are reported on a dry basis, unless otherwise stated. (ACID SULFATE SOILS)
9. This report replaces any interim results previously issued.

### Holding Times.

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

Receipt Acknowledgment.

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

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

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

### QC - ACCEPTANCE CRITERIA

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

Results <10 times the LOR: No Limit

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

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

### QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

### Glossary

#### UNITS

mg/kg: milligrams per Kilogram

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Units

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

mg/L: milligrams per Litre

#### TERMS

**Dry** Where moisture has been determined on a solid sample the result is expressed on a dry basis.

**LOR** Limit of Reporting.

**RPD** Relative Percent Difference between two Duplicate pieces of analysis can be obtained upon request.

**QCS** Quality Control Sample - reported as value recovery

**Method Blank** In the case of solid samples these are performed on laboratory certified clean sands.

In the case of water samples these are performed on de-ionised water.

**Duplicate** A second piece of analysis from the same sample and reported in the same units as the result to show comparison.

**Batch Duplicate** A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.

**USEPA** United States Environment Protection Authority

**APHA** American Public Health Association

**COC** Chain of Custody

**CP** Client Parent - QC was performed on samples pertaining to this report

**NCP** Non-Client Parent - QC performed on samples not pertaining to this report. QC is representative of the sequence or batch that client samples were analysed within

< indicates less than

> Indicates greater than

ND Not Detected

# Appendix 1

---

## Chain of Custody Documents



Ph: (02) 4902 8200 Fax: 02 4902 5299  
 92 Hill Street, Carrington NSW 2294  
 www.rca.com.au Email: labenquiries@rca.com.au

ENV-F133-4

Client Name: Diocese of Maitland-Newcastle c/o Contact Name: Katy Shaw  
 Client Site: Medley U Medley Architects Phone Number: 02 889 47698

Email Report To: lab@rca.com.au  
 Project Manager: Freda Burt

Turnaround Required:  Urgent  Standard (5 Day) Date Required: 16/2/18 am.

Expected Reporting Date: \_\_\_\_\_  
 (Laboratory Use Only)

ANALYSIS REQUIRED

Page of

| RCA Job Number: <u>13156-102</u>             |                         |         |        |               | PES screening | Notes: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--|-------------------------|---------|--------|---------------|---------------|--------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| SAMPLE INFORMATION                           |                         |         |        |               |               |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| RCA Laboratories Environmental Sample Number | Client ID / Description | Date    | Matrix | Total Samples |               |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 021813156-102-01                             | MW1a                    | 9/2/18  | S      | 1             |               | X      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 021813156-102-02                             | MW1b                    |         |        |               |               | X      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 021813156-102-03                             | MW1c                    |         |        |               |               | X      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 021813156-102-04                             | MW1d                    |         |        |               |               | X      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 021813156-102-05                             | MW2a                    |         |        |               |               | X      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 021813156-102-06                             | MW2b                    |         |        |               |               | X      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 021813156-102-07                             | MW2c                    |         |        |               |               | X      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 021813156-102-08                             | MW2d                    |         |        |               | X             |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 021813156-102-09                             | MW3a                    | 12/2/18 | S      |               | X             |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 021813156-102-10                             | MW3b                    |         |        |               | X             |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 021813156-102-11                             | MW3c                    |         |        |               | X             |        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|                        |                      |                          |                      |                                 |  |
|------------------------|----------------------|--------------------------|----------------------|---------------------------------|--|
| RELINQUISHED BY        |                      | RECEIVED BY              |                      | SHOWING TO BE IN GOOD CONDITION |  |
| Name: <u>Katy Shaw</u> | Date: <u>13/2/18</u> | Name: <u>[Signature]</u> | Date: <u>13/2/18</u> | [Stamp]                         |  |
| or: <u>RCAU</u>        | Time: <u>8:40am</u>  | or: <u>RCA LE</u>        | Time: <u>9:15AM</u>  | [Stamp]                         |  |

## CERTIFICATE OF ANALYSIS

**Work Order** : **ES1804838**  
**Client** : **ROBERT CARR & ASSOCIATES P/L**  
**Contact** : MS FIONA BROOKER  
**Address** : P O BOX 175  
                   CARRINGTON NSW, AUSTRALIA 2294  
**Telephone** : +61 02 4902 9200  
**Project** : 13156  
**Order number** : ----  
**C-O-C number** : ----  
**Sampler** : KATY SHAW  
**Site** : ----  
**Quote number** : SYBQ/400/17  
**No. of samples received** : 32  
**No. of samples analysed** : 32

**Page** : 1 of 38  
**Laboratory** : Environmental Division Sydney  
**Contact** : Customer Services ES  
**Address** : 277-289 Woodpark Road Smithfield NSW Australia 2164  
**Telephone** : +61-2-8784 8555  
**Date Samples Received** : 14-Feb-2018 16:12  
**Date Analysis Commenced** : 16-Feb-2018  
**Issue Date** : 07-Mar-2018 14:21



Accreditation No. 825  
 Accredited for compliance with  
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

**Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.**

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

| <i>Signatories</i> | <i>Position</i>          | <i>Accreditation Category</i>            |
|--------------------|--------------------------|--|
| Alex Rossi         | Organic Chemist          | Sydney Organics, Smithfield, NSW         |
| Ankit Joshi        | Inorganic Chemist        | Sydney Inorganics, Smithfield, NSW       |
| Edwandy Fadjar     | Organic Coordinator      | Sydney Inorganics, Smithfield, NSW       |
| Edwandy Fadjar     | Organic Coordinator      | Sydney Organics, Smithfield, NSW         |
| Gerrad Morgan      | Asbestos Identifier      | Newcastle - Asbestos, Mayfield West, NSW |
| Ivan Taylor        | Analyst                  | Sydney Inorganics, Smithfield, NSW       |
| Sanjeshni Jyoti    | Senior Chemist Volatiles | Sydney Organics, 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.

- EP202: Particular samples required dilution due to sample matrix. LOR values have been adjusted accordingly.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR.  
Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No\*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                                      |            |      |        | Client sample ID  |                   |                   |                   |                   |
|---|------------|------|--------|-------------------|-------------------|-------------------|-------------------|-------------------|
|   |            |      |        | B1                | BH1A              | BH1C              | BH2A              | BH2C              |
| Client sampling date / time   |            |      |        | 09-Feb-2018 00:00 |
| Compound  | CAS Number | LOR  | Unit   | ES1804838-001     | ES1804838-002     | ES1804838-003     | ES1804838-004     | ES1804838-005     |
|   |            |      |        | Result            | Result            | Result            | Result            | Result            |
| <b>EA010: Conductivity</b>  |            |      |        |                   |                   |                   |                   |                   |
| Electrical Conductivity @ 25°C  | ----       | 1    | µS/cm  | ----              | 40                | 8                 | 38                | 12                |
| <b>EA055: Moisture Content (Dried @ 105-110°C)</b>                      |            |      |        |                   |                   |                   |                   |                   |
| Moisture Content  | ----       | 1.0  | %      | ----              | 2.2               | <1.0              | 1.3               | 17.6              |
| <b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b> |            |      |        |                   |                   |                   |                   |                   |
| Asbestos (Trace)  | 1332-21-4  | 5    | Fibres | No                | ----              | ----              | ----              | ----              |
| <b>EA200: AS 4964 - 2004 Identification of Asbestos in Soils</b>        |            |      |        |                   |                   |                   |                   |                   |
| Asbestos Detected   | 1332-21-4  | 0.1  | g/kg   | No                | ----              | ----              | ----              | ----              |
| Asbestos Type   | 1332-21-4  | -    | --     | -                 | ----              | ----              | ----              | ----              |
| Sample weight (dry)   | ----       | 0.01 | g      | 319               | ----              | ----              | ----              | ----              |
| APPROVED IDENTIFIER:  | ----       | -    | --     | G.MORGAN          | ----              | ----              | ----              | ----              |
| <b>EG005T: Total Metals by ICP-AES</b>                                  |            |      |        |                   |                   |                   |                   |                   |
| Arsenic   | 7440-38-2  | 5    | mg/kg  | ----              | <5                | <5                | <5                | <5                |
| Cadmium   | 7440-43-9  | 1    | mg/kg  | ----              | <1                | <1                | <1                | <1                |
| Chromium  | 7440-47-3  | 2    | mg/kg  | ----              | <2                | <2                | <2                | 6                 |
| Copper  | 7440-50-8  | 5    | mg/kg  | ----              | <5                | <5                | <5                | <5                |
| Lead  | 7439-92-1  | 5    | mg/kg  | ----              | <5                | <5                | <5                | <5                |
| Nickel  | 7440-02-0  | 2    | mg/kg  | ----              | <2                | <2                | <2                | 3                 |
| Zinc  | 7440-66-6  | 5    | mg/kg  | ----              | 8                 | <5                | 12                | <5                |
| <b>EG035T: Total Recoverable Mercury by FIMS</b>                        |            |      |        |                   |                   |                   |                   |                   |
| Mercury   | 7439-97-6  | 0.1  | mg/kg  | ----              | <0.1              | <0.1              | <0.1              | <0.1              |
| <b>EP068A: Organochlorine Pesticides (OC)</b>                           |            |      |        |                   |                   |                   |                   |                   |
| alpha-BHC   | 319-84-6   | 0.05 | mg/kg  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Hexachlorobenzene (HCB)   | 118-74-1   | 0.05 | mg/kg  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| beta-BHC  | 319-85-7   | 0.05 | mg/kg  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| gamma-BHC   | 58-89-9    | 0.05 | mg/kg  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| delta-BHC   | 319-86-8   | 0.05 | mg/kg  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Heptachlor  | 76-44-8    | 0.05 | mg/kg  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Aldrin  | 309-00-2   | 0.05 | mg/kg  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Heptachlor epoxide  | 1024-57-3  | 0.05 | mg/kg  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| ^ Total Chlordane (sum)   | ----       | 0.05 | mg/kg  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| trans-Chlordane   | 5103-74-2  | 0.05 | mg/kg  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| alpha-Endosulfan  | 959-98-8   | 0.05 | mg/kg  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| cis-Chlordane   | 5103-71-9  | 0.05 | mg/kg  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Dieldrin  | 60-57-1    | 0.05 | mg/kg  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                        |                      |      |       | Client sample ID | B1                | BH1A              | BH1C              | BH2A              | BH2C              |
|---|----------------------|------|-------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time                               |                      |      |       |                  | 09-Feb-2018 00:00 |
| Compound  | CAS Number           | LOR  | Unit  |                  | ES1804838-001     | ES1804838-002     | ES1804838-003     | ES1804838-004     | ES1804838-005     |
|   |                      |      |       |                  | Result            | Result            | Result            | Result            | Result            |
| <b>EP068A: Organochlorine Pesticides (OC) - Continued</b> |                      |      |       |                  |                   |                   |                   |                   |                   |
| 4.4`-DDE  | 72-55-9              | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Endrin  | 72-20-8              | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| beta-Endosulfan   | 33213-65-9           | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| ^ Endosulfan (sum)  | 115-29-7             | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| 4.4`-DDD  | 72-54-8              | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Endrin aldehyde   | 7421-93-4            | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Endosulfan sulfate  | 1031-07-8            | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| 4.4`-DDT  | 50-29-3              | 0.2  | mg/kg |                  | ----              | <0.2              | <0.2              | <0.2              | <0.2              |
| Endrin ketone   | 53494-70-5           | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Methoxychlor  | 72-43-5              | 0.2  | mg/kg |                  | ----              | <0.2              | <0.2              | <0.2              | <0.2              |
| ^ Sum of Aldrin + Dieldrin                                | 309-00-2/60-57-1     | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| ^ Sum of DDD + DDE + DDT                                  | 72-54-8/72-55-9/50-2 | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| <b>EP068B: Organophosphorus Pesticides (OP)</b>           |                      |      |       |                  |                   |                   |                   |                   |                   |
| Dichlorvos  | 62-73-7              | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Demeton-S-methyl  | 919-86-8             | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Monocrotophos   | 6923-22-4            | 0.2  | mg/kg |                  | ----              | <0.2              | <0.2              | <0.2              | <0.2              |
| Dimethoate  | 60-51-5              | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Diazinon  | 333-41-5             | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Chlorpyrifos-methyl                                       | 5598-13-0            | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Parathion-methyl  | 298-00-0             | 0.2  | mg/kg |                  | ----              | <0.2              | <0.2              | <0.2              | <0.2              |
| Malathion   | 121-75-5             | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Fenthion  | 55-38-9              | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Chlorpyrifos  | 2921-88-2            | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Parathion   | 56-38-2              | 0.2  | mg/kg |                  | ----              | <0.2              | <0.2              | <0.2              | <0.2              |
| Pirimphos-ethyl   | 23505-41-1           | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Chlorfenvinphos   | 470-90-6             | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Bromophos-ethyl   | 4824-78-6            | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Fenamiphos  | 22224-92-6           | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Prothiofos  | 34643-46-4           | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Ethion  | 563-12-2             | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Carbophenothion   | 786-19-6             | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| Azinphos Methyl   | 86-50-0              | 0.05 | mg/kg |                  | ----              | <0.05             | <0.05             | <0.05             | <0.05             |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>     |                      |      |       |                  |                   |                   |                   |                   |                   |
| Naphthalene   | 91-20-3              | 0.5  | mg/kg |                  | ----              | <0.5              | ----              | <0.5              | ----              |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                                     |                   |     |       | Client sample ID | B1                | BH1A              | BH1C              | BH2A              | BH2C              |
|--|-------------------|-----|-------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time  |                   |     |       |                  | 09-Feb-2018 00:00 |
| Compound   | CAS Number        | LOR | Unit  |                  | ES1804838-001     | ES1804838-002     | ES1804838-003     | ES1804838-004     | ES1804838-005     |
|  |                   |     |       |                  | Result            | Result            | Result            | Result            | Result            |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>      |                   |     |       |                  |                   |                   |                   |                   |                   |
| Acenaphthylene   | 208-96-8          | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| Acenaphthene   | 83-32-9           | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| Fluorene   | 86-73-7           | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| Phenanthrene   | 85-01-8           | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| Anthracene   | 120-12-7          | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| Fluoranthene   | 206-44-0          | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| Pyrene   | 129-00-0          | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| Benz(a)anthracene  | 56-55-3           | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| Chrysene   | 218-01-9          | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| Benzo(b+j)fluoranthene   | 205-99-2 205-82-3 | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| Benzo(k)fluoranthene   | 207-08-9          | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| Benzo(a)pyrene   | 50-32-8           | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| Indeno(1.2.3.cd)pyrene   | 193-39-5          | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| Dibenz(a.h)anthracene  | 53-70-3           | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| Benzo(g,h,i)perylene   | 191-24-2          | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| ^ Sum of polycyclic aromatic hydrocarbons                              | ----              | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| ^ Benzo(a)pyrene TEQ (zero)  | ----              | 0.5 | mg/kg | ----             | <0.5              | ----              | <0.5              | ----              | <0.5              |
| ^ Benzo(a)pyrene TEQ (half LOR)  | ----              | 0.5 | mg/kg | ----             | <b>0.6</b>        | ----              | <b>0.6</b>        | ----              | <0.5              |
| ^ Benzo(a)pyrene TEQ (LOR)   | ----              | 0.5 | mg/kg | ----             | <b>1.2</b>        | ----              | <b>1.2</b>        | ----              | <0.5              |
| <b>EP080/071: Total Petroleum Hydrocarbons</b>                         |                   |     |       |                  |                   |                   |                   |                   |                   |
| C6 - C9 Fraction   | ----              | 10  | mg/kg | ----             | <10               | ----              | <10               | ----              | <10               |
| C10 - C14 Fraction   | ----              | 50  | mg/kg | ----             | <50               | ----              | <50               | ----              | <50               |
| C15 - C28 Fraction   | ----              | 100 | mg/kg | ----             | <100              | ----              | <100              | ----              | <100              |
| C29 - C36 Fraction   | ----              | 100 | mg/kg | ----             | <100              | ----              | <100              | ----              | <100              |
| ^ C10 - C36 Fraction (sum)   | ----              | 50  | mg/kg | ----             | <50               | ----              | <50               | ----              | <50               |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b> |                   |     |       |                  |                   |                   |                   |                   |                   |
| C6 - C10 Fraction  | C6_C10            | 10  | mg/kg | ----             | <10               | ----              | <10               | ----              | <10               |
| ^ C6 - C10 Fraction minus BTEX (F1)                                    | C6_C10-BTEX       | 10  | mg/kg | ----             | <10               | ----              | <10               | ----              | <10               |
| >C10 - C16 Fraction  | ----              | 50  | mg/kg | ----             | <50               | ----              | <50               | ----              | <50               |
| >C16 - C34 Fraction  | ----              | 100 | mg/kg | ----             | <100              | ----              | <100              | ----              | <100              |
| >C34 - C40 Fraction  | ----              | 100 | mg/kg | ----             | <100              | ----              | <100              | ----              | <100              |
| ^ >C10 - C40 Fraction (sum)  | ----              | 50  | mg/kg | ----             | <50               | ----              | <50               | ----              | <50               |
| ^ >C10 - C16 Fraction minus Naphthalene (F2)                           | ----              | 50  | mg/kg | ----             | <50               | ----              | <50               | ----              | <50               |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)   |                   |      |       | Client sample ID | B1                | BH1A              | BH1C              | BH2A              | BH2C              |
|--|-------------------|------|-------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time  |                   |      |       |                  | 09-Feb-2018 00:00 |
| Compound   | CAS Number        | LOR  | Unit  |                  | ES1804838-001     | ES1804838-002     | ES1804838-003     | ES1804838-004     | ES1804838-005     |
|  |                   |      |       |                  | Result            | Result            | Result            | Result            | Result            |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued</b> |                   |      |       |                  |                   |                   |                   |                   |                   |
| <b>EP080: BTEXN</b>  |                   |      |       |                  |                   |                   |                   |                   |                   |
| Benzene  | 71-43-2           | 0.2  | mg/kg |                  | ----              | <0.2              | ----              | <0.2              | ----              |
| Toluene  | 108-88-3          | 0.5  | mg/kg |                  | ----              | <0.5              | ----              | <0.5              | ----              |
| Ethylbenzene   | 100-41-4          | 0.5  | mg/kg |                  | ----              | <0.5              | ----              | <0.5              | ----              |
| meta- & para-Xylene  | 108-38-3 106-42-3 | 0.5  | mg/kg |                  | ----              | <0.5              | ----              | <0.5              | ----              |
| ortho-Xylene   | 95-47-6           | 0.5  | mg/kg |                  | ----              | <0.5              | ----              | <0.5              | ----              |
| ^ Sum of BTEX  | ----              | 0.2  | mg/kg |                  | ----              | <0.2              | ----              | <0.2              | ----              |
| ^ Total Xylenes  | ----              | 0.5  | mg/kg |                  | ----              | <0.5              | ----              | <0.5              | ----              |
| Naphthalene  | 91-20-3           | 1    | mg/kg |                  | ----              | <1                | ----              | <1                | ----              |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>                               |                   |      |       |                  |                   |                   |                   |                   |                   |
| 4-Chlorophenoxy acetic acid  | 122-88-3          | 0.02 | mg/kg |                  | ----              | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4-DB   | 94-82-6           | 0.02 | mg/kg |                  | ----              | <0.04             | <0.04             | <0.04             | <0.04             |
| Dicamba  | 1918-00-9         | 0.02 | mg/kg |                  | ----              | <0.04             | <0.04             | <0.04             | <0.04             |
| Mecoprop   | 93-65-2           | 0.02 | mg/kg |                  | ----              | <0.04             | <0.04             | <0.04             | <0.04             |
| MCPA   | 94-74-6           | 0.02 | mg/kg |                  | ----              | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4-DP   | 120-36-5          | 0.02 | mg/kg |                  | ----              | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4-D  | 94-75-7           | 0.02 | mg/kg |                  | ----              | <0.04             | <0.04             | <0.04             | <0.04             |
| Triclopyr  | 55335-06-3        | 0.02 | mg/kg |                  | ----              | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4,5-TP (Silvex)  | 93-72-1           | 0.02 | mg/kg |                  | ----              | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4,5-T  | 93-76-5           | 0.02 | mg/kg |                  | ----              | <0.04             | <0.04             | <0.04             | <0.04             |
| MCPB   | 94-81-5           | 0.02 | mg/kg |                  | ----              | <0.04             | <0.04             | <0.04             | <0.04             |
| Picloram   | 1918-02-1         | 0.02 | mg/kg |                  | ----              | <0.04             | <0.04             | <0.04             | <0.04             |
| Clopyralid   | 1702-17-6         | 0.02 | mg/kg |                  | ----              | <0.04             | <0.04             | <0.04             | <0.04             |
| Fluroxypyr   | 69377-81-7        | 0.02 | mg/kg |                  | ----              | <0.04             | <0.04             | <0.04             | <0.04             |
| <b>EP068S: Organochlorine Pesticide Surrogate</b>                                  |                   |      |       |                  |                   |                   |                   |                   |                   |
| Dibromo-DDE  | 21655-73-2        | 0.05 | %     |                  | ----              | 88.4              | 94.7              | 97.9              | 83.5              |
| <b>EP068T: Organophosphorus Pesticide Surrogate</b>                                |                   |      |       |                  |                   |                   |                   |                   |                   |
| DEF  | 78-48-8           | 0.05 | %     |                  | ----              | 82.7              | 84.8              | 97.3              | 83.6              |
| <b>EP075(SIM)S: Phenolic Compound Surrogates</b>                                   |                   |      |       |                  |                   |                   |                   |                   |                   |
| Phenol-d6  | 13127-88-3        | 0.5  | %     |                  | ----              | 84.0              | ----              | 84.7              | ----              |
| 2-Chlorophenol-D4  | 93951-73-6        | 0.5  | %     |                  | ----              | 83.3              | ----              | 83.1              | ----              |
| 2,4,6-Tribromophenol   | 118-79-6          | 0.5  | %     |                  | ----              | 63.6              | ----              | 69.1              | ----              |
| <b>EP075(SIM)T: PAH Surrogates</b>   |                   |      |       |                  |                   |                   |                   |                   |                   |
| 2-Fluorobiphenyl   | 321-60-8          | 0.5  | %     |                  | ----              | 91.7              | ----              | 92.2              | ----              |



**Analytical Results**

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                    |            |      |      | Client sample ID | B1                | BH1A              | BH1C              | BH2A              | BH2C              |
|---|------------|------|------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time                           |            |      |      |                  | 09-Feb-2018 00:00 |
| Compound  | CAS Number | LOR  | Unit | ES1804838-001    | ES1804838-002     | ES1804838-003     | ES1804838-004     | ES1804838-005     |                   |
|   |            |      |      | Result           | Result            | Result            | Result            | Result            |                   |
| <b>EP075(SIM)T: PAH Surrogates - Continued</b>        |            |      |      |                  |                   |                   |                   |                   |                   |
| Anthracene-d10  | 1719-06-8  | 0.5  | %    | ----             | 90.8              | ----              | 91.9              | ----              |                   |
| 4-Terphenyl-d14                                       | 1718-51-0  | 0.5  | %    | ----             | 81.8              | ----              | 83.0              | ----              |                   |
| <b>EP080S: TPH(V)/BTEX Surrogates</b>                 |            |      |      |                  |                   |                   |                   |                   |                   |
| 1,2-Dichloroethane-D4                                 | 17060-07-0 | 0.2  | %    | ----             | 102               | ----              | 105               | ----              |                   |
| Toluene-D8  | 2037-26-5  | 0.2  | %    | ----             | 100               | ----              | 109               | ----              |                   |
| 4-Bromofluorobenzene                                  | 460-00-4   | 0.2  | %    | ----             | 88.6              | ----              | 90.3              | ----              |                   |
| <b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b> |            |      |      |                  |                   |                   |                   |                   |                   |
| 2,4-Dichlorophenyl Acetic Acid                        | 19719-28-9 | 0.02 | %    | ----             | 61.5              | 51.8              | 57.3              | 43.4              |                   |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                 |            |      |       | Client sample ID  | BH3A              | BH4A              | BH4B              | BH5A              | BH5B |
|--|------------|------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| Client sampling date / time                        |            |      |       | 09-Feb-2018 00:00 |      |
| Compound   | CAS Number | LOR  | Unit  | ES1804838-006     | ES1804838-007     | ES1804838-008     | ES1804838-009     | ES1804838-010     |      |
|  |            |      |       | Result            | Result            | Result            | Result            | Result            |      |
| <b>EA010: Conductivity</b>                         |            |      |       |                   |                   |                   |                   |                   |      |
| Electrical Conductivity @ 25°C                     | ----       | 1    | µS/cm | 23                | 80                | 9                 | 41                | 10                |      |
| <b>EA055: Moisture Content (Dried @ 105-110°C)</b> |            |      |       |                   |                   |                   |                   |                   |      |
| Moisture Content                                   | ----       | 1.0  | %     | <1.0              | 7.0               | 3.2               | 2.0               | 1.2               |      |
| <b>EG005T: Total Metals by ICP-AES</b>             |            |      |       |                   |                   |                   |                   |                   |      |
| Arsenic  | 7440-38-2  | 5    | mg/kg | <5                | <5                | <5                | <5                | <5                |      |
| Cadmium  | 7440-43-9  | 1    | mg/kg | <1                | <1                | <1                | <1                | <1                |      |
| Chromium   | 7440-47-3  | 2    | mg/kg | <2                | 7                 | <2                | <2                | <2                |      |
| Copper   | 7440-50-8  | 5    | mg/kg | <5                | 116               | <5                | <5                | <5                |      |
| Lead   | 7439-92-1  | 5    | mg/kg | <5                | 11                | <5                | <5                | <5                |      |
| Nickel   | 7440-02-0  | 2    | mg/kg | <2                | <2                | <2                | <2                | <2                |      |
| Zinc   | 7440-66-6  | 5    | mg/kg | 13                | 35                | <5                | 37                | 10                |      |
| <b>EG035T: Total Recoverable Mercury by FIMS</b>   |            |      |       |                   |                   |                   |                   |                   |      |
| Mercury  | 7439-97-6  | 0.1  | mg/kg | <0.1              | <0.1              | <0.1              | <0.1              | <0.1              |      |
| <b>EP068A: Organochlorine Pesticides (OC)</b>      |            |      |       |                   |                   |                   |                   |                   |      |
| alpha-BHC  | 319-84-6   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Hexachlorobenzene (HCB)                            | 118-74-1   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| beta-BHC   | 319-85-7   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| gamma-BHC  | 58-89-9    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| delta-BHC  | 319-86-8   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Heptachlor   | 76-44-8    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Aldrin   | 309-00-2   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Heptachlor epoxide                                 | 1024-57-3  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| ^ Total Chlordane (sum)                            | ----       | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| trans-Chlordane                                    | 5103-74-2  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| alpha-Endosulfan                                   | 959-98-8   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| cis-Chlordane                                      | 5103-71-9  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Dieldrin   | 60-57-1    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| 4,4'-DDE   | 72-55-9    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Endrin   | 72-20-8    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| beta-Endosulfan                                    | 33213-65-9 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| ^ Endosulfan (sum)                                 | 115-29-7   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| 4,4'-DDD   | 72-54-8    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Endrin aldehyde                                    | 7421-93-4  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Endosulfan sulfate                                 | 1031-07-8  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                        |                          |      |       | Client sample ID  | BH3A              | BH4A              | BH4B              | BH5A              | BH5B |
|---|--------------------------|------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| Client sampling date / time                               |                          |      |       | 09-Feb-2018 00:00 |      |
| Compound  | CAS Number               | LOR  | Unit  | ES1804838-006     | ES1804838-007     | ES1804838-008     | ES1804838-009     | ES1804838-010     |      |
|   |                          |      |       | Result            | Result            | Result            | Result            | Result            |      |
| <b>EP068A: Organochlorine Pesticides (OC) - Continued</b> |                          |      |       |                   |                   |                   |                   |                   |      |
| 4,4'-DDT  | 50-29-3                  | 0.2  | mg/kg | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |      |
| Endrin ketone   | 53494-70-5               | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Methoxychlor  | 72-43-5                  | 0.2  | mg/kg | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |      |
| ^ Sum of Aldrin + Dieldrin                                | 309-00-2/60-57-1         | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| ^ Sum of DDD + DDE + DDT                                  | 72-54-8/72-55-9/5<br>0-2 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| <b>EP068B: Organophosphorus Pesticides (OP)</b>           |                          |      |       |                   |                   |                   |                   |                   |      |
| Dichlorvos  | 62-73-7                  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Demeton-S-methyl  | 919-86-8                 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Monocrotophos   | 6923-22-4                | 0.2  | mg/kg | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |      |
| Dimethoate  | 60-51-5                  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Diazinon  | 333-41-5                 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Chlorpyrifos-methyl                                       | 5598-13-0                | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Parathion-methyl  | 298-00-0                 | 0.2  | mg/kg | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |      |
| Malathion   | 121-75-5                 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Fenthion  | 55-38-9                  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Chlorpyrifos  | 2921-88-2                | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Parathion   | 56-38-2                  | 0.2  | mg/kg | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |      |
| Pirimphos-ethyl   | 23505-41-1               | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Chlorfenvinphos   | 470-90-6                 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Bromophos-ethyl   | 4824-78-6                | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Fenamiphos  | 22224-92-6               | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Prothiofos  | 34643-46-4               | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Ethion  | 563-12-2                 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Carbophenothion   | 786-19-6                 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Azinphos Methyl   | 86-50-0                  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>     |                          |      |       |                   |                   |                   |                   |                   |      |
| Naphthalene   | 91-20-3                  | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| Acenaphthylene  | 208-96-8                 | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| Acenaphthene  | 83-32-9                  | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| Fluorene  | 86-73-7                  | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| Phenanthrene  | 85-01-8                  | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| Anthracene  | 120-12-7                 | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| Fluoranthene  | 206-44-0                 | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| Pyrene  | 129-00-0                 | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                                     |                   |     |       | Client sample ID  | BH3A              | BH4A              | BH4B              | BH5A              | BH5B |
|--|-------------------|-----|-------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| Client sampling date / time  |                   |     |       | 09-Feb-2018 00:00 |      |
| Compound   | CAS Number        | LOR | Unit  | ES1804838-006     | ES1804838-007     | ES1804838-008     | ES1804838-009     | ES1804838-010     |      |
|  |                   |     |       | Result            | Result            | Result            | Result            | Result            |      |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>      |                   |     |       |                   |                   |                   |                   |                   |      |
| Benz(a)anthracene  | 56-55-3           | 0.5 | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| Chrysene   | 218-01-9          | 0.5 | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| Benzo(b+j)fluoranthene   | 205-99-2 205-82-3 | 0.5 | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| Benzo(k)fluoranthene   | 207-08-9          | 0.5 | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| Benzo(a)pyrene   | 50-32-8           | 0.5 | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| Indeno(1.2.3.cd)pyrene   | 193-39-5          | 0.5 | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| Dibenz(a.h)anthracene  | 53-70-3           | 0.5 | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| Benzo(g.h.i)perylene   | 191-24-2          | 0.5 | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| ^ Sum of polycyclic aromatic hydrocarbons                              | ----              | 0.5 | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| ^ Benzo(a)pyrene TEQ (zero)  | ----              | 0.5 | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| ^ Benzo(a)pyrene TEQ (half LOR)  | ----              | 0.5 | mg/kg | <b>0.6</b>        | <b>0.6</b>        | ----              | <b>0.6</b>        | ----              |      |
| ^ Benzo(a)pyrene TEQ (LOR)   | ----              | 0.5 | mg/kg | <b>1.2</b>        | <b>1.2</b>        | ----              | <b>1.2</b>        | ----              |      |
| <b>EP080/071: Total Petroleum Hydrocarbons</b>                         |                   |     |       |                   |                   |                   |                   |                   |      |
| C6 - C9 Fraction   | ----              | 10  | mg/kg | <10               | <10               | ----              | <10               | ----              |      |
| C10 - C14 Fraction   | ----              | 50  | mg/kg | <50               | <50               | ----              | <50               | ----              |      |
| C15 - C28 Fraction   | ----              | 100 | mg/kg | <100              | <100              | ----              | <100              | ----              |      |
| C29 - C36 Fraction   | ----              | 100 | mg/kg | <100              | <100              | ----              | <100              | ----              |      |
| ^ C10 - C36 Fraction (sum)   | ----              | 50  | mg/kg | <50               | <50               | ----              | <50               | ----              |      |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b> |                   |     |       |                   |                   |                   |                   |                   |      |
| C6 - C10 Fraction  | C6_C10            | 10  | mg/kg | <10               | <10               | ----              | <10               | ----              |      |
| ^ C6 - C10 Fraction minus BTEX (F1)                                    | C6_C10-BTEX       | 10  | mg/kg | <10               | <10               | ----              | <10               | ----              |      |
| >C10 - C16 Fraction  | ----              | 50  | mg/kg | <50               | <50               | ----              | <50               | ----              |      |
| >C16 - C34 Fraction  | ----              | 100 | mg/kg | <100              | <100              | ----              | <100              | ----              |      |
| >C34 - C40 Fraction  | ----              | 100 | mg/kg | <100              | <100              | ----              | <100              | ----              |      |
| ^ >C10 - C40 Fraction (sum)  | ----              | 50  | mg/kg | <50               | <50               | ----              | <50               | ----              |      |
| ^ >C10 - C16 Fraction minus Naphthalene (F2)                           | ----              | 50  | mg/kg | <50               | <50               | ----              | <50               | ----              |      |
| <b>EP080: BTEXN</b>  |                   |     |       |                   |                   |                   |                   |                   |      |
| Benzene  | 71-43-2           | 0.2 | mg/kg | <0.2              | <0.2              | ----              | <0.2              | ----              |      |
| Toluene  | 108-88-3          | 0.5 | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| Ethylbenzene   | 100-41-4          | 0.5 | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| meta- & para-Xylene  | 108-38-3 106-42-3 | 0.5 | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |
| ortho-Xylene   | 95-47-6           | 0.5 | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |      |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                   |            |      |       | Client sample ID  |                   |                   |                   |                   |
|--|------------|------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|
|  |            |      |       | BH3A              | BH4A              | BH4B              | BH5A              | BH5B              |
| Client sampling date / time                          |            |      |       | 09-Feb-2018 00:00 |
| Compound   | CAS Number | LOR  | Unit  | ES1804838-006     | ES1804838-007     | ES1804838-008     | ES1804838-009     | ES1804838-010     |
|  |            |      |       | Result            | Result            | Result            | Result            | Result            |
| <b>EP080: BTEXN - Continued</b>                      |            |      |       |                   |                   |                   |                   |                   |
| ^ Sum of BTEX  | ----       | 0.2  | mg/kg | <0.2              | <0.2              | ----              | <0.2              | ----              |
| ^ Total Xylenes                                      | ----       | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |
| Naphthalene  | 91-20-3    | 1    | mg/kg | <1                | <1                | ----              | <1                | ----              |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b> |            |      |       |                   |                   |                   |                   |                   |
| 4-Chlorophenoxy acetic acid                          | 122-88-3   | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4-DB   | 94-82-6    | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Dicamba  | 1918-00-9  | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Mecoprop   | 93-65-2    | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| MCPA   | 94-74-6    | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4-DP   | 120-36-5   | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4-D  | 94-75-7    | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Triclopyr  | 55335-06-3 | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4,5-TP (Silvex)                                    | 93-72-1    | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4,5-T  | 93-76-5    | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| MCPB   | 94-81-5    | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Picloram   | 1918-02-1  | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Clopyralid   | 1702-17-6  | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Fluroxypyr   | 69377-81-7 | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| <b>EP068S: Organochlorine Pesticide Surrogate</b>    |            |      |       |                   |                   |                   |                   |                   |
| Dibromo-DDE  | 21655-73-2 | 0.05 | %     | 81.5              | 107               | 92.8              | 87.8              | 79.3              |
| <b>EP068T: Organophosphorus Pesticide Surrogate</b>  |            |      |       |                   |                   |                   |                   |                   |
| DEF  | 78-48-8    | 0.05 | %     | 83.5              | 101               | 71.2              | 93.2              | 77.5              |
| <b>EP075(SIM)S: Phenolic Compound Surrogates</b>     |            |      |       |                   |                   |                   |                   |                   |
| Phenol-d6  | 13127-88-3 | 0.5  | %     | 88.0              | 86.2              | ----              | 83.6              | ----              |
| 2-Chlorophenol-D4                                    | 93951-73-6 | 0.5  | %     | 86.2              | 84.6              | ----              | 81.6              | ----              |
| 2,4,6-Tribromophenol                                 | 118-79-6   | 0.5  | %     | 65.9              | 72.9              | ----              | 66.7              | ----              |
| <b>EP075(SIM)T: PAH Surrogates</b>                   |            |      |       |                   |                   |                   |                   |                   |
| 2-Fluorobiphenyl                                     | 321-60-8   | 0.5  | %     | 95.6              | 93.0              | ----              | 91.2              | ----              |
| Anthracene-d10                                       | 1719-06-8  | 0.5  | %     | 95.4              | 92.5              | ----              | 91.6              | ----              |
| 4-Terphenyl-d14                                      | 1718-51-0  | 0.5  | %     | 86.3              | 83.7              | ----              | 83.2              | ----              |
| <b>EP080S: TPH(V)/BTEX Surrogates</b>                |            |      |       |                   |                   |                   |                   |                   |
| 1,2-Dichloroethane-D4                                | 17060-07-0 | 0.2  | %     | 109               | 102               | ----              | 115               | ----              |
| Toluene-D8   | 2037-26-5  | 0.2  | %     | 110               | 102               | ----              | 114               | ----              |
| 4-Bromofluorobenzene                                 | 460-00-4   | 0.2  | %     | 95.1              | 85.8              | ----              | 100               | ----              |



### Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                    |            |      |      | Client sample ID  | BH3A              | BH4A              | BH4B              | BH5A              | BH5B |
|---|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| Client sampling date / time                           |            |      |      | 09-Feb-2018 00:00 |      |
| Compound  | CAS Number | LOR  | Unit | ES1804838-006     | ES1804838-007     | ES1804838-008     | ES1804838-009     | ES1804838-010     |      |
|   |            |      |      | Result            | Result            | Result            | Result            | Result            |      |
| <b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b> |            |      |      |                   |                   |                   |                   |                   |      |
| 2,4-Dichlorophenyl Acetic Acid                        | 19719-28-9 | 0.02 | %    | 50.2              | 52.2              | 51.2              | 52.0              | 51.6              |      |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                 |            |      |       | Client sample ID  | BH6A              | BH6B              | BH7A              | BH8A              | BH8B |
|--|------------|------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| Client sampling date / time                        |            |      |       | 09-Feb-2018 00:00 |      |
| Compound   | CAS Number | LOR  | Unit  | ES1804838-011     | ES1804838-012     | ES1804838-013     | ES1804838-014     | ES1804838-015     |      |
|  |            |      |       | Result            | Result            | Result            | Result            | Result            |      |
| <b>EA010: Conductivity</b>                         |            |      |       |                   |                   |                   |                   |                   |      |
| Electrical Conductivity @ 25°C                     | ----       | 1    | µS/cm | 58                | 19                | 54                | 100               | 45                |      |
| <b>EA055: Moisture Content (Dried @ 105-110°C)</b> |            |      |       |                   |                   |                   |                   |                   |      |
| Moisture Content                                   | ----       | 1.0  | %     | 9.3               | 3.7               | 8.4               | 7.9               | 16.1              |      |
| <b>EG005T: Total Metals by ICP-AES</b>             |            |      |       |                   |                   |                   |                   |                   |      |
| Arsenic  | 7440-38-2  | 5    | mg/kg | <5                | <5                | <5                | 5                 | <5                |      |
| Cadmium  | 7440-43-9  | 1    | mg/kg | <1                | <1                | <1                | <1                | <1                |      |
| Chromium   | 7440-47-3  | 2    | mg/kg | 9                 | 6                 | 24                | 11                | 32                |      |
| Copper   | 7440-50-8  | 5    | mg/kg | <5                | <5                | <5                | <5                | <5                |      |
| Lead   | 7439-92-1  | 5    | mg/kg | 8                 | <5                | 6                 | 11                | 8                 |      |
| Nickel   | 7440-02-0  | 2    | mg/kg | <2                | <2                | 3                 | 4                 | 4                 |      |
| Zinc   | 7440-66-6  | 5    | mg/kg | 9                 | <5                | 9                 | 36                | 5                 |      |
| <b>EG035T: Total Recoverable Mercury by FIMS</b>   |            |      |       |                   |                   |                   |                   |                   |      |
| Mercury  | 7439-97-6  | 0.1  | mg/kg | <0.1              | <0.1              | <0.1              | <0.1              | <0.1              |      |
| <b>EP068A: Organochlorine Pesticides (OC)</b>      |            |      |       |                   |                   |                   |                   |                   |      |
| alpha-BHC  | 319-84-6   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Hexachlorobenzene (HCB)                            | 118-74-1   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| beta-BHC   | 319-85-7   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| gamma-BHC  | 58-89-9    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| delta-BHC  | 319-86-8   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Heptachlor   | 76-44-8    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Aldrin   | 309-00-2   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Heptachlor epoxide                                 | 1024-57-3  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| ^ Total Chlordane (sum)                            | ----       | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| trans-Chlordane                                    | 5103-74-2  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| alpha-Endosulfan                                   | 959-98-8   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| cis-Chlordane                                      | 5103-71-9  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Dieldrin   | 60-57-1    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| 4,4'-DDE   | 72-55-9    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Endrin   | 72-20-8    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| beta-Endosulfan                                    | 33213-65-9 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| ^ Endosulfan (sum)                                 | 115-29-7   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| 4,4'-DDD   | 72-54-8    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Endrin aldehyde                                    | 7421-93-4  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |
| Endosulfan sulfate                                 | 1031-07-8  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |      |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                        |                          |      |       | Client sample ID | BH6A              | BH6B              | BH7A              | BH8A              | BH8B              |
|---|--------------------------|------|-------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time                               |                          |      |       |                  | 09-Feb-2018 00:00 |
| Compound  | CAS Number               | LOR  | Unit  |                  | ES1804838-011     | ES1804838-012     | ES1804838-013     | ES1804838-014     | ES1804838-015     |
|   |                          |      |       |                  | Result            | Result            | Result            | Result            | Result            |
| <b>EP068A: Organochlorine Pesticides (OC) - Continued</b> |                          |      |       |                  |                   |                   |                   |                   |                   |
| 4,4'-DDT  | 50-29-3                  | 0.2  | mg/kg |                  | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |
| Endrin ketone   | 53494-70-5               | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Methoxychlor  | 72-43-5                  | 0.2  | mg/kg |                  | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |
| ^ Sum of Aldrin + Dieldrin                                | 309-00-2/60-57-1         | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| ^ Sum of DDD + DDE + DDT                                  | 72-54-8/72-55-9/5<br>0-2 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| <b>EP068B: Organophosphorus Pesticides (OP)</b>           |                          |      |       |                  |                   |                   |                   |                   |                   |
| Dichlorvos  | 62-73-7                  | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Demeton-S-methyl  | 919-86-8                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Monocrotophos   | 6923-22-4                | 0.2  | mg/kg |                  | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |
| Dimethoate  | 60-51-5                  | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Diazinon  | 333-41-5                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Chlorpyrifos-methyl                                       | 5598-13-0                | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Parathion-methyl  | 298-00-0                 | 0.2  | mg/kg |                  | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |
| Malathion   | 121-75-5                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Fenthion  | 55-38-9                  | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Chlorpyrifos  | 2921-88-2                | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Parathion   | 56-38-2                  | 0.2  | mg/kg |                  | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |
| Pirimphos-ethyl   | 23505-41-1               | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Chlorfenvinphos   | 470-90-6                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Bromophos-ethyl   | 4824-78-6                | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Fenamiphos  | 22224-92-6               | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Prothiofos  | 34643-46-4               | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Ethion  | 563-12-2                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Carbophenothion   | 786-19-6                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Azinphos Methyl   | 86-50-0                  | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>     |                          |      |       |                  |                   |                   |                   |                   |                   |
| Naphthalene   | 91-20-3                  | 0.5  | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| Acenaphthylene  | 208-96-8                 | 0.5  | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| Acenaphthene  | 83-32-9                  | 0.5  | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| Fluorene  | 86-73-7                  | 0.5  | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| Phenanthrene  | 85-01-8                  | 0.5  | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| Anthracene  | 120-12-7                 | 0.5  | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| Fluoranthene  | 206-44-0                 | 0.5  | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| Pyrene  | 129-00-0                 | 0.5  | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                                     |                   |     |       | Client sample ID | BH6A              | BH6B              | BH7A              | BH8A              | BH8B              |
|--|-------------------|-----|-------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time  |                   |     |       |                  | 09-Feb-2018 00:00 |
| Compound   | CAS Number        | LOR | Unit  |                  | ES1804838-011     | ES1804838-012     | ES1804838-013     | ES1804838-014     | ES1804838-015     |
|  |                   |     |       |                  | Result            | Result            | Result            | Result            | Result            |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>      |                   |     |       |                  |                   |                   |                   |                   |                   |
| Benz(a)anthracene  | 56-55-3           | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| Chrysene   | 218-01-9          | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| Benzo(b+j)fluoranthene   | 205-99-2 205-82-3 | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| Benzo(k)fluoranthene   | 207-08-9          | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| Benzo(a)pyrene   | 50-32-8           | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| Indeno(1.2.3.cd)pyrene   | 193-39-5          | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| Dibenz(a.h)anthracene  | 53-70-3           | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| Benzo(g.h.i)perylene   | 191-24-2          | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| ^ Sum of polycyclic aromatic hydrocarbons                              | ----              | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| ^ Benzo(a)pyrene TEQ (zero)  | ----              | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| ^ Benzo(a)pyrene TEQ (half LOR)  | ----              | 0.5 | mg/kg |                  | <b>0.6</b>        | ----              | <b>0.6</b>        | <b>0.6</b>        | ----              |
| ^ Benzo(a)pyrene TEQ (LOR)   | ----              | 0.5 | mg/kg |                  | <b>1.2</b>        | ----              | <b>1.2</b>        | <b>1.2</b>        | ----              |
| <b>EP080/071: Total Petroleum Hydrocarbons</b>                         |                   |     |       |                  |                   |                   |                   |                   |                   |
| C6 - C9 Fraction   | ----              | 10  | mg/kg |                  | <10               | ----              | <10               | <10               | ----              |
| C10 - C14 Fraction   | ----              | 50  | mg/kg |                  | <50               | ----              | <50               | <50               | ----              |
| C15 - C28 Fraction   | ----              | 100 | mg/kg |                  | <100              | ----              | <100              | <100              | ----              |
| C29 - C36 Fraction   | ----              | 100 | mg/kg |                  | <100              | ----              | <100              | <100              | ----              |
| ^ C10 - C36 Fraction (sum)   | ----              | 50  | mg/kg |                  | <50               | ----              | <50               | <50               | ----              |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b> |                   |     |       |                  |                   |                   |                   |                   |                   |
| C6 - C10 Fraction  | C6_C10            | 10  | mg/kg |                  | <10               | ----              | <10               | <10               | ----              |
| ^ C6 - C10 Fraction minus BTEX (F1)                                    | C6_C10-BTEX       | 10  | mg/kg |                  | <10               | ----              | <10               | <10               | ----              |
| >C10 - C16 Fraction  | ----              | 50  | mg/kg |                  | <50               | ----              | <50               | <50               | ----              |
| >C16 - C34 Fraction  | ----              | 100 | mg/kg |                  | <100              | ----              | <100              | <100              | ----              |
| >C34 - C40 Fraction  | ----              | 100 | mg/kg |                  | <100              | ----              | <100              | <100              | ----              |
| ^ >C10 - C40 Fraction (sum)  | ----              | 50  | mg/kg |                  | <50               | ----              | <50               | <50               | ----              |
| ^ >C10 - C16 Fraction minus Naphthalene (F2)                           | ----              | 50  | mg/kg |                  | <50               | ----              | <50               | <50               | ----              |
| <b>EP080: BTEXN</b>  |                   |     |       |                  |                   |                   |                   |                   |                   |
| Benzene  | 71-43-2           | 0.2 | mg/kg |                  | <0.2              | ----              | <0.2              | <0.2              | ----              |
| Toluene  | 108-88-3          | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| Ethylbenzene   | 100-41-4          | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| meta- & para-Xylene  | 108-38-3 106-42-3 | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |
| ortho-Xylene   | 95-47-6           | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | <0.5              | ----              |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                   |            |      |       | Client sample ID  | BH6A              | BH6B              | BH7A              | BH8A              | BH8B |
|--|------------|------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| Client sampling date / time                          |            |      |       | 09-Feb-2018 00:00 |      |
| Compound   | CAS Number | LOR  | Unit  | ES1804838-011     | ES1804838-012     | ES1804838-013     | ES1804838-014     | ES1804838-015     |      |
|  |            |      |       | Result            | Result            | Result            | Result            | Result            |      |
| <b>EP080: BTEXN - Continued</b>                      |            |      |       |                   |                   |                   |                   |                   |      |
| ^ Sum of BTEX  | ----       | 0.2  | mg/kg | <0.2              | ----              | <0.2              | <0.2              | ----              |      |
| ^ Total Xylenes                                      | ----       | 0.5  | mg/kg | <0.5              | ----              | <0.5              | <0.5              | ----              |      |
| Naphthalene  | 91-20-3    | 1    | mg/kg | <1                | ----              | <1                | <1                | ----              |      |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b> |            |      |       |                   |                   |                   |                   |                   |      |
| 4-Chlorophenoxy acetic acid                          | 122-88-3   | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |      |
| 2,4-DB   | 94-82-6    | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |      |
| Dicamba  | 1918-00-9  | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |      |
| Mecoprop   | 93-65-2    | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |      |
| MCPA   | 94-74-6    | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |      |
| 2,4-DP   | 120-36-5   | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |      |
| 2,4-D  | 94-75-7    | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |      |
| Triclopyr  | 55335-06-3 | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |      |
| 2,4,5-TP (Silvex)                                    | 93-72-1    | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |      |
| 2,4,5-T  | 93-76-5    | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |      |
| MCPB   | 94-81-5    | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |      |
| Picloram   | 1918-02-1  | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |      |
| Clopyralid   | 1702-17-6  | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |      |
| Fluroxypyr   | 69377-81-7 | 0.02 | mg/kg | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |      |
| <b>EP068S: Organochlorine Pesticide Surrogate</b>    |            |      |       |                   |                   |                   |                   |                   |      |
| Dibromo-DDE  | 21655-73-2 | 0.05 | %     | 70.2              | 127               | 92.5              | 74.6              | 85.0              |      |
| <b>EP068T: Organophosphorus Pesticide Surrogate</b>  |            |      |       |                   |                   |                   |                   |                   |      |
| DEF  | 78-48-8    | 0.05 | %     | 70.3              | 108               | 87.8              | 77.8              | 76.6              |      |
| <b>EP075(SIM)S: Phenolic Compound Surrogates</b>     |            |      |       |                   |                   |                   |                   |                   |      |
| Phenol-d6  | 13127-88-3 | 0.5  | %     | 76.0              | ----              | 85.8              | 81.0              | ----              |      |
| 2-Chlorophenol-D4                                    | 93951-73-6 | 0.5  | %     | 75.0              | ----              | 83.4              | 78.7              | ----              |      |
| 2,4,6-Tribromophenol                                 | 118-79-6   | 0.5  | %     | 66.0              | ----              | 73.4              | 63.8              | ----              |      |
| <b>EP075(SIM)T: PAH Surrogates</b>                   |            |      |       |                   |                   |                   |                   |                   |      |
| 2-Fluorobiphenyl                                     | 321-60-8   | 0.5  | %     | 82.3              | ----              | 91.2              | 86.5              | ----              |      |
| Anthracene-d10                                       | 1719-06-8  | 0.5  | %     | 81.2              | ----              | 91.8              | 84.8              | ----              |      |
| 4-Terphenyl-d14                                      | 1718-51-0  | 0.5  | %     | 73.5              | ----              | 81.8              | 76.9              | ----              |      |
| <b>EP080S: TPH(V)/BTEX Surrogates</b>                |            |      |       |                   |                   |                   |                   |                   |      |
| 1,2-Dichloroethane-D4                                | 17060-07-0 | 0.2  | %     | 110               | ----              | 112               | 116               | ----              |      |
| Toluene-D8   | 2037-26-5  | 0.2  | %     | 108               | ----              | 109               | 112               | ----              |      |
| 4-Bromofluorobenzene                                 | 460-00-4   | 0.2  | %     | 92.8              | ----              | 94.6              | 97.9              | ----              |      |



**Analytical Results**

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                    |            |      |      | Client sample ID  | BH6A              | BH6B              | BH7A              | BH8A              | BH8B |
|---|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| Client sampling date / time                           |            |      |      | 09-Feb-2018 00:00 |      |
| Compound  | CAS Number | LOR  | Unit | ES1804838-011     | ES1804838-012     | ES1804838-013     | ES1804838-014     | ES1804838-015     |      |
|   |            |      |      | Result            | Result            | Result            | Result            | Result            |      |
| <b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b> |            |      |      |                   |                   |                   |                   |                   |      |
| 2,4-Dichlorophenyl Acetic Acid                        | 19719-28-9 | 0.02 | %    | 35.9              | 42.2              | 48.6              | 52.1              | 53.2              |      |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                 |            |      |       | Client sample ID  | BH9A              | BH10A             | BH10B             | BH11A             | BH11B |
|--|------------|------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|
| Client sampling date / time                        |            |      |       | 09-Feb-2018 00:00 | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 |       |
| Compound   | CAS Number | LOR  | Unit  | ES1804838-016     | ES1804838-017     | ES1804838-018     | ES1804838-019     | ES1804838-020     |       |
|  |            |      |       | Result            | Result            | Result            | Result            | Result            |       |
| <b>EA010: Conductivity</b>                         |            |      |       |                   |                   |                   |                   |                   |       |
| Electrical Conductivity @ 25°C                     | ----       | 1    | µS/cm | 68                | 52                | 32                | 42                | 24                |       |
| <b>EA055: Moisture Content (Dried @ 105-110°C)</b> |            |      |       |                   |                   |                   |                   |                   |       |
| Moisture Content                                   | ----       | 1.0  | %     | 11.5              | 7.6               | 13.2              | 9.4               | 12.8              |       |
| <b>EG005T: Total Metals by ICP-AES</b>             |            |      |       |                   |                   |                   |                   |                   |       |
| Arsenic  | 7440-38-2  | 5    | mg/kg | <5                | <5                | <5                | <5                | <5                |       |
| Cadmium  | 7440-43-9  | 1    | mg/kg | <1                | <1                | <1                | <1                | <1                |       |
| Chromium   | 7440-47-3  | 2    | mg/kg | 21                | 13                | 28                | 20                | 30                |       |
| Copper   | 7440-50-8  | 5    | mg/kg | 6                 | <5                | <5                | <5                | <5                |       |
| Lead   | 7439-92-1  | 5    | mg/kg | 8                 | 10                | 10                | 9                 | 11                |       |
| Nickel   | 7440-02-0  | 2    | mg/kg | 5                 | 3                 | 5                 | 4                 | 5                 |       |
| Zinc   | 7440-66-6  | 5    | mg/kg | 22                | 16                | <5                | 14                | <5                |       |
| <b>EG035T: Total Recoverable Mercury by FIMS</b>   |            |      |       |                   |                   |                   |                   |                   |       |
| Mercury  | 7439-97-6  | 0.1  | mg/kg | <0.1              | <0.1              | <0.1              | <0.1              | <0.1              |       |
| <b>EP068A: Organochlorine Pesticides (OC)</b>      |            |      |       |                   |                   |                   |                   |                   |       |
| alpha-BHC  | 319-84-6   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Hexachlorobenzene (HCB)                            | 118-74-1   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| beta-BHC   | 319-85-7   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| gamma-BHC  | 58-89-9    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| delta-BHC  | 319-86-8   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Heptachlor   | 76-44-8    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Aldrin   | 309-00-2   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Heptachlor epoxide                                 | 1024-57-3  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| ^ Total Chlordane (sum)                            | ----       | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| trans-Chlordane                                    | 5103-74-2  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| alpha-Endosulfan                                   | 959-98-8   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| cis-Chlordane                                      | 5103-71-9  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Dieldrin   | 60-57-1    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| 4,4'-DDE   | 72-55-9    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Endrin   | 72-20-8    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| beta-Endosulfan                                    | 33213-65-9 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| ^ Endosulfan (sum)                                 | 115-29-7   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| 4,4'-DDD   | 72-54-8    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Endrin aldehyde                                    | 7421-93-4  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Endosulfan sulfate                                 | 1031-07-8  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                        |                          |      |       | Client sample ID  | BH9A              | BH10A             | BH10B             | BH11A             | BH11B |
|---|--------------------------|------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|
| Client sampling date / time                               |                          |      |       | 09-Feb-2018 00:00 | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 |       |
| Compound  | CAS Number               | LOR  | Unit  | ES1804838-016     | ES1804838-017     | ES1804838-018     | ES1804838-019     | ES1804838-020     |       |
|   |                          |      |       | Result            | Result            | Result            | Result            | Result            |       |
| <b>EP068A: Organochlorine Pesticides (OC) - Continued</b> |                          |      |       |                   |                   |                   |                   |                   |       |
| 4,4'-DDT  | 50-29-3                  | 0.2  | mg/kg | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |       |
| Endrin ketone   | 53494-70-5               | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Methoxychlor  | 72-43-5                  | 0.2  | mg/kg | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |       |
| ^ Sum of Aldrin + Dieldrin                                | 309-00-2/60-57-1         | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| ^ Sum of DDD + DDE + DDT                                  | 72-54-8/72-55-9/5<br>0-2 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| <b>EP068B: Organophosphorus Pesticides (OP)</b>           |                          |      |       |                   |                   |                   |                   |                   |       |
| Dichlorvos  | 62-73-7                  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Demeton-S-methyl  | 919-86-8                 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Monocrotophos   | 6923-22-4                | 0.2  | mg/kg | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |       |
| Dimethoate  | 60-51-5                  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Diazinon  | 333-41-5                 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Chlorpyrifos-methyl                                       | 5598-13-0                | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Parathion-methyl  | 298-00-0                 | 0.2  | mg/kg | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |       |
| Malathion   | 121-75-5                 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Fenthion  | 55-38-9                  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Chlorpyrifos  | 2921-88-2                | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Parathion   | 56-38-2                  | 0.2  | mg/kg | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |       |
| Pirimphos-ethyl   | 23505-41-1               | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Chlorfenvinphos   | 470-90-6                 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Bromophos-ethyl   | 4824-78-6                | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Fenamiphos  | 22224-92-6               | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Prothiofos  | 34643-46-4               | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Ethion  | 563-12-2                 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Carbophenothion   | 786-19-6                 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Azinphos Methyl   | 86-50-0                  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>     |                          |      |       |                   |                   |                   |                   |                   |       |
| Naphthalene   | 91-20-3                  | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |       |
| Acenaphthylene  | 208-96-8                 | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |       |
| Acenaphthene  | 83-32-9                  | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |       |
| Fluorene  | 86-73-7                  | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |       |
| Phenanthrene  | 85-01-8                  | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |       |
| Anthracene  | 120-12-7                 | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |       |
| Fluoranthene  | 206-44-0                 | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |       |
| Pyrene  | 129-00-0                 | 0.5  | mg/kg | <0.5              | <0.5              | ----              | <0.5              | ----              |       |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                                     |                   |     |       | Client sample ID | BH9A              | BH10A             | BH10B             | BH11A             | BH11B             |
|--|-------------------|-----|-------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time  |                   |     |       |                  | 09-Feb-2018 00:00 | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 |
| Compound   | CAS Number        | LOR | Unit  |                  | ES1804838-016     | ES1804838-017     | ES1804838-018     | ES1804838-019     | ES1804838-020     |
|  |                   |     |       |                  | Result            | Result            | Result            | Result            | Result            |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>      |                   |     |       |                  |                   |                   |                   |                   |                   |
| Benz(a)anthracene  | 56-55-3           | 0.5 | mg/kg | <0.5             | <0.5              | ----              | <0.5              | ----              |                   |
| Chrysene   | 218-01-9          | 0.5 | mg/kg | <0.5             | <0.5              | ----              | <0.5              | ----              |                   |
| Benzo(b+j)fluoranthene   | 205-99-2 205-82-3 | 0.5 | mg/kg | <0.5             | <0.5              | ----              | <0.5              | ----              |                   |
| Benzo(k)fluoranthene   | 207-08-9          | 0.5 | mg/kg | <0.5             | <0.5              | ----              | <0.5              | ----              |                   |
| Benzo(a)pyrene   | 50-32-8           | 0.5 | mg/kg | <0.5             | <0.5              | ----              | <0.5              | ----              |                   |
| Indeno(1.2.3.cd)pyrene   | 193-39-5          | 0.5 | mg/kg | <0.5             | <0.5              | ----              | <0.5              | ----              |                   |
| Dibenz(a.h)anthracene  | 53-70-3           | 0.5 | mg/kg | <0.5             | <0.5              | ----              | <0.5              | ----              |                   |
| Benzo(g.h.i)perylene   | 191-24-2          | 0.5 | mg/kg | <0.5             | <0.5              | ----              | <0.5              | ----              |                   |
| ^ Sum of polycyclic aromatic hydrocarbons                              | ----              | 0.5 | mg/kg | <0.5             | <0.5              | ----              | <0.5              | ----              |                   |
| ^ Benzo(a)pyrene TEQ (zero)  | ----              | 0.5 | mg/kg | <0.5             | <0.5              | ----              | <0.5              | ----              |                   |
| ^ Benzo(a)pyrene TEQ (half LOR)  | ----              | 0.5 | mg/kg | <b>0.6</b>       | <b>0.6</b>        | ----              | <b>0.6</b>        | ----              |                   |
| ^ Benzo(a)pyrene TEQ (LOR)   | ----              | 0.5 | mg/kg | <b>1.2</b>       | <b>1.2</b>        | ----              | <b>1.2</b>        | ----              |                   |
| <b>EP080/071: Total Petroleum Hydrocarbons</b>                         |                   |     |       |                  |                   |                   |                   |                   |                   |
| C6 - C9 Fraction   | ----              | 10  | mg/kg | <10              | <10               | ----              | <10               | ----              |                   |
| C10 - C14 Fraction   | ----              | 50  | mg/kg | <50              | <50               | ----              | <50               | ----              |                   |
| C15 - C28 Fraction   | ----              | 100 | mg/kg | <100             | <100              | ----              | <100              | ----              |                   |
| C29 - C36 Fraction   | ----              | 100 | mg/kg | <100             | <100              | ----              | <100              | ----              |                   |
| ^ C10 - C36 Fraction (sum)   | ----              | 50  | mg/kg | <50              | <50               | ----              | <50               | ----              |                   |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b> |                   |     |       |                  |                   |                   |                   |                   |                   |
| C6 - C10 Fraction  | C6_C10            | 10  | mg/kg | <10              | <10               | ----              | <10               | ----              |                   |
| ^ C6 - C10 Fraction minus BTEX (F1)                                    | C6_C10-BTEX       | 10  | mg/kg | <10              | <10               | ----              | <10               | ----              |                   |
| >C10 - C16 Fraction  | ----              | 50  | mg/kg | <50              | <50               | ----              | <50               | ----              |                   |
| >C16 - C34 Fraction  | ----              | 100 | mg/kg | <100             | <100              | ----              | <100              | ----              |                   |
| >C34 - C40 Fraction  | ----              | 100 | mg/kg | <100             | <100              | ----              | <100              | ----              |                   |
| ^ >C10 - C40 Fraction (sum)  | ----              | 50  | mg/kg | <50              | <50               | ----              | <50               | ----              |                   |
| ^ >C10 - C16 Fraction minus Naphthalene (F2)                           | ----              | 50  | mg/kg | <50              | <50               | ----              | <50               | ----              |                   |
| <b>EP080: BTEXN</b>  |                   |     |       |                  |                   |                   |                   |                   |                   |
| Benzene  | 71-43-2           | 0.2 | mg/kg | <0.2             | <0.2              | ----              | <0.2              | ----              |                   |
| Toluene  | 108-88-3          | 0.5 | mg/kg | <0.5             | <0.5              | ----              | <0.5              | ----              |                   |
| Ethylbenzene   | 100-41-4          | 0.5 | mg/kg | <0.5             | <0.5              | ----              | <0.5              | ----              |                   |
| meta- & para-Xylene  | 108-38-3 106-42-3 | 0.5 | mg/kg | <0.5             | <0.5              | ----              | <0.5              | ----              |                   |
| ortho-Xylene   | 95-47-6           | 0.5 | mg/kg | <0.5             | <0.5              | ----              | <0.5              | ----              |                   |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                   |            |      |       | Client sample ID | BH9A              | BH10A             | BH10B             | BH11A             | BH11B             |
|--|------------|------|-------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time                          |            |      |       |                  | 09-Feb-2018 00:00 | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 |
| Compound   | CAS Number | LOR  | Unit  |                  | ES1804838-016     | ES1804838-017     | ES1804838-018     | ES1804838-019     | ES1804838-020     |
|  |            |      |       |                  | Result            | Result            | Result            | Result            | Result            |
| <b>EP080: BTEXN - Continued</b>                      |            |      |       |                  |                   |                   |                   |                   |                   |
| ^ Sum of BTEX  | ----       | 0.2  | mg/kg |                  | <0.2              | <0.2              | ----              | <0.2              | ----              |
| ^ Total Xylenes                                      | ----       | 0.5  | mg/kg |                  | <0.5              | <0.5              | ----              | <0.5              | ----              |
| Naphthalene  | 91-20-3    | 1    | mg/kg |                  | <1                | <1                | ----              | <1                | ----              |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b> |            |      |       |                  |                   |                   |                   |                   |                   |
| 4-Chlorophenoxy acetic acid                          | 122-88-3   | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4-DB   | 94-82-6    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Dicamba  | 1918-00-9  | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Mecoprop   | 93-65-2    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| MCPA   | 94-74-6    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4-DP   | 120-36-5   | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4-D  | 94-75-7    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Triclopyr  | 55335-06-3 | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4,5-TP (Silvex)                                    | 93-72-1    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4,5-T  | 93-76-5    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| MCPB   | 94-81-5    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Picloram   | 1918-02-1  | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Clopyralid   | 1702-17-6  | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Fluroxypyr   | 69377-81-7 | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| <b>EP068S: Organochlorine Pesticide Surrogate</b>    |            |      |       |                  |                   |                   |                   |                   |                   |
| Dibromo-DDE  | 21655-73-2 | 0.05 | %     |                  | 92.7              | 75.7              | 86.1              | 74.7              | 86.8              |
| <b>EP068T: Organophosphorus Pesticide Surrogate</b>  |            |      |       |                  |                   |                   |                   |                   |                   |
| DEF  | 78-48-8    | 0.05 | %     |                  | 85.0              | 71.0              | 72.4              | 78.3              | 65.6              |
| <b>EP075(SIM)S: Phenolic Compound Surrogates</b>     |            |      |       |                  |                   |                   |                   |                   |                   |
| Phenol-d6  | 13127-88-3 | 0.5  | %     |                  | 76.3              | 76.3              | ----              | 74.7              | ----              |
| 2-Chlorophenol-D4                                    | 93951-73-6 | 0.5  | %     |                  | 75.6              | 75.3              | ----              | 72.7              | ----              |
| 2,4,6-Tribromophenol                                 | 118-79-6   | 0.5  | %     |                  | 63.7              | 64.1              | ----              | 61.3              | ----              |
| <b>EP075(SIM)T: PAH Surrogates</b>                   |            |      |       |                  |                   |                   |                   |                   |                   |
| 2-Fluorobiphenyl                                     | 321-60-8   | 0.5  | %     |                  | 82.4              | 81.4              | ----              | 79.6              | ----              |
| Anthracene-d10                                       | 1719-06-8  | 0.5  | %     |                  | 80.9              | 80.4              | ----              | 78.7              | ----              |
| 4-Terphenyl-d14                                      | 1718-51-0  | 0.5  | %     |                  | 73.1              | 72.7              | ----              | 71.6              | ----              |
| <b>EP080S: TPH(V)/BTEX Surrogates</b>                |            |      |       |                  |                   |                   |                   |                   |                   |
| 1,2-Dichloroethane-D4                                | 17060-07-0 | 0.2  | %     |                  | 109               | 107               | ----              | 108               | ----              |
| Toluene-D8   | 2037-26-5  | 0.2  | %     |                  | 102               | 102               | ----              | 105               | ----              |
| 4-Bromofluorobenzene                                 | 460-00-4   | 0.2  | %     |                  | 89.1              | 85.9              | ----              | 89.9              | ----              |



**Analytical Results**

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                    |            |      |      | Client sample ID | BH9A              | BH10A             | BH10B             | BH11A             | BH11B             |
|---|------------|------|------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time                           |            |      |      |                  | 09-Feb-2018 00:00 | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 |
| Compound  | CAS Number | LOR  | Unit |                  | ES1804838-016     | ES1804838-017     | ES1804838-018     | ES1804838-019     | ES1804838-020     |
|   |            |      |      |                  | Result            | Result            | Result            | Result            | Result            |
| <b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b> |            |      |      |                  |                   |                   |                   |                   |                   |
| 2,4-Dichlorophenyl Acetic Acid                        | 19719-28-9 | 0.02 | %    |                  | 63.9              | 56.0              | 72.9              | 55.5              | 57.8              |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                 |            |      |       | Client sample ID  | BH12A             | BH13A             | BH14A             | BH15A             | BH15B |
|--|------------|------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|
| Client sampling date / time                        |            |      |       | 12-Feb-2018 00:00 |       |
| Compound   | CAS Number | LOR  | Unit  | ES1804838-021     | ES1804838-022     | ES1804838-023     | ES1804838-024     | ES1804838-025     |       |
|  |            |      |       | Result            | Result            | Result            | Result            | Result            |       |
| <b>EA010: Conductivity</b>                         |            |      |       |                   |                   |                   |                   |                   |       |
| Electrical Conductivity @ 25°C                     | ----       | 1    | µS/cm | 48                | 40                | 60                | 40                | 31                |       |
| <b>EA055: Moisture Content (Dried @ 105-110°C)</b> |            |      |       |                   |                   |                   |                   |                   |       |
| Moisture Content                                   | ----       | 1.0  | %     | 14.8              | 19.6              | 9.6               | 7.6               | 11.3              |       |
| <b>EG005T: Total Metals by ICP-AES</b>             |            |      |       |                   |                   |                   |                   |                   |       |
| Arsenic  | 7440-38-2  | 5    | mg/kg | <5                | <5                | <5                | <5                | <5                |       |
| Cadmium  | 7440-43-9  | 1    | mg/kg | <1                | <1                | <1                | <1                | <1                |       |
| Chromium   | 7440-47-3  | 2    | mg/kg | 15                | 25                | 15                | 12                | 28                |       |
| Copper   | 7440-50-8  | 5    | mg/kg | <5                | <5                | <5                | <5                | <5                |       |
| Lead   | 7439-92-1  | 5    | mg/kg | 10                | 18                | 9                 | 9                 | 7                 |       |
| Nickel   | 7440-02-0  | 2    | mg/kg | 4                 | 11                | 3                 | 3                 | 6                 |       |
| Zinc   | 7440-66-6  | 5    | mg/kg | 11                | 12                | 12                | 12                | <5                |       |
| <b>EG035T: Total Recoverable Mercury by FIMS</b>   |            |      |       |                   |                   |                   |                   |                   |       |
| Mercury  | 7439-97-6  | 0.1  | mg/kg | <0.1              | <0.1              | <0.1              | <0.1              | <0.1              |       |
| <b>EP068A: Organochlorine Pesticides (OC)</b>      |            |      |       |                   |                   |                   |                   |                   |       |
| alpha-BHC  | 319-84-6   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Hexachlorobenzene (HCB)                            | 118-74-1   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| beta-BHC   | 319-85-7   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| gamma-BHC  | 58-89-9    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| delta-BHC  | 319-86-8   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Heptachlor   | 76-44-8    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Aldrin   | 309-00-2   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Heptachlor epoxide                                 | 1024-57-3  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| ^ Total Chlordane (sum)                            | ----       | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| trans-Chlordane                                    | 5103-74-2  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| alpha-Endosulfan                                   | 959-98-8   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| cis-Chlordane                                      | 5103-71-9  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Dieldrin   | 60-57-1    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| 4,4'-DDE   | 72-55-9    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Endrin   | 72-20-8    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| beta-Endosulfan                                    | 33213-65-9 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| ^ Endosulfan (sum)                                 | 115-29-7   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| 4,4'-DDD   | 72-54-8    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Endrin aldehyde                                    | 7421-93-4  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Endosulfan sulfate                                 | 1031-07-8  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                        |                          |      |       | Client sample ID | BH12A             | BH13A             | BH14A             | BH15A             | BH15B             |
|---|--------------------------|------|-------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time                               |                          |      |       |                  | 12-Feb-2018 00:00 |
| Compound  | CAS Number               | LOR  | Unit  |                  | ES1804838-021     | ES1804838-022     | ES1804838-023     | ES1804838-024     | ES1804838-025     |
|   |                          |      |       |                  | Result            | Result            | Result            | Result            | Result            |
| <b>EP068A: Organochlorine Pesticides (OC) - Continued</b> |                          |      |       |                  |                   |                   |                   |                   |                   |
| 4,4'-DDT  | 50-29-3                  | 0.2  | mg/kg |                  | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |
| Endrin ketone   | 53494-70-5               | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Methoxychlor  | 72-43-5                  | 0.2  | mg/kg |                  | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |
| ^ Sum of Aldrin + Dieldrin                                | 309-00-2/60-57-1         | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| ^ Sum of DDD + DDE + DDT                                  | 72-54-8/72-55-9/5<br>0-2 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| <b>EP068B: Organophosphorus Pesticides (OP)</b>           |                          |      |       |                  |                   |                   |                   |                   |                   |
| Dichlorvos  | 62-73-7                  | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Demeton-S-methyl  | 919-86-8                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Monocrotophos   | 6923-22-4                | 0.2  | mg/kg |                  | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |
| Dimethoate  | 60-51-5                  | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Diazinon  | 333-41-5                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Chlorpyrifos-methyl                                       | 5598-13-0                | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Parathion-methyl  | 298-00-0                 | 0.2  | mg/kg |                  | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |
| Malathion   | 121-75-5                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Fenthion  | 55-38-9                  | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Chlorpyrifos  | 2921-88-2                | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Parathion   | 56-38-2                  | 0.2  | mg/kg |                  | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |
| Pirimphos-ethyl   | 23505-41-1               | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Chlorfenvinphos   | 470-90-6                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Bromophos-ethyl   | 4824-78-6                | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Fenamiphos  | 22224-92-6               | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Prothiofos  | 34643-46-4               | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Ethion  | 563-12-2                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Carbophenothion   | 786-19-6                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Azinphos Methyl   | 86-50-0                  | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>     |                          |      |       |                  |                   |                   |                   |                   |                   |
| Naphthalene   | 91-20-3                  | 0.5  | mg/kg |                  | <0.5              | <0.5              | <0.5              | <0.5              | ----              |
| Acenaphthylene  | 208-96-8                 | 0.5  | mg/kg |                  | <0.5              | <0.5              | <0.5              | <0.5              | ----              |
| Acenaphthene  | 83-32-9                  | 0.5  | mg/kg |                  | <0.5              | <0.5              | <0.5              | <0.5              | ----              |
| Fluorene  | 86-73-7                  | 0.5  | mg/kg |                  | <0.5              | <0.5              | <0.5              | <0.5              | ----              |
| Phenanthrene  | 85-01-8                  | 0.5  | mg/kg |                  | <0.5              | <0.5              | <0.5              | <0.5              | ----              |
| Anthracene  | 120-12-7                 | 0.5  | mg/kg |                  | <0.5              | <0.5              | <0.5              | <0.5              | ----              |
| Fluoranthene  | 206-44-0                 | 0.5  | mg/kg |                  | <0.5              | <0.5              | <0.5              | <0.5              | ----              |
| Pyrene  | 129-00-0                 | 0.5  | mg/kg |                  | <0.5              | <0.5              | <0.5              | <0.5              | ----              |





## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                   |            |      |       | Client sample ID | BH12A             | BH13A             | BH14A             | BH15A             | BH15B             |
|--|------------|------|-------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time                          |            |      |       |                  | 12-Feb-2018 00:00 |
| Compound   | CAS Number | LOR  | Unit  |                  | ES1804838-021     | ES1804838-022     | ES1804838-023     | ES1804838-024     | ES1804838-025     |
|  |            |      |       |                  | Result            | Result            | Result            | Result            | Result            |
| <b>EP080: BTEXN - Continued</b>                      |            |      |       |                  |                   |                   |                   |                   |                   |
| ^ Sum of BTEX  | ----       | 0.2  | mg/kg |                  | <0.2              | <0.2              | <0.2              | <0.2              | ----              |
| ^ Total Xylenes                                      | ----       | 0.5  | mg/kg |                  | <0.5              | <0.5              | <0.5              | <0.5              | ----              |
| Naphthalene  | 91-20-3    | 1    | mg/kg |                  | <1                | <1                | <1                | <1                | ----              |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b> |            |      |       |                  |                   |                   |                   |                   |                   |
| 4-Chlorophenoxy acetic acid                          | 122-88-3   | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4-DB   | 94-82-6    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Dicamba  | 1918-00-9  | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Mecoprop   | 93-65-2    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| MCPA   | 94-74-6    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4-DP   | 120-36-5   | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4-D  | 94-75-7    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Triclopyr  | 55335-06-3 | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4,5-TP (Silvex)                                    | 93-72-1    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4,5-T  | 93-76-5    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| MCPB   | 94-81-5    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Picloram   | 1918-02-1  | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Clopyralid   | 1702-17-6  | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Fluroxypyr   | 69377-81-7 | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| <b>EP068S: Organochlorine Pesticide Surrogate</b>    |            |      |       |                  |                   |                   |                   |                   |                   |
| Dibromo-DDE  | 21655-73-2 | 0.05 | %     |                  | 88.0              | 92.7              | 83.2              | 97.9              | 79.1              |
| <b>EP068T: Organophosphorus Pesticide Surrogate</b>  |            |      |       |                  |                   |                   |                   |                   |                   |
| DEF  | 78-48-8    | 0.05 | %     |                  | 112               | 64.2              | 110               | 123               | 68.9              |
| <b>EP075(SIM)S: Phenolic Compound Surrogates</b>     |            |      |       |                  |                   |                   |                   |                   |                   |
| Phenol-d6  | 13127-88-3 | 0.5  | %     |                  | 86.4              | 89.4              | 87.2              | 86.1              | ----              |
| 2-Chlorophenol-D4                                    | 93951-73-6 | 0.5  | %     |                  | 83.9              | 87.4              | 85.0              | 84.3              | ----              |
| 2,4,6-Tribromophenol                                 | 118-79-6   | 0.5  | %     |                  | 78.2              | 81.0              | 79.7              | 75.8              | ----              |
| <b>EP075(SIM)T: PAH Surrogates</b>                   |            |      |       |                  |                   |                   |                   |                   |                   |
| 2-Fluorobiphenyl                                     | 321-60-8   | 0.5  | %     |                  | 93.0              | 93.4              | 91.2              | 90.2              | ----              |
| Anthracene-d10                                       | 1719-06-8  | 0.5  | %     |                  | 93.3              | 91.5              | 89.6              | 89.1              | ----              |
| 4-Terphenyl-d14                                      | 1718-51-0  | 0.5  | %     |                  | 83.6              | 80.4              | 79.7              | 78.9              | ----              |
| <b>EP080S: TPH(V)/BTEX Surrogates</b>                |            |      |       |                  |                   |                   |                   |                   |                   |
| 1,2-Dichloroethane-D4                                | 17060-07-0 | 0.2  | %     |                  | 113               | 115               | 106               | 99.6              | ----              |
| Toluene-D8   | 2037-26-5  | 0.2  | %     |                  | 106               | 111               | 96.0              | 93.5              | ----              |
| 4-Bromofluorobenzene                                 | 460-00-4   | 0.2  | %     |                  | 93.2              | 98.1              | 83.2              | 81.2              | ----              |



### Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                    |            |      |      | Client sample ID  | BH12A             | BH13A             | BH14A             | BH15A             | BH15B |
|---|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|
| Client sampling date / time                           |            |      |      | 12-Feb-2018 00:00 |       |
| Compound  | CAS Number | LOR  | Unit | ES1804838-021     | ES1804838-022     | ES1804838-023     | ES1804838-024     | ES1804838-025     |       |
|   |            |      |      | Result            | Result            | Result            | Result            | Result            |       |
| <b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b> |            |      |      |                   |                   |                   |                   |                   |       |
| 2,4-Dichlorophenyl Acetic Acid                        | 19719-28-9 | 0.02 | %    | 68.1              | 63.8              | 53.8              | 62.3              | 62.2              |       |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                 |            |      |       | Client sample ID  | BH16A             | BH17A             | BH18A             | BH19A             | BH20A |
|--|------------|------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|
| Client sampling date / time                        |            |      |       | 12-Feb-2018 00:00 |       |
| Compound   | CAS Number | LOR  | Unit  | ES1804838-026     | ES1804838-027     | ES1804838-028     | ES1804838-029     | ES1804838-030     |       |
|  |            |      |       | Result            | Result            | Result            | Result            | Result            |       |
| <b>EA010: Conductivity</b>                         |            |      |       |                   |                   |                   |                   |                   |       |
| Electrical Conductivity @ 25°C                     | ----       | 1    | µS/cm | 59                | 126               | 54                | 87                | 181               |       |
| <b>EA055: Moisture Content (Dried @ 105-110°C)</b> |            |      |       |                   |                   |                   |                   |                   |       |
| Moisture Content                                   | ----       | 1.0  | %     | 10.0              | 11.7              | 7.8               | 7.0               | 11.3              |       |
| <b>EG005T: Total Metals by ICP-AES</b>             |            |      |       |                   |                   |                   |                   |                   |       |
| Arsenic  | 7440-38-2  | 5    | mg/kg | <5                | <5                | <5                | <5                | 23                |       |
| Cadmium  | 7440-43-9  | 1    | mg/kg | <1                | <1                | <1                | <1                | <1                |       |
| Chromium   | 7440-47-3  | 2    | mg/kg | 22                | 28                | 29                | 30                | 26                |       |
| Copper   | 7440-50-8  | 5    | mg/kg | <5                | 7                 | 6                 | <5                | 49                |       |
| Lead   | 7439-92-1  | 5    | mg/kg | 9                 | 16                | 19                | 9                 | 241               |       |
| Nickel   | 7440-02-0  | 2    | mg/kg | 3                 | 10                | 5                 | 5                 | 7                 |       |
| Zinc   | 7440-66-6  | 5    | mg/kg | 18                | 30                | 104               | 14                | 244               |       |
| <b>EG035T: Total Recoverable Mercury by FIMS</b>   |            |      |       |                   |                   |                   |                   |                   |       |
| Mercury  | 7439-97-6  | 0.1  | mg/kg | <0.1              | <0.1              | <0.1              | <0.1              | <0.1              |       |
| <b>EP068A: Organochlorine Pesticides (OC)</b>      |            |      |       |                   |                   |                   |                   |                   |       |
| alpha-BHC  | 319-84-6   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Hexachlorobenzene (HCB)                            | 118-74-1   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| beta-BHC   | 319-85-7   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| gamma-BHC  | 58-89-9    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| delta-BHC  | 319-86-8   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Heptachlor   | 76-44-8    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Aldrin   | 309-00-2   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Heptachlor epoxide                                 | 1024-57-3  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| ^ Total Chlordane (sum)                            | ----       | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| trans-Chlordane                                    | 5103-74-2  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| alpha-Endosulfan                                   | 959-98-8   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| cis-Chlordane                                      | 5103-71-9  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Dieldrin   | 60-57-1    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| 4,4'-DDE   | 72-55-9    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Endrin   | 72-20-8    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| beta-Endosulfan                                    | 33213-65-9 | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| ^ Endosulfan (sum)                                 | 115-29-7   | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| 4,4'-DDD   | 72-54-8    | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Endrin aldehyde                                    | 7421-93-4  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |
| Endosulfan sulfate                                 | 1031-07-8  | 0.05 | mg/kg | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |       |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                        |                          |      |       | Client sample ID | BH16A             | BH17A             | BH18A             | BH19A             | BH20A             |
|---|--------------------------|------|-------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time                               |                          |      |       |                  | 12-Feb-2018 00:00 |
| Compound  | CAS Number               | LOR  | Unit  |                  | ES1804838-026     | ES1804838-027     | ES1804838-028     | ES1804838-029     | ES1804838-030     |
|   |                          |      |       |                  | Result            | Result            | Result            | Result            | Result            |
| <b>EP068A: Organochlorine Pesticides (OC) - Continued</b> |                          |      |       |                  |                   |                   |                   |                   |                   |
| 4,4'-DDT  | 50-29-3                  | 0.2  | mg/kg |                  | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |
| Endrin ketone   | 53494-70-5               | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Methoxychlor  | 72-43-5                  | 0.2  | mg/kg |                  | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |
| ^ Sum of Aldrin + Dieldrin                                | 309-00-2/60-57-1         | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| ^ Sum of DDD + DDE + DDT                                  | 72-54-8/72-55-9/5<br>0-2 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| <b>EP068B: Organophosphorus Pesticides (OP)</b>           |                          |      |       |                  |                   |                   |                   |                   |                   |
| Dichlorvos  | 62-73-7                  | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Demeton-S-methyl  | 919-86-8                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Monocrotophos   | 6923-22-4                | 0.2  | mg/kg |                  | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |
| Dimethoate  | 60-51-5                  | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Diazinon  | 333-41-5                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Chlorpyrifos-methyl                                       | 5598-13-0                | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Parathion-methyl  | 298-00-0                 | 0.2  | mg/kg |                  | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |
| Malathion   | 121-75-5                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Fenthion  | 55-38-9                  | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Chlorpyrifos  | 2921-88-2                | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Parathion   | 56-38-2                  | 0.2  | mg/kg |                  | <0.2              | <0.2              | <0.2              | <0.2              | <0.2              |
| Pirimphos-ethyl   | 23505-41-1               | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Chlorfenvinphos   | 470-90-6                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Bromophos-ethyl   | 4824-78-6                | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Fenamiphos  | 22224-92-6               | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Prothiofos  | 34643-46-4               | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Ethion  | 563-12-2                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Carbophenothion   | 786-19-6                 | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| Azinphos Methyl   | 86-50-0                  | 0.05 | mg/kg |                  | <0.05             | <0.05             | <0.05             | <0.05             | <0.05             |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>     |                          |      |       |                  |                   |                   |                   |                   |                   |
| 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              | <b>1.2</b>        | <b>0.6</b>        | <0.5              | <0.5              |
| Pyrene  | 129-00-0                 | 0.5  | mg/kg |                  | <0.5              | <b>1.2</b>        | <b>0.7</b>        | <0.5              | <0.5              |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                                     |                   |     |       | Client sample ID | BH16A             | BH17A             | BH18A             | BH19A             | BH20A             |
|--|-------------------|-----|-------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time  |                   |     |       |                  | 12-Feb-2018 00:00 |
| Compound   | CAS Number        | LOR | Unit  |                  | ES1804838-026     | ES1804838-027     | ES1804838-028     | ES1804838-029     | ES1804838-030     |
|  |                   |     |       |                  | Result            | Result            | Result            | Result            | Result            |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>      |                   |     |       |                  |                   |                   |                   |                   |                   |
| 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              | <b>0.5</b>        | <b>0.8</b>        | <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              | <b>0.6</b>        | <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              | <b>0.6</b>        | <0.5              | <0.5              |
| ^ Sum of polycyclic aromatic hydrocarbons                              | ----              | 0.5 | mg/kg |                  | <0.5              | <b>2.9</b>        | <b>3.3</b>        | <0.5              | <0.5              |
| ^ Benzo(a)pyrene TEQ (zero)  | ----              | 0.5 | mg/kg |                  | <0.5              | <0.5              | <b>0.7</b>        | <0.5              | <0.5              |
| ^ Benzo(a)pyrene TEQ (half LOR)  | ----              | 0.5 | mg/kg |                  | <b>0.6</b>        | <b>0.6</b>        | <b>1.0</b>        | <b>0.6</b>        | <b>0.6</b>        |
| ^ Benzo(a)pyrene TEQ (LOR)   | ----              | 0.5 | mg/kg |                  | <b>1.2</b>        | <b>1.2</b>        | <b>1.3</b>        | <b>1.2</b>        | <b>1.2</b>        |
| <b>EP080/071: Total Petroleum Hydrocarbons</b>                         |                   |     |       |                  |                   |                   |                   |                   |                   |
| 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               |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b> |                   |     |       |                  |                   |                   |                   |                   |                   |
| C6 - C10 Fraction  | C6_C10            | 10  | mg/kg |                  | <10               | <10               | <10               | <10               | <10               |
| ^ 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               |
| <b>EP080: BTEXN</b>  |                   |     |       |                  |                   |                   |                   |                   |                   |
| 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              |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                   |            |      |       | Client sample ID | BH16A             | BH17A             | BH18A             | BH19A             | BH20A             |
|--|------------|------|-------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time                          |            |      |       |                  | 12-Feb-2018 00:00 |
| Compound   | CAS Number | LOR  | Unit  |                  | ES1804838-026     | ES1804838-027     | ES1804838-028     | ES1804838-029     | ES1804838-030     |
|  |            |      |       |                  | Result            | Result            | Result            | Result            | Result            |
| <b>EP080: BTEXN - Continued</b>                      |            |      |       |                  |                   |                   |                   |                   |                   |
| ^ 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                |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b> |            |      |       |                  |                   |                   |                   |                   |                   |
| 4-Chlorophenoxy acetic acid                          | 122-88-3   | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4-DB   | 94-82-6    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Dicamba  | 1918-00-9  | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Mecoprop   | 93-65-2    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| MCPA   | 94-74-6    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4-DP   | 120-36-5   | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4-D  | 94-75-7    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Triclopyr  | 55335-06-3 | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4,5-TP (Silvex)                                    | 93-72-1    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| 2,4,5-T  | 93-76-5    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| MCPB   | 94-81-5    | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Picloram   | 1918-02-1  | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Clopyralid   | 1702-17-6  | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| Fluroxypyr   | 69377-81-7 | 0.02 | mg/kg |                  | <0.04             | <0.04             | <0.04             | <0.04             | <0.04             |
| <b>EP068S: Organochlorine Pesticide Surrogate</b>    |            |      |       |                  |                   |                   |                   |                   |                   |
| Dibromo-DDE  | 21655-73-2 | 0.05 | %     |                  | 90.1              | 91.9              | 89.7              | 78.8              | 91.8              |
| <b>EP068T: Organophosphorus Pesticide Surrogate</b>  |            |      |       |                  |                   |                   |                   |                   |                   |
| DEF  | 78-48-8    | 0.05 | %     |                  | 102               | 92.4              | 95.8              | 88.5              | 91.2              |
| <b>EP075(SIM)S: Phenolic Compound Surrogates</b>     |            |      |       |                  |                   |                   |                   |                   |                   |
| Phenol-d6  | 13127-88-3 | 0.5  | %     |                  | 88.8              | 88.5              | 86.6              | 87.4              | 78.0              |
| 2-Chlorophenol-D4                                    | 93951-73-6 | 0.5  | %     |                  | 87.3              | 85.8              | 82.5              | 84.6              | 76.6              |
| 2,4,6-Tribromophenol                                 | 118-79-6   | 0.5  | %     |                  | 77.6              | 80.8              | 80.6              | 78.8              | 66.3              |
| <b>EP075(SIM)T: PAH Surrogates</b>                   |            |      |       |                  |                   |                   |                   |                   |                   |
| 2-Fluorobiphenyl                                     | 321-60-8   | 0.5  | %     |                  | 95.0              | 93.2              | 92.7              | 93.4              | 83.0              |
| Anthracene-d10                                       | 1719-06-8  | 0.5  | %     |                  | 94.6              | 92.6              | 93.7              | 93.7              | 80.5              |
| 4-Terphenyl-d14                                      | 1718-51-0  | 0.5  | %     |                  | 83.6              | 81.3              | 82.8              | 83.2              | 71.9              |
| <b>EP080S: TPH(V)/BTEX Surrogates</b>                |            |      |       |                  |                   |                   |                   |                   |                   |
| 1,2-Dichloroethane-D4                                | 17060-07-0 | 0.2  | %     |                  | 117               | 115               | 116               | 112               | 107               |
| Toluene-D8   | 2037-26-5  | 0.2  | %     |                  | 109               | 109               | 110               | 110               | 102               |
| 4-Bromofluorobenzene                                 | 460-00-4   | 0.2  | %     |                  | 95.1              | 98.2              | 96.8              | 97.5              | 85.4              |



### Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                    |            |      |      | Client sample ID  | BH16A             | BH17A             | BH18A             | BH19A             | BH20A |
|---|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|
| Client sampling date / time                           |            |      |      | 12-Feb-2018 00:00 |       |
| Compound  | CAS Number | LOR  | Unit | ES1804838-026     | ES1804838-027     | ES1804838-028     | ES1804838-029     | ES1804838-030     |       |
|   |            |      |      | Result            | Result            | Result            | Result            | Result            |       |
| <b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b> |            |      |      |                   |                   |                   |                   |                   |       |
| 2,4-Dichlorophenyl Acetic Acid                        | 19719-28-9 | 0.02 | %    | 51.3              | 50.4              | 52.9              | 52.2              | 52.8              |       |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                 |            | Client sample ID  |       | BH20B             | QA3           | ----  | ----  | ----  |
|--|------------|-------------------|-------|-------------------|---------------|-------|-------|-------|
| Client sampling date / time                        |            | 12-Feb-2018 00:00 |       | 12-Feb-2018 00:00 |               | ----  | ----  | ----  |
| Compound   | CAS Number | LOR               | Unit  | ES1804838-031     | ES1804838-032 | ----- | ----- | ----- |
|  |            |                   |       | Result            | Result        | ----  | ----  | ----  |
| <b>EA010: Conductivity</b>                         |            |                   |       |                   |               |       |       |       |
| Electrical Conductivity @ 25°C                     | ----       | 1                 | µS/cm | 97                | 83            | ----  | ----  | ----  |
| <b>EA055: Moisture Content (Dried @ 105-110°C)</b> |            |                   |       |                   |               |       |       |       |
| Moisture Content                                   | ----       | 1.0               | %     | 8.5               | 7.0           | ----  | ----  | ----  |
| <b>EG005T: Total Metals by ICP-AES</b>             |            |                   |       |                   |               |       |       |       |
| Arsenic  | 7440-38-2  | 5                 | mg/kg | <5                | <5            | ----  | ----  | ----  |
| Cadmium  | 7440-43-9  | 1                 | mg/kg | <1                | <1            | ----  | ----  | ----  |
| Chromium   | 7440-47-3  | 2                 | mg/kg | 24                | 30            | ----  | ----  | ----  |
| Copper   | 7440-50-8  | 5                 | mg/kg | <5                | <5            | ----  | ----  | ----  |
| Lead   | 7439-92-1  | 5                 | mg/kg | 17                | 9             | ----  | ----  | ----  |
| Nickel   | 7440-02-0  | 2                 | mg/kg | 5                 | 5             | ----  | ----  | ----  |
| Zinc   | 7440-66-6  | 5                 | mg/kg | 16                | 13            | ----  | ----  | ----  |
| <b>EG035T: Total Recoverable Mercury by FIMS</b>   |            |                   |       |                   |               |       |       |       |
| Mercury  | 7439-97-6  | 0.1               | mg/kg | <0.1              | <0.1          | ----  | ----  | ----  |
| <b>EP068A: Organochlorine Pesticides (OC)</b>      |            |                   |       |                   |               |       |       |       |
| alpha-BHC  | 319-84-6   | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| Hexachlorobenzene (HCB)                            | 118-74-1   | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| beta-BHC   | 319-85-7   | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| gamma-BHC  | 58-89-9    | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| delta-BHC  | 319-86-8   | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| Heptachlor   | 76-44-8    | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| Aldrin   | 309-00-2   | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| Heptachlor epoxide                                 | 1024-57-3  | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| ^ Total Chlordane (sum)                            | ----       | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| trans-Chlordane                                    | 5103-74-2  | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| alpha-Endosulfan                                   | 959-98-8   | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| cis-Chlordane                                      | 5103-71-9  | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| Dieldrin   | 60-57-1    | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| 4,4'-DDE   | 72-55-9    | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| Endrin   | 72-20-8    | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| beta-Endosulfan                                    | 33213-65-9 | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| ^ Endosulfan (sum)                                 | 115-29-7   | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| 4,4'-DDD   | 72-54-8    | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| Endrin aldehyde                                    | 7421-93-4  | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |
| Endosulfan sulfate                                 | 1031-07-8  | 0.05              | mg/kg | <0.05             | <0.05         | ----  | ----  | ----  |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                        |                          |      |       | Client sample ID  | BH20B             | QA3   | ----  | ----  | ---- |
|---|--------------------------|------|-------|-------------------|-------------------|-------|-------|-------|------|
| Client sampling date / time                               |                          |      |       | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 | ----  | ----  | ----  |      |
| Compound  | CAS Number               | LOR  | Unit  | ES1804838-031     | ES1804838-032     | ----- | ----- | ----- |      |
|   |                          |      |       | Result            | Result            | ----  | ----  | ----  |      |
| <b>EP068A: Organochlorine Pesticides (OC) - Continued</b> |                          |      |       |                   |                   |       |       |       |      |
| 4,4'-DDT  | 50-29-3                  | 0.2  | mg/kg | <0.2              | <0.2              | ----  | ----  | ----  |      |
| Endrin ketone   | 53494-70-5               | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| Methoxychlor  | 72-43-5                  | 0.2  | mg/kg | <0.2              | <0.2              | ----  | ----  | ----  |      |
| ^ Sum of Aldrin + Dieldrin                                | 309-00-2/60-57-1         | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| ^ Sum of DDD + DDE + DDT                                  | 72-54-8/72-55-9/5<br>0-2 | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| <b>EP068B: Organophosphorus Pesticides (OP)</b>           |                          |      |       |                   |                   |       |       |       |      |
| Dichlorvos  | 62-73-7                  | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| Demeton-S-methyl  | 919-86-8                 | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| Monocrotophos   | 6923-22-4                | 0.2  | mg/kg | <0.2              | <0.2              | ----  | ----  | ----  |      |
| Dimethoate  | 60-51-5                  | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| Diazinon  | 333-41-5                 | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| Chlorpyrifos-methyl                                       | 5598-13-0                | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| Parathion-methyl  | 298-00-0                 | 0.2  | mg/kg | <0.2              | <0.2              | ----  | ----  | ----  |      |
| Malathion   | 121-75-5                 | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| Fenthion  | 55-38-9                  | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| Chlorpyrifos  | 2921-88-2                | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| Parathion   | 56-38-2                  | 0.2  | mg/kg | <0.2              | <0.2              | ----  | ----  | ----  |      |
| Pirimphos-ethyl   | 23505-41-1               | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| Chlorfenvinphos   | 470-90-6                 | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| Bromophos-ethyl   | 4824-78-6                | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| Fenamiphos  | 22224-92-6               | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| Prothiofos  | 34643-46-4               | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| Ethion  | 563-12-2                 | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| Carbophenothion   | 786-19-6                 | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| Azinphos Methyl   | 86-50-0                  | 0.05 | mg/kg | <0.05             | <0.05             | ----  | ----  | ----  |      |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>     |                          |      |       |                   |                   |       |       |       |      |
| Naphthalene   | 91-20-3                  | 0.5  | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| Acenaphthylene  | 208-96-8                 | 0.5  | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| Acenaphthene  | 83-32-9                  | 0.5  | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| Fluorene  | 86-73-7                  | 0.5  | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| Phenanthrene  | 85-01-8                  | 0.5  | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| Anthracene  | 120-12-7                 | 0.5  | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| Fluoranthene  | 206-44-0                 | 0.5  | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| Pyrene  | 129-00-0                 | 0.5  | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                                     |                   |     |       | Client sample ID  | BH20B             | QA3   | ----  | ----  | ---- |
|--|-------------------|-----|-------|-------------------|-------------------|-------|-------|-------|------|
| Client sampling date / time  |                   |     |       | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 | ----  | ----  | ----  |      |
| Compound   | CAS Number        | LOR | Unit  | ES1804838-031     | ES1804838-032     | ----- | ----- | ----- |      |
|  |                   |     |       | Result            | Result            | ----  | ----  | ----  |      |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>      |                   |     |       |                   |                   |       |       |       |      |
| Benzo(a)anthracene   | 56-55-3           | 0.5 | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| Chrysene   | 218-01-9          | 0.5 | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| Benzo(b+j)fluoranthene   | 205-99-2 205-82-3 | 0.5 | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| Benzo(k)fluoranthene   | 207-08-9          | 0.5 | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| Benzo(a)pyrene   | 50-32-8           | 0.5 | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| Indeno(1.2.3.cd)pyrene   | 193-39-5          | 0.5 | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| Dibenz(a.h)anthracene  | 53-70-3           | 0.5 | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| Benzo(g.h.i)perylene   | 191-24-2          | 0.5 | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| ^ Sum of polycyclic aromatic hydrocarbons                              | ----              | 0.5 | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| ^ Benzo(a)pyrene TEQ (zero)  | ----              | 0.5 | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| ^ Benzo(a)pyrene TEQ (half LOR)  | ----              | 0.5 | mg/kg | ----              | <b>0.6</b>        | ----  | ----  | ----  |      |
| ^ Benzo(a)pyrene TEQ (LOR)   | ----              | 0.5 | mg/kg | ----              | <b>1.2</b>        | ----  | ----  | ----  |      |
| <b>EP080/071: Total Petroleum Hydrocarbons</b>                         |                   |     |       |                   |                   |       |       |       |      |
| C6 - C9 Fraction   | ----              | 10  | mg/kg | ----              | <10               | ----  | ----  | ----  |      |
| C10 - C14 Fraction   | ----              | 50  | mg/kg | ----              | <50               | ----  | ----  | ----  |      |
| C15 - C28 Fraction   | ----              | 100 | mg/kg | ----              | <100              | ----  | ----  | ----  |      |
| C29 - C36 Fraction   | ----              | 100 | mg/kg | ----              | <100              | ----  | ----  | ----  |      |
| ^ C10 - C36 Fraction (sum)   | ----              | 50  | mg/kg | ----              | <50               | ----  | ----  | ----  |      |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b> |                   |     |       |                   |                   |       |       |       |      |
| C6 - C10 Fraction  | C6_C10            | 10  | mg/kg | ----              | <10               | ----  | ----  | ----  |      |
| ^ C6 - C10 Fraction minus BTEX (F1)                                    | C6_C10-BTEX       | 10  | mg/kg | ----              | <10               | ----  | ----  | ----  |      |
| >C10 - C16 Fraction  | ----              | 50  | mg/kg | ----              | <50               | ----  | ----  | ----  |      |
| >C16 - C34 Fraction  | ----              | 100 | mg/kg | ----              | <100              | ----  | ----  | ----  |      |
| >C34 - C40 Fraction  | ----              | 100 | mg/kg | ----              | <100              | ----  | ----  | ----  |      |
| ^ >C10 - C40 Fraction (sum)  | ----              | 50  | mg/kg | ----              | <50               | ----  | ----  | ----  |      |
| ^ >C10 - C16 Fraction minus Naphthalene (F2)                           | ----              | 50  | mg/kg | ----              | <50               | ----  | ----  | ----  |      |
| <b>EP080: BTEXN</b>  |                   |     |       |                   |                   |       |       |       |      |
| Benzene  | 71-43-2           | 0.2 | mg/kg | ----              | <0.2              | ----  | ----  | ----  |      |
| Toluene  | 108-88-3          | 0.5 | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| Ethylbenzene   | 100-41-4          | 0.5 | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| meta- & para-Xylene  | 108-38-3 106-42-3 | 0.5 | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |
| ortho-Xylene   | 95-47-6           | 0.5 | mg/kg | ----              | <0.5              | ----  | ----  | ----  |      |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                   |            |      |       | Client sample ID  |                   | BH20B | QA3   | ----  | ----  | ----  |
|--|------------|------|-------|-------------------|-------------------|-------|-------|-------|-------|-------|
| Client sampling date / time                          |            |      |       | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 | ----  | ----  | ----  | ----  | ----  |
| Compound   | CAS Number | LOR  | Unit  | ES1804838-031     | ES1804838-032     | ----- | ----- | ----- | ----- | ----- |
|  |            |      |       | Result            | Result            | ----  | ----  | ----  | ----  | ----  |
| <b>EP080: BTEXN - Continued</b>                      |            |      |       |                   |                   |       |       |       |       |       |
| ^ Sum of BTEX  | ----       | 0.2  | mg/kg | ----              | <0.2              | ----  | ----  | ----  | ----  | ----  |
| ^ Total Xylenes                                      | ----       | 0.5  | mg/kg | ----              | <0.5              | ----  | ----  | ----  | ----  | ----  |
| Naphthalene  | 91-20-3    | 1    | mg/kg | ----              | <1                | ----  | ----  | ----  | ----  | ----  |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b> |            |      |       |                   |                   |       |       |       |       |       |
| 4-Chlorophenoxy acetic acid                          | 122-88-3   | 0.02 | mg/kg | <0.04             | <0.04             | ----  | ----  | ----  | ----  | ----  |
| 2,4-DB   | 94-82-6    | 0.02 | mg/kg | <0.04             | <0.04             | ----  | ----  | ----  | ----  | ----  |
| Dicamba  | 1918-00-9  | 0.02 | mg/kg | <0.04             | <0.04             | ----  | ----  | ----  | ----  | ----  |
| Mecoprop   | 93-65-2    | 0.02 | mg/kg | <0.04             | <0.04             | ----  | ----  | ----  | ----  | ----  |
| MCPA   | 94-74-6    | 0.02 | mg/kg | <0.04             | <0.04             | ----  | ----  | ----  | ----  | ----  |
| 2,4-DP   | 120-36-5   | 0.02 | mg/kg | <0.04             | <0.04             | ----  | ----  | ----  | ----  | ----  |
| 2,4-D  | 94-75-7    | 0.02 | mg/kg | <0.04             | <0.04             | ----  | ----  | ----  | ----  | ----  |
| Triclopyr  | 55335-06-3 | 0.02 | mg/kg | <0.04             | <0.04             | ----  | ----  | ----  | ----  | ----  |
| 2,4,5-TP (Silvex)                                    | 93-72-1    | 0.02 | mg/kg | <0.04             | <0.04             | ----  | ----  | ----  | ----  | ----  |
| 2,4,5-T  | 93-76-5    | 0.02 | mg/kg | <0.04             | <0.04             | ----  | ----  | ----  | ----  | ----  |
| MCPB   | 94-81-5    | 0.02 | mg/kg | <0.04             | <0.04             | ----  | ----  | ----  | ----  | ----  |
| Picloram   | 1918-02-1  | 0.02 | mg/kg | <0.04             | <0.04             | ----  | ----  | ----  | ----  | ----  |
| Clopyralid   | 1702-17-6  | 0.02 | mg/kg | <0.04             | <0.04             | ----  | ----  | ----  | ----  | ----  |
| Fluroxypyr   | 69377-81-7 | 0.02 | mg/kg | <0.04             | <0.04             | ----  | ----  | ----  | ----  | ----  |
| <b>EP068S: Organochlorine Pesticide Surrogate</b>    |            |      |       |                   |                   |       |       |       |       |       |
| Dibromo-DDE  | 21655-73-2 | 0.05 | %     | 96.5              | 79.2              | ----  | ----  | ----  | ----  | ----  |
| <b>EP068T: Organophosphorus Pesticide Surrogate</b>  |            |      |       |                   |                   |       |       |       |       |       |
| DEF  | 78-48-8    | 0.05 | %     | 75.9              | 65.2              | ----  | ----  | ----  | ----  | ----  |
| <b>EP075(SIM)S: Phenolic Compound Surrogates</b>     |            |      |       |                   |                   |       |       |       |       |       |
| Phenol-d6  | 13127-88-3 | 0.5  | %     | ----              | 84.1              | ----  | ----  | ----  | ----  | ----  |
| 2-Chlorophenol-D4                                    | 93951-73-6 | 0.5  | %     | ----              | 81.5              | ----  | ----  | ----  | ----  | ----  |
| 2,4,6-Tribromophenol                                 | 118-79-6   | 0.5  | %     | ----              | 73.3              | ----  | ----  | ----  | ----  | ----  |
| <b>EP075(SIM)T: PAH Surrogates</b>                   |            |      |       |                   |                   |       |       |       |       |       |
| 2-Fluorobiphenyl                                     | 321-60-8   | 0.5  | %     | ----              | 88.6              | ----  | ----  | ----  | ----  | ----  |
| Anthracene-d10                                       | 1719-06-8  | 0.5  | %     | ----              | 87.8              | ----  | ----  | ----  | ----  | ----  |
| 4-Terphenyl-d14                                      | 1718-51-0  | 0.5  | %     | ----              | 77.8              | ----  | ----  | ----  | ----  | ----  |
| <b>EP080S: TPH(V)/BTEX Surrogates</b>                |            |      |       |                   |                   |       |       |       |       |       |
| 1,2-Dichloroethane-D4                                | 17060-07-0 | 0.2  | %     | ----              | 119               | ----  | ----  | ----  | ----  | ----  |
| Toluene-D8   | 2037-26-5  | 0.2  | %     | ----              | 123               | ----  | ----  | ----  | ----  | ----  |
| 4-Bromofluorobenzene                                 | 460-00-4   | 0.2  | %     | ----              | 106               | ----  | ----  | ----  | ----  | ----  |



**Analytical Results**

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                    |            |      |      | Client sample ID  | BH20B             | QA3   | ----  | ----  | ---- |
|---|------------|------|------|-------------------|-------------------|-------|-------|-------|------|
| Client sampling date / time                           |            |      |      | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 | ----  | ----  | ----  |      |
| Compound  | CAS Number | LOR  | Unit | ES1804838-031     | ES1804838-032     | ----- | ----- | ----- |      |
|   |            |      |      | Result            | Result            | ----  | ----  | ----  |      |
| <b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b> |            |      |      |                   |                   |       |       |       |      |
| 2,4-Dichlorophenyl Acetic Acid                        | 19719-28-9 | 0.02 | %    | 50.1              | 50.0              | ----  | ----  | ----  |      |

**Analytical Results**

**Descriptive Results**

| Sub-Matrix: SOIL   |  |  |
|--|--|--|
| Method: Compound   | Client sample ID - Client sampling date / time | Analytical Results                                 |
| <b>EA200: AS 4964 - 2004 Identification of Asbestos in Soils</b> |  |  |
| EA200: Description   | B1 - 09-Feb-2018 00:00                         | One piece of cement approximately 150 x 80 x 20mm. |



## Surrogate Control Limits

| Sub-Matrix: SOIL                                      |            | Recovery Limits (%) |      |
|---|------------|---------------------|------|
| Compound  | CAS Number | Low                 | High |
| <b>EP068S: Organochlorine Pesticide Surrogate</b>     |            |                     |      |
| Dibromo-DDE   | 21655-73-2 | 49                  | 147  |
| <b>EP068T: Organophosphorus Pesticide Surrogate</b>   |            |                     |      |
| DEF   | 78-48-8    | 35                  | 143  |
| <b>EP075(SIM)S: Phenolic Compound Surrogates</b>      |            |                     |      |
| Phenol-d6   | 13127-88-3 | 63                  | 123  |
| 2-Chlorophenol-D4                                     | 93951-73-6 | 66                  | 122  |
| 2,4,6-Tribromophenol                                  | 118-79-6   | 40                  | 138  |
| <b>EP075(SIM)T: PAH Surrogates</b>                    |            |                     |      |
| 2-Fluorobiphenyl                                      | 321-60-8   | 70                  | 122  |
| Anthracene-d10  | 1719-06-8  | 66                  | 128  |
| 4-Terphenyl-d14                                       | 1718-51-0  | 65                  | 129  |
| <b>EP080S: TPH(V)/BTEX Surrogates</b>                 |            |                     |      |
| 1,2-Dichloroethane-D4                                 | 17060-07-0 | 73                  | 133  |
| Toluene-D8  | 2037-26-5  | 74                  | 132  |
| 4-Bromofluorobenzene                                  | 460-00-4   | 72                  | 130  |
| <b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b> |            |                     |      |
| 2,4-Dichlorophenyl Acetic Acid                        | 19719-28-9 | 45                  | 139  |

## QUALITY CONTROL REPORT

|                                |   |                                |   |
|--------------------------------|---|--------------------------------|---|
| <b>Work Order</b>              | : <b>ES1804838</b>                              | Page                           | : 1 of 21   |
| <b>Client</b>                  | : <b>ROBERT CARR &amp; ASSOCIATES P/L</b>       | <b>Laboratory</b>              | : Environmental Division Sydney                       |
| <b>Contact</b>                 | : MS FIONA BROOKER                              | <b>Contact</b>                 | : Customer Services ES                                |
| <b>Address</b>                 | : P O BOX 175<br>CARRINGTON NSW, AUSTRALIA 2294 | <b>Address</b>                 | : 277-289 Woodpark Road Smithfield NSW Australia 2164 |
| <b>Telephone</b>               | : +61 02 4902 9200                              | <b>Telephone</b>               | : +61-2-8784 8555                                     |
| <b>Project</b>                 | : 13156   | <b>Date Samples Received</b>   | : 14-Feb-2018   |
| <b>Order number</b>            | : ----  | <b>Date Analysis Commenced</b> | : 16-Feb-2018   |
| <b>C-O-C number</b>            | : ----  | <b>Issue Date</b>              | : 07-Mar-2018   |
| <b>Sampler</b>                 | : KATY SHAW                                     |                                |   |
| <b>Site</b>                    | : ----  |                                |   |
| <b>Quote number</b>            | : SYBQ/400/17                                   |                                |   |
| <b>No. of samples received</b> | : 32  |                                |   |
| <b>No. of samples analysed</b> | : 32  |                                |   |



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>            |
|--------------------|--------------------------|--|
| Alex Rossi         | Organic Chemist          | Sydney Organics, Smithfield, NSW         |
| Ankit Joshi        | Inorganic Chemist        | Sydney Inorganics, Smithfield, NSW       |
| Edwandy Fadjar     | Organic Coordinator      | Sydney Inorganics, Smithfield, NSW       |
| Edwandy Fadjar     | Organic Coordinator      | Sydney Organics, Smithfield, NSW         |
| Gerrad Morgan      | Asbestos Identifier      | Newcastle - Asbestos, Mayfield West, NSW |
| Ivan Taylor        | Analyst                  | Sydney Inorganics, Smithfield, NSW       |
| Sanjeshni Jyoti    | Senior Chemist Volatiles | Sydney Organics, Smithfield, NSW         |



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key :  
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 RPD = Relative Percentage Difference  
 # = Indicates failed QC

## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

|  |                  |                                       |            | Laboratory Duplicate (DUP) Report |       |                 |                  |         |                     |
|--|------------------|---------------------------------------|------------|-----------------------------------|-------|-----------------|------------------|---------|---------------------|
| Laboratory sample ID   | Client sample ID | Method: Compound                      | CAS Number | LOR                               | Unit  | Original Result | Duplicate Result | RPD (%) | Recovery Limits (%) |
| <b>EA010: Conductivity (QC Lot: 1438595)</b>                         |                  |                                       |            |                                   |       |                 |                  |         |                     |
| ES1804838-002  | BH1A             | EA010: Electrical Conductivity @ 25°C | ----       | 1                                 | µS/cm | 40              | 39               | 0.00    | 0% - 20%            |
| ES1804838-012  | BH6B             | EA010: Electrical Conductivity @ 25°C | ----       | 1                                 | µS/cm | 19              | 17               | 7.23    | 0% - 50%            |
| <b>EA010: Conductivity (QC Lot: 1440454)</b>                         |                  |                                       |            |                                   |       |                 |                  |         |                     |
| ES1804838-002  | BH1A             | EA010: Electrical Conductivity @ 25°C | ----       | 1                                 | µS/cm | 40              | 39               | 0.00    | 0% - 20%            |
| <b>EA010: Conductivity (QC Lot: 1441527)</b>                         |                  |                                       |            |                                   |       |                 |                  |         |                     |
| ES1804838-017  | BH10A            | EA010: Electrical Conductivity @ 25°C | ----       | 1                                 | µS/cm | 52              | 56               | 7.76    | 0% - 20%            |
| ES1804838-027  | BH17A            | EA010: Electrical Conductivity @ 25°C | ----       | 1                                 | µS/cm | 126             | 120              | 4.31    | 0% - 20%            |
| <b>EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1439220)</b> |                  |                                       |            |                                   |       |                 |                  |         |                     |
| ES1804838-003  | BH1C             | EA055: Moisture Content               | ----       | 1                                 | %     | <1.0            | <1.0             | 0.00    | No Limit            |
| ES1804838-014  | BH8A             | EA055: Moisture Content               | ----       | 1                                 | %     | 7.9             | 7.9              | 0.00    | No Limit            |
| <b>EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1439221)</b> |                  |                                       |            |                                   |       |                 |                  |         |                     |
| ES1804838-023  | BH14A            | EA055: Moisture Content               | ----       | 1                                 | %     | 9.6             | 9.0              | 6.60    | No Limit            |
| ES1804859-002  | Anonymous        | EA055: Moisture Content               | ----       | 1                                 | %     | 28.1            | 28.4             | 1.09    | 0% - 20%            |
| <b>EG005T: Total Metals by ICP-AES (QC Lot: 1443453)</b>             |                  |                                       |            |                                   |       |                 |                  |         |                     |
| ES1804838-002  | BH1A             | EG005T: Cadmium                       | 7440-43-9  | 1                                 | mg/kg | <1              | <1               | 0.00    | No Limit            |
|  |                  | EG005T: Chromium                      | 7440-47-3  | 2                                 | mg/kg | <2              | <2               | 0.00    | No Limit            |
|  |                  | EG005T: Nickel                        | 7440-02-0  | 2                                 | mg/kg | <2              | <2               | 0.00    | No Limit            |
|  |                  | EG005T: Arsenic                       | 7440-38-2  | 5                                 | mg/kg | <5              | <5               | 0.00    | No Limit            |
|  |                  | EG005T: Copper                        | 7440-50-8  | 5                                 | mg/kg | <5              | <5               | 0.00    | No Limit            |
|  |                  | EG005T: Lead                          | 7439-92-1  | 5                                 | mg/kg | <5              | <5               | 0.00    | No Limit            |
|  |                  | EG005T: Zinc                          | 7440-66-6  | 5                                 | mg/kg | 8               | 8                | 0.00    | No Limit            |
| ES1804838-012  | BH6B             | EG005T: Cadmium                       | 7440-43-9  | 1                                 | mg/kg | <1              | <1               | 0.00    | No Limit            |
|  |                  | EG005T: Chromium                      | 7440-47-3  | 2                                 | mg/kg | 6               | 6                | 0.00    | No Limit            |
|  |                  | EG005T: Nickel                        | 7440-02-0  | 2                                 | mg/kg | <2              | <2               | 0.00    | No Limit            |



| Sub-Matrix: SOIL   |                  |                                |            | Laboratory Duplicate (DUP) Report |       |                 |                  |         |                     |
|--|------------------|--------------------------------|------------|-----------------------------------|-------|-----------------|------------------|---------|---------------------|
| Laboratory sample ID   | Client sample ID | Method: Compound               | CAS Number | LOR                               | Unit  | Original Result | Duplicate Result | RPD (%) | Recovery Limits (%) |
| <b>EG005T: Total Metals by ICP-AES (QC Lot: 1443453) - continued</b> |                  |                                |            |                                   |       |                 |                  |         |                     |
| ES1804838-012  | BH6B             | EG005T: Arsenic                | 7440-38-2  | 5                                 | mg/kg | <5              | <5               | 0.00    | No Limit            |
|  |                  | EG005T: Copper                 | 7440-50-8  | 5                                 | mg/kg | <5              | <5               | 0.00    | No Limit            |
|  |                  | EG005T: Lead                   | 7439-92-1  | 5                                 | mg/kg | <5              | <5               | 0.00    | No Limit            |
|  |                  | EG005T: Zinc                   | 7440-66-6  | 5                                 | mg/kg | <5              | <5               | 0.00    | No Limit            |
| <b>EG005T: Total Metals by ICP-AES (QC Lot: 1443455)</b>             |                  |                                |            |                                   |       |                 |                  |         |                     |
| ES1804838-022  | BH13A            | EG005T: Cadmium                | 7440-43-9  | 1                                 | mg/kg | <1              | <1               | 0.00    | No Limit            |
|  |                  | EG005T: Chromium               | 7440-47-3  | 2                                 | mg/kg | 25              | 27               | 6.47    | 0% - 50%            |
|  |                  | EG005T: Nickel                 | 7440-02-0  | 2                                 | mg/kg | 11              | 11               | 0.00    | No Limit            |
|  |                  | EG005T: Arsenic                | 7440-38-2  | 5                                 | mg/kg | <5              | <5               | 0.00    | No Limit            |
|  |                  | EG005T: Copper                 | 7440-50-8  | 5                                 | mg/kg | <5              | <5               | 0.00    | No Limit            |
|  |                  | EG005T: Lead                   | 7439-92-1  | 5                                 | mg/kg | 18              | 17               | 0.00    | No Limit            |
|  |                  | EG005T: Zinc                   | 7440-66-6  | 5                                 | mg/kg | 12              | 11               | 0.00    | No Limit            |
| ES1804838-032  | QA3              | EG005T: Cadmium                | 7440-43-9  | 1                                 | mg/kg | <1              | <1               | 0.00    | No Limit            |
|  |                  | EG005T: Chromium               | 7440-47-3  | 2                                 | mg/kg | 30              | 30               | 0.00    | 0% - 50%            |
|  |                  | EG005T: Nickel                 | 7440-02-0  | 2                                 | mg/kg | 5               | 5                | 0.00    | No Limit            |
|  |                  | EG005T: Arsenic                | 7440-38-2  | 5                                 | mg/kg | <5              | <5               | 0.00    | No Limit            |
|  |                  | EG005T: Copper                 | 7440-50-8  | 5                                 | mg/kg | <5              | <5               | 0.00    | No Limit            |
|  |                  | EG005T: Lead                   | 7439-92-1  | 5                                 | mg/kg | 9               | 9                | 0.00    | No Limit            |
|  |                  | EG005T: Zinc                   | 7440-66-6  | 5                                 | mg/kg | 13              | 15               | 11.2    | No Limit            |
| <b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1443454)</b>   |                  |                                |            |                                   |       |                 |                  |         |                     |
| ES1804838-002  | BH1A             | EG035T: Mercury                | 7439-97-6  | 0.1                               | mg/kg | <0.1            | <0.1             | 0.00    | No Limit            |
| ES1804838-012  | BH6B             | EG035T: Mercury                | 7439-97-6  | 0.1                               | mg/kg | <0.1            | <0.1             | 0.00    | No Limit            |
| <b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1443456)</b>   |                  |                                |            |                                   |       |                 |                  |         |                     |
| ES1804838-022  | BH13A            | EG035T: Mercury                | 7439-97-6  | 0.1                               | mg/kg | <0.1            | <0.1             | 0.00    | No Limit            |
| ES1804838-032  | QA3              | EG035T: Mercury                | 7439-97-6  | 0.1                               | mg/kg | <0.1            | <0.1             | 0.00    | No Limit            |
| <b>EP068A: Organochlorine Pesticides (OC) (QC Lot: 1436183)</b>      |                  |                                |            |                                   |       |                 |                  |         |                     |
| ES1804838-002  | BH1A             | 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            |



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 (%) |
| <b>EP068A: Organochlorine Pesticides (OC) (QC Lot: 1436183) - continued</b> |                  |                                |            |                                   |       |                 |                  |         |                     |
| ES1804838-002   | BH1A             | 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            |
| ES1804838-019   | BH11A            | 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         |         |                     |
| <b>EP068A: Organochlorine Pesticides (OC) (QC Lot: 1436204)</b>             |                  |                                |            |                                   |       |                 |                  |         |                     |
| ES1804838-032   | QA3              | 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            |



| 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 (%) |
| <b>EP068A: Organochlorine Pesticides (OC) (QC Lot: 1436204) - continued</b> |                  |                                |            |                                   |       |                 |                  |         |                     |
| ES1804838-032   | QA3              | 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         |         |                     |
| ES1804838-022   | BH13A            | 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         |         |                     |
| <b>EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1436183)</b>           |                  |                                |            |                                   |       |                 |                  |         |                     |
| ES1804838-002   | BH1A             | 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            |



| 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 (%) |
| <b>EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1436183) - continued</b> |                  |                            |            |                                   |       |                 |                  |         |                     |
| ES1804838-002   | BH1A             | 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            |
| EP068: Parathion  | 56-38-2          | 0.2                        | mg/kg      | <0.2                              | <0.2  | 0.00            | No Limit         |         |                     |
| ES1804838-019   | BH11A            | 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            |
| EP068: Parathion  | 56-38-2          | 0.2                        | mg/kg      | <0.2                              | <0.2  | 0.00            | No Limit         |         |                     |
| <b>EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1436204)</b>             |                  |                            |            |                                   |       |                 |                  |         |                     |
| ES1804838-032   | QA3              | 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            |



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 (%) |
| <b>EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1436204) - continued</b> |                  |                               |            |                                   |       |                 |                  |         |                     |
| ES1804838-032   | QA3              | 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            |
|   |                  | EP068: Parathion              | 56-38-2    | 0.2                               | mg/kg | <0.2            | <0.2             | 0.00    | No Limit            |
| ES1804838-022   | BH13A            | 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         |         |                     |
| EP068: Parathion  | 56-38-2          | 0.2                           | mg/kg      | <0.2                              | <0.2  | 0.00            | No Limit         |         |                     |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1436182)</b>       |                  |                               |            |                                   |       |                 |                  |         |                     |
| ES1804838-002   | BH1A             | 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            |



| 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 (%) |          |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1436182) - continued</b> |                                       |   |                                       |                                   |       |                 |                  |          |                     |          |
| ES1804838-002   | BH1A                                  | 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 |                     |          |
| ES1804838-019   | BH11A                                 | 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 |
|   |                                       | <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1436206)</b> |                                       |                                   |       |                 |                  |          |                     |          |
| ES1804838-022   | BH13A                                 | 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            |          |



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 (%) |  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1436206) - continued</b>      |                  |   |            |                                   |       |                 |                  |         |                     |  |
| ES1804838-022  | BH13A            | 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         |         |                     |  |
| <b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1436181)</b>                         |                  |   |            |                                   |       |                 |                  |         |                     |  |
| ES1804838-002  | BH1A             | 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            |  |
| ES1804838-019  | BH11A            | 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            |  |
| <b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1436205)</b>                         |                  |   |            |                                   |       |                 |                  |         |                     |  |
| ES1804838-022  | BH13A            | EP071: C15 - C28 Fraction                           | ----       | 100                               | mg/kg | 200             | 220              | 4.77    | No Limit            |  |
|  |                  | EP071: C29 - C36 Fraction                           | ----       | 100                               | mg/kg | <100            | 100              | 0.00    | No Limit            |  |
|  |                  | EP071: C10 - C14 Fraction                           | ----       | 50                                | mg/kg | 140             | 120              | 13.8    | No Limit            |  |
| <b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1436801)</b>                         |                  |   |            |                                   |       |                 |                  |         |                     |  |
| ES1804838-002  | BH1A             | EP080: C6 - C9 Fraction                             | ----       | 10                                | mg/kg | <10             | <10              | 0.00    | No Limit            |  |
| ES1804838-019  | BH11A            | EP080: C6 - C9 Fraction                             | ----       | 10                                | mg/kg | <10             | <10              | 0.00    | No Limit            |  |
| <b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1436810)</b>                         |                  |   |            |                                   |       |                 |                  |         |                     |  |
| ES1804859-006  | Anonymous        | EP080: C6 - C9 Fraction                             | ----       | 10                                | mg/kg | <10             | <10              | 0.00    | No Limit            |  |
| ES1804961-001  | Anonymous        | EP080: C6 - C9 Fraction                             | ----       | 10                                | mg/kg | 355             | 394              | 10.4    | 0% - 20%            |  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1436181)</b> |                  |   |            |                                   |       |                 |                  |         |                     |  |
| ES1804838-002  | BH1A             | 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            |  |
| ES1804838-019  | BH11A            | 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            |  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1436205)</b> |                  |   |            |                                   |       |                 |                  |         |                     |  |
| ES1804838-022  | BH13A            | EP071: >C16 - C34 Fraction                          | ----       | 100                               | mg/kg | 260             | 270              | 0.00    | No Limit            |  |
|  |                  | EP071: >C34 - C40 Fraction                          | ----       | 100                               | mg/kg | <100            | <100             | 0.00    | No Limit            |  |

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 Work Order : ES1804838  
 Client : ROBERT CARR & ASSOCIATES P/L  
 Project : 13156



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 (%) |  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1436205) - continued</b> |                  |                                    |            |                                   |       |                 |                  |         |                     |  |
| ES1804838-022  | BH13A            | EP071: >C10 - C16 Fraction         | ----       | 50                                | mg/kg | 130             | 140              | 7.78    | No Limit            |  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1436801)</b>             |                  |                                    |            |                                   |       |                 |                  |         |                     |  |
| ES1804838-002  | BH1A             | EP080: C6 - C10 Fraction           | C6_C10     | 10                                | mg/kg | <10             | <10              | 0.00    | No Limit            |  |
| ES1804838-019  | BH11A            | EP080: C6 - C10 Fraction           | C6_C10     | 10                                | mg/kg | <10             | <10              | 0.00    | No Limit            |  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1436810)</b>             |                  |                                    |            |                                   |       |                 |                  |         |                     |  |
| ES1804859-006  | Anonymous        | EP080: C6 - C10 Fraction           | C6_C10     | 10                                | mg/kg | <10             | <10              | 0.00    | No Limit            |  |
| ES1804961-001  | Anonymous        | EP080: C6 - C10 Fraction           | C6_C10     | 10                                | mg/kg | 590             | 645              | 8.78    | 0% - 20%            |  |
| <b>EP080: BTEXN (QC Lot: 1436801)</b>  |                  |                                    |            |                                   |       |                 |                  |         |                     |  |
| ES1804838-002  | BH1A             | 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            |  |
| ES1804838-019  | BH11A            | 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            |  |
| <b>EP080: BTEXN (QC Lot: 1436810)</b>  |                  |                                    |            |                                   |       |                 |                  |         |                     |  |
| ES1804859-006  | 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            |  |
| ES1804961-001  | 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            |  |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 1438849)</b>                               |                  |                                    |            |                                   |       |                 |                  |         |                     |  |
| ES1804838-002  | BH1A             | EP202: 4-Chlorophenoxy acetic acid | 122-88-3   | 0.02                              | mg/kg | <0.04           | <0.04            | 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 (%) |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 1438849) - continued</b> |                  |                                    |            |                                   |       |                 |                  |         |                     |
| ES1804838-002  | BH1A             | EP202: 2,4-DB                      | 94-82-6    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Dicamba                     | 1918-00-9  | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Mecoprop                    | 93-65-2    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: MCPA                        | 94-74-6    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2,4-DP                      | 120-36-5   | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2,4-D                       | 94-75-7    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Triclopyr                   | 55335-06-3 | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2,4,5-TP (Silvex)           | 93-72-1    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2,4,5-T                     | 93-76-5    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: MCPB                        | 94-81-5    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Picloram                    | 1918-02-1  | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Clopyralid                  | 1702-17-6  | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
| EP202: Fluroxypyr  | 69377-81-7       | 0.02                               | mg/kg      | <0.04                             | <0.04 | 0.00            | No Limit         |         |                     |
| ES1804838-012  | BH6B             | EP202: 4-Chlorophenoxy acetic acid | 122-88-3   | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2,4-DB                      | 94-82-6    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Dicamba                     | 1918-00-9  | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Mecoprop                    | 93-65-2    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: MCPA                        | 94-74-6    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2,4-DP                      | 120-36-5   | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2,4-D                       | 94-75-7    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Triclopyr                   | 55335-06-3 | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2,4,5-TP (Silvex)           | 93-72-1    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2,4,5-T                     | 93-76-5    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: MCPB                        | 94-81-5    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Picloram                    | 1918-02-1  | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
| EP202: Clopyralid  | 1702-17-6        | 0.02                               | mg/kg      | <0.04                             | <0.04 | 0.00            | No Limit         |         |                     |
| EP202: Fluroxypyr  | 69377-81-7       | 0.02                               | mg/kg      | <0.04                             | <0.04 | 0.00            | No Limit         |         |                     |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 1438850)</b>             |                  |                                    |            |                                   |       |                 |                  |         |                     |
| ES1804838-022  | BH13A            | EP202: 4-Chlorophenoxy acetic acid | 122-88-3   | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2,4-DB                      | 94-82-6    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Dicamba                     | 1918-00-9  | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Mecoprop                    | 93-65-2    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: MCPA                        | 94-74-6    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2,4-DP                      | 120-36-5   | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2,4-D                       | 94-75-7    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Triclopyr                   | 55335-06-3 | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2,4,5-TP (Silvex)           | 93-72-1    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2,4,5-T                     | 93-76-5    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: MCPB                        | 94-81-5    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Picloram                    | 1918-02-1  | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |

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 Work Order : ES1804838  
 Client : ROBERT CARR & ASSOCIATES P/L  
 Project : 13156



| 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 (%) |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 1438850) - continued</b> |                  |                                    |            |                                   |       |                 |                  |         |                     |
| ES1804838-022  | BH13A            | EP202: Clopyralid                  | 1702-17-6  | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Fluroxypyr                  | 69377-81-7 | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
| ES1804838-032  | QA3              | EP202: 4-Chlorophenoxy acetic acid | 122-88-3   | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2.4-DB                      | 94-82-6    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Dicamba                     | 1918-00-9  | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Mecoprop                    | 93-65-2    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: MCPA                        | 94-74-6    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2.4-DP                      | 120-36-5   | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2.4-D                       | 94-75-7    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Triclopyr                   | 55335-06-3 | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2.4.5-TP (Silvex)           | 93-72-1    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: 2.4.5-T                     | 93-76-5    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: MCPB                        | 94-81-5    | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Picloram                    | 1918-02-1  | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Clopyralid                  | 1702-17-6  | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |
|  |                  | EP202: Fluroxypyr                  | 69377-81-7 | 0.02                              | mg/kg | <0.04           | <0.04            | 0.00    | No Limit            |



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

| Method: Compound  | CAS Number | LOR  | Unit  | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                    |     |                     |  |
|---|------------|------|-------|-----------------------------|---------------------------------------|--------------------|-----|---------------------|--|
|   |            |      |       | Result                      | Spike<br>Concentration                | Spike Recovery (%) |     | Recovery Limits (%) |  |
|   |            |      |       |                             |                                       | LCS                | Low | High                |  |
| <b>EA010: Conductivity (QCLot: 1438595)</b>                       |            |      |       |                             |                                       |                    |     |                     |  |
| EA010: Electrical Conductivity @ 25°C                             | ----       | 1    | µS/cm | <1                          | 1412 µS/cm                            | 95.4               | 92  | 108                 |  |
| <b>EA010: Conductivity (QCLot: 1440454)</b>                       |            |      |       |                             |                                       |                    |     |                     |  |
| EA010: Electrical Conductivity @ 25°C                             | ----       | 1    | µS/cm | <1                          | 1412 µS/cm                            | 98.5               | 92  | 108                 |  |
| <b>EA010: Conductivity (QCLot: 1441527)</b>                       |            |      |       |                             |                                       |                    |     |                     |  |
| EA010: Electrical Conductivity @ 25°C                             | ----       | 1    | µS/cm | <1                          | 1412 µS/cm                            | 97.0               | 92  | 108                 |  |
| <b>EG005T: Total Metals by ICP-AES (QCLot: 1443453)</b>           |            |      |       |                             |                                       |                    |     |                     |  |
| EG005T: Arsenic   | 7440-38-2  | 5    | mg/kg | <5                          | 21.7 mg/kg                            | 100                | 86  | 126                 |  |
| EG005T: Cadmium   | 7440-43-9  | 1    | mg/kg | <1                          | 4.64 mg/kg                            | 98.6               | 83  | 113                 |  |
| EG005T: Chromium  | 7440-47-3  | 2    | mg/kg | <2                          | 43.9 mg/kg                            | 105                | 76  | 128                 |  |
| EG005T: Copper  | 7440-50-8  | 5    | mg/kg | <5                          | 32 mg/kg                              | 99.0               | 86  | 120                 |  |
| EG005T: Lead  | 7439-92-1  | 5    | mg/kg | <5                          | 40 mg/kg                              | 106                | 80  | 114                 |  |
| EG005T: Nickel  | 7440-02-0  | 2    | mg/kg | <2                          | 55 mg/kg                              | 108                | 87  | 123                 |  |
| EG005T: Zinc  | 7440-66-6  | 5    | mg/kg | <5                          | 60.8 mg/kg                            | 111                | 80  | 122                 |  |
| <b>EG005T: Total Metals by ICP-AES (QCLot: 1443455)</b>           |            |      |       |                             |                                       |                    |     |                     |  |
| EG005T: Arsenic   | 7440-38-2  | 5    | mg/kg | <5                          | 21.7 mg/kg                            | 101                | 86  | 126                 |  |
| EG005T: Cadmium   | 7440-43-9  | 1    | mg/kg | <1                          | 4.64 mg/kg                            | 97.1               | 83  | 113                 |  |
| EG005T: Chromium  | 7440-47-3  | 2    | mg/kg | <2                          | 43.9 mg/kg                            | 105                | 76  | 128                 |  |
| EG005T: Copper  | 7440-50-8  | 5    | mg/kg | <5                          | 32 mg/kg                              | 98.2               | 86  | 120                 |  |
| EG005T: Lead  | 7439-92-1  | 5    | mg/kg | <5                          | 40 mg/kg                              | 92.2               | 80  | 114                 |  |
| EG005T: Nickel  | 7440-02-0  | 2    | mg/kg | <2                          | 55 mg/kg                              | 106                | 87  | 123                 |  |
| EG005T: Zinc  | 7440-66-6  | 5    | mg/kg | <5                          | 60.8 mg/kg                            | 107                | 80  | 122                 |  |
| <b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 1443454)</b> |            |      |       |                             |                                       |                    |     |                     |  |
| EG035T: Mercury   | 7439-97-6  | 0.1  | mg/kg | <0.1                        | 2.57 mg/kg                            | 80.5               | 70  | 105                 |  |
| <b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 1443456)</b> |            |      |       |                             |                                       |                    |     |                     |  |
| EG035T: Mercury   | 7439-97-6  | 0.1  | mg/kg | <0.1                        | 2.57 mg/kg                            | 74.5               | 70  | 105                 |  |
| <b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1436183)</b>    |            |      |       |                             |                                       |                    |     |                     |  |
| EP068: alpha-BHC  | 319-84-6   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 87.4               | 69  | 113                 |  |
| EP068: Hexachlorobenzene (HCB)                                    | 118-74-1   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 90.2               | 65  | 117                 |  |
| EP068: beta-BHC   | 319-85-7   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 86.0               | 67  | 119                 |  |
| EP068: gamma-BHC  | 58-89-9    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 88.0               | 68  | 116                 |  |
| EP068: delta-BHC  | 319-86-8   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 89.7               | 65  | 117                 |  |
| EP068: Heptachlor   | 76-44-8    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 87.2               | 67  | 115                 |  |
| EP068: Aldrin   | 309-00-2   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 94.4               | 69  | 115                 |  |



Sub-Matrix: SOIL

| Method: Compound   | CAS Number | LOR  | Unit  | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                    |     |                     |  |
|--|------------|------|-------|-----------------------------|---------------------------------------|--------------------|-----|---------------------|--|
|  |            |      |       | Result                      | Spike                                 | Spike Recovery (%) |     | Recovery Limits (%) |  |
|  |            |      |       |                             | Concentration                         | LCS                | Low | High                |  |
| <b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1436183) - continued</b> |            |      |       |                             |                                       |                    |     |                     |  |
| EP068: Heptachlor epoxide  | 1024-57-3  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 89.2               | 62  | 118                 |  |
| EP068: trans-Chlordane   | 5103-74-2  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 87.9               | 63  | 117                 |  |
| EP068: alpha-Endosulfan  | 959-98-8   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 90.0               | 66  | 116                 |  |
| EP068: cis-Chlordane   | 5103-71-9  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 87.3               | 64  | 116                 |  |
| EP068: Dieldrin  | 60-57-1    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 86.2               | 66  | 116                 |  |
| EP068: 4,4'-DDE  | 72-55-9    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 97.0               | 67  | 115                 |  |
| EP068: Endrin  | 72-20-8    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 82.2               | 67  | 123                 |  |
| EP068: beta-Endosulfan   | 33213-65-9 | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 89.8               | 69  | 115                 |  |
| EP068: 4,4'-DDD  | 72-54-8    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 89.3               | 69  | 121                 |  |
| EP068: Endrin aldehyde   | 7421-93-4  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 82.3               | 56  | 120                 |  |
| EP068: Endosulfan sulfate  | 1031-07-8  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 91.0               | 62  | 124                 |  |
| EP068: 4,4'-DDT  | 50-29-3    | 0.2  | mg/kg | <0.2                        | 0.5 mg/kg                             | 82.5               | 66  | 120                 |  |
| EP068: Endrin ketone   | 53494-70-5 | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 90.7               | 64  | 122                 |  |
| EP068: Methoxychlor  | 72-43-5    | 0.2  | mg/kg | <0.2                        | 0.5 mg/kg                             | 77.3               | 54  | 130                 |  |
| <b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1436204)</b>             |            |      |       |                             |                                       |                    |     |                     |  |
| EP068: alpha-BHC   | 319-84-6   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 91.5               | 69  | 113                 |  |
| EP068: Hexachlorobenzene (HCB)   | 118-74-1   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 85.2               | 65  | 117                 |  |
| EP068: beta-BHC  | 319-85-7   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 84.6               | 67  | 119                 |  |
| EP068: gamma-BHC   | 58-89-9    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 88.6               | 68  | 116                 |  |
| EP068: delta-BHC   | 319-86-8   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 83.8               | 65  | 117                 |  |
| EP068: Heptachlor  | 76-44-8    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 89.2               | 67  | 115                 |  |
| EP068: Aldrin  | 309-00-2   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 97.7               | 69  | 115                 |  |
| EP068: Heptachlor epoxide  | 1024-57-3  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 88.5               | 62  | 118                 |  |
| EP068: trans-Chlordane   | 5103-74-2  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 84.9               | 63  | 117                 |  |
| EP068: alpha-Endosulfan  | 959-98-8   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 89.6               | 66  | 116                 |  |
| EP068: cis-Chlordane   | 5103-71-9  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 88.8               | 64  | 116                 |  |
| EP068: Dieldrin  | 60-57-1    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 86.6               | 66  | 116                 |  |
| EP068: 4,4'-DDE  | 72-55-9    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 85.8               | 67  | 115                 |  |
| EP068: Endrin  | 72-20-8    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 85.2               | 67  | 123                 |  |
| EP068: beta-Endosulfan   | 33213-65-9 | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 86.8               | 69  | 115                 |  |
| EP068: 4,4'-DDD  | 72-54-8    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 84.5               | 69  | 121                 |  |
| EP068: Endrin aldehyde   | 7421-93-4  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 74.9               | 56  | 120                 |  |
| EP068: Endosulfan sulfate  | 1031-07-8  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 81.3               | 62  | 124                 |  |
| EP068: 4,4'-DDT  | 50-29-3    | 0.2  | mg/kg | <0.2                        | 0.5 mg/kg                             | 79.9               | 66  | 120                 |  |
| EP068: Endrin ketone   | 53494-70-5 | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 88.2               | 64  | 122                 |  |
| EP068: Methoxychlor  | 72-43-5    | 0.2  | mg/kg | <0.2                        | 0.5 mg/kg                             | 78.5               | 54  | 130                 |  |
| <b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1436183)</b>           |            |      |       |                             |                                       |                    |     |                     |  |
| EP068: Dichlorvos  | 62-73-7    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 78.5               | 59  | 119                 |  |
| EP068: Demeton-S-methyl  | 919-86-8   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 84.0               | 62  | 128                 |  |



Sub-Matrix: SOIL

| Method: Compound   | CAS Number | LOR  | Unit  | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                    |     |                     |  |
|--|------------|------|-------|-----------------------------|---------------------------------------|--------------------|-----|---------------------|--|
|  |            |      |       | Result                      | Spike                                 | Spike Recovery (%) |     | Recovery Limits (%) |  |
|  |            |      |       |                             | Concentration                         | LCS                | Low | High                |  |
| <b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1436183) - continued</b> |            |      |       |                             |                                       |                    |     |                     |  |
| EP068: Monocrotophos   | 6923-22-4  | 0.2  | mg/kg | <0.2                        | 0.5 mg/kg                             | 81.9               | 54  | 126                 |  |
| EP068: Dimethoate  | 60-51-5    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 76.2               | 67  | 119                 |  |
| EP068: Diazinon  | 333-41-5   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 89.9               | 70  | 120                 |  |
| EP068: Chlorpyrifos-methyl   | 5598-13-0  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 90.5               | 72  | 120                 |  |
| EP068: Parathion-methyl  | 298-00-0   | 0.2  | mg/kg | <0.2                        | 0.5 mg/kg                             | 74.8               | 68  | 120                 |  |
| EP068: Malathion   | 121-75-5   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 79.5               | 68  | 122                 |  |
| EP068: Fenthion  | 55-38-9    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 84.7               | 69  | 117                 |  |
| EP068: Chlorpyrifos  | 2921-88-2  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 88.9               | 76  | 118                 |  |
| EP068: Parathion   | 56-38-2    | 0.2  | mg/kg | <0.2                        | 0.5 mg/kg                             | 77.8               | 64  | 122                 |  |
| EP068: Pirimphos-ethyl   | 23505-41-1 | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 81.6               | 70  | 116                 |  |
| EP068: Chlorfenvinphos   | 470-90-6   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 79.3               | 69  | 121                 |  |
| EP068: Bromophos-ethyl   | 4824-78-6  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 85.6               | 66  | 118                 |  |
| EP068: Fenamiphos  | 22224-92-6 | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 107                | 68  | 124                 |  |
| EP068: Prothiofos  | 34643-46-4 | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 86.0               | 62  | 112                 |  |
| EP068: Ethion  | 563-12-2   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 82.3               | 68  | 120                 |  |
| EP068: Carbophenothion   | 786-19-6   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 88.4               | 65  | 127                 |  |
| EP068: Azinphos Methyl   | 86-50-0    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 97.7               | 41  | 123                 |  |
| <b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1436204)</b>             |            |      |       |                             |                                       |                    |     |                     |  |
| EP068: Dichlorvos  | 62-73-7    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 89.8               | 59  | 119                 |  |
| EP068: Demeton-S-methyl  | 919-86-8   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 107                | 62  | 128                 |  |
| EP068: Monocrotophos   | 6923-22-4  | 0.2  | mg/kg | <0.2                        | 0.5 mg/kg                             | 97.6               | 54  | 126                 |  |
| EP068: Dimethoate  | 60-51-5    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 89.3               | 67  | 119                 |  |
| EP068: Diazinon  | 333-41-5   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 89.8               | 70  | 120                 |  |
| EP068: Chlorpyrifos-methyl   | 5598-13-0  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 81.5               | 72  | 120                 |  |
| EP068: Parathion-methyl  | 298-00-0   | 0.2  | mg/kg | <0.2                        | 0.5 mg/kg                             | 75.9               | 68  | 120                 |  |
| EP068: Malathion   | 121-75-5   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 82.4               | 68  | 122                 |  |
| EP068: Fenthion  | 55-38-9    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 82.1               | 69  | 117                 |  |
| EP068: Chlorpyrifos  | 2921-88-2  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 83.0               | 76  | 118                 |  |
| EP068: Parathion   | 56-38-2    | 0.2  | mg/kg | <0.2                        | 0.5 mg/kg                             | 77.7               | 64  | 122                 |  |
| EP068: Pirimphos-ethyl   | 23505-41-1 | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 82.5               | 70  | 116                 |  |
| EP068: Chlorfenvinphos   | 470-90-6   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 81.4               | 69  | 121                 |  |
| EP068: Bromophos-ethyl   | 4824-78-6  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 85.3               | 66  | 118                 |  |
| EP068: Fenamiphos  | 22224-92-6 | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 79.5               | 68  | 124                 |  |
| EP068: Prothiofos  | 34643-46-4 | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 88.8               | 62  | 112                 |  |
| EP068: Ethion  | 563-12-2   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 86.9               | 68  | 120                 |  |
| EP068: Carbophenothion   | 786-19-6   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 78.3               | 65  | 127                 |  |
| EP068: Azinphos Methyl   | 86-50-0    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 64.0               | 41  | 123                 |  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1436182)</b>       |            |      |       |                             |                                       |                    |     |                     |  |
| EP075(SIM): Naphthalene  | 91-20-3    | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 112                | 77  | 125                 |  |



Sub-Matrix: SOIL

| Method: Compound   | CAS Number           | LOR | Unit  | Method Blank (MB) Report Result | Laboratory Control Spike (LCS) Report |                    |     |                     |      |
|--|----------------------|-----|-------|---------------------------------|---------------------------------------|--------------------|-----|---------------------|------|
|  |                      |     |       |                                 | Spike Concentration                   | Spike Recovery (%) |     | Recovery Limits (%) |      |
|  |                      |     |       |                                 |                                       | LCS                | Low | High                | High |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1436182) - continued</b> |                      |     |       |                                 |                                       |                    |     |                     |      |
| EP075(SIM): Acenaphthylene   | 208-96-8             | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 110                | 72  | 124                 |      |
| EP075(SIM): Acenaphthene   | 83-32-9              | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 113                | 73  | 127                 |      |
| EP075(SIM): Fluorene   | 86-73-7              | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 111                | 72  | 126                 |      |
| EP075(SIM): Phenanthrene   | 85-01-8              | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 113                | 75  | 127                 |      |
| EP075(SIM): Anthracene   | 120-12-7             | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 120                | 77  | 127                 |      |
| EP075(SIM): Fluoranthene   | 206-44-0             | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 112                | 73  | 127                 |      |
| EP075(SIM): Pyrene   | 129-00-0             | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 116                | 74  | 128                 |      |
| EP075(SIM): Benz(a)anthracene  | 56-55-3              | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 100                | 69  | 123                 |      |
| EP075(SIM): Chrysene   | 218-01-9             | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 107                | 75  | 127                 |      |
| EP075(SIM): Benzo(b+j)fluoranthene   | 205-99-2<br>205-82-3 | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 90.9               | 68  | 116                 |      |
| EP075(SIM): Benzo(k)fluoranthene   | 207-08-9             | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 104                | 74  | 126                 |      |
| EP075(SIM): Benzo(a)pyrene   | 50-32-8              | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 103                | 70  | 126                 |      |
| EP075(SIM): Indeno(1.2.3.cd)pyrene   | 193-39-5             | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 67.2               | 61  | 121                 |      |
| EP075(SIM): Dibenz(a,h)anthracene  | 53-70-3              | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 69.1               | 62  | 118                 |      |
| EP075(SIM): Benzo(g,h,i)perylene   | 191-24-2             | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 67.5               | 63  | 121                 |      |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1436206)</b>             |                      |     |       |                                 |                                       |                    |     |                     |      |
| EP075(SIM): Naphthalene  | 91-20-3              | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 112                | 77  | 125                 |      |
| EP075(SIM): Acenaphthylene   | 208-96-8             | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 110                | 72  | 124                 |      |
| EP075(SIM): Acenaphthene   | 83-32-9              | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 112                | 73  | 127                 |      |
| EP075(SIM): Fluorene   | 86-73-7              | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 111                | 72  | 126                 |      |
| EP075(SIM): Phenanthrene   | 85-01-8              | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 111                | 75  | 127                 |      |
| EP075(SIM): Anthracene   | 120-12-7             | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 118                | 77  | 127                 |      |
| EP075(SIM): Fluoranthene   | 206-44-0             | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 111                | 73  | 127                 |      |
| EP075(SIM): Pyrene   | 129-00-0             | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 114                | 74  | 128                 |      |
| EP075(SIM): Benz(a)anthracene  | 56-55-3              | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 99.1               | 69  | 123                 |      |
| EP075(SIM): Chrysene   | 218-01-9             | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 106                | 75  | 127                 |      |
| EP075(SIM): Benzo(b+j)fluoranthene   | 205-99-2<br>205-82-3 | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 91.7               | 68  | 116                 |      |
| EP075(SIM): Benzo(k)fluoranthene   | 207-08-9             | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 108                | 74  | 126                 |      |
| EP075(SIM): Benzo(a)pyrene   | 50-32-8              | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 102                | 70  | 126                 |      |
| EP075(SIM): Indeno(1.2.3.cd)pyrene   | 193-39-5             | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 78.7               | 61  | 121                 |      |
| EP075(SIM): Dibenz(a,h)anthracene  | 53-70-3              | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 81.7               | 62  | 118                 |      |
| EP075(SIM): Benzo(g,h,i)perylene   | 191-24-2             | 0.5 | mg/kg | <0.5                            | 6 mg/kg                               | 75.0               | 63  | 121                 |      |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1436181)</b>                    |                      |     |       |                                 |                                       |                    |     |                     |      |
| EP071: C10 - C14 Fraction  | ----                 | 50  | mg/kg | <50                             | 200 mg/kg                             | 112                | 75  | 129                 |      |
| EP071: C15 - C28 Fraction  | ----                 | 100 | mg/kg | <100                            | 300 mg/kg                             | 111                | 77  | 131                 |      |
| EP071: C29 - C36 Fraction  | ----                 | 100 | mg/kg | <100                            | 200 mg/kg                             | 106                | 71  | 129                 |      |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1436205)</b>                    |                      |     |       |                                 |                                       |                    |     |                     |      |



Sub-Matrix: SOIL

| Method: Compound  | CAS Number | LOR  | Unit  | Method Blank (MB) Report Result | Laboratory Control Spike (LCS) Report |                    |     |                     |      |
|---|------------|------|-------|---------------------------------|---------------------------------------|--------------------|-----|---------------------|------|
|   |            |      |       |                                 | Spike Concentration                   | Spike Recovery (%) |     | Recovery Limits (%) |      |
|   |            |      |       |                                 |                                       | LCS                | Low | High                | High |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1436205) - continued</b>             |            |      |       |                                 |                                       |                    |     |                     |      |
| EP071: C10 - C14 Fraction   | ----       | 50   | mg/kg | <50                             | 200 mg/kg                             | 104                | 75  | 129                 |      |
| EP071: C15 - C28 Fraction   | ----       | 100  | mg/kg | <100                            | 300 mg/kg                             | 112                | 77  | 131                 |      |
| EP071: C29 - C36 Fraction   | ----       | 100  | mg/kg | <100                            | 200 mg/kg                             | 111                | 71  | 129                 |      |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1436801)</b>                         |            |      |       |                                 |                                       |                    |     |                     |      |
| EP080: C6 - C9 Fraction   | ----       | 10   | mg/kg | <10                             | 26 mg/kg                              | 112                | 68  | 128                 |      |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1436810)</b>                         |            |      |       |                                 |                                       |                    |     |                     |      |
| EP080: C6 - C9 Fraction   | ----       | 10   | mg/kg | <10                             | 26 mg/kg                              | 80.4               | 68  | 128                 |      |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1436181)</b> |            |      |       |                                 |                                       |                    |     |                     |      |
| EP071: >C10 - C16 Fraction  | ----       | 50   | mg/kg | <50                             | 250 mg/kg                             | 104                | 77  | 125                 |      |
| EP071: >C16 - C34 Fraction  | ----       | 100  | mg/kg | <100                            | 350 mg/kg                             | 113                | 74  | 138                 |      |
| EP071: >C34 - C40 Fraction  | ----       | 100  | mg/kg | <100                            | 150 mg/kg                             | 110                | 63  | 131                 |      |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1436205)</b> |            |      |       |                                 |                                       |                    |     |                     |      |
| EP071: >C10 - C16 Fraction  | ----       | 50   | mg/kg | <50                             | 250 mg/kg                             | 102                | 77  | 125                 |      |
| EP071: >C16 - C34 Fraction  | ----       | 100  | mg/kg | <100                            | 350 mg/kg                             | 109                | 74  | 138                 |      |
| EP071: >C34 - C40 Fraction  | ----       | 100  | mg/kg | <100                            | 150 mg/kg                             | 106                | 63  | 131                 |      |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1436801)</b> |            |      |       |                                 |                                       |                    |     |                     |      |
| EP080: C6 - C10 Fraction  | C6_C10     | 10   | mg/kg | <10                             | 31 mg/kg                              | 116                | 68  | 128                 |      |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1436810)</b> |            |      |       |                                 |                                       |                    |     |                     |      |
| EP080: C6 - C10 Fraction  | C6_C10     | 10   | mg/kg | <10                             | 31 mg/kg                              | 87.0               | 68  | 128                 |      |
| <b>EP080: BTEXN (QCLot: 1436801)</b>  |            |      |       |                                 |                                       |                    |     |                     |      |
| EP080: Benzene  | 71-43-2    | 0.2  | mg/kg | <0.2                            | 1 mg/kg                               | 115                | 62  | 116                 |      |
| EP080: Toluene  | 108-88-3   | 0.5  | mg/kg | <0.5                            | 1 mg/kg                               | 112                | 67  | 121                 |      |
| EP080: Ethylbenzene   | 100-41-4   | 0.5  | mg/kg | <0.5                            | 1 mg/kg                               | 102                | 65  | 117                 |      |
| EP080: meta- & para-Xylene  | 108-38-3   | 0.5  | mg/kg | <0.5                            | 2 mg/kg                               | 107                | 66  | 118                 |      |
|   | 106-42-3   |      |       |                                 |                                       |                    |     |                     |      |
| EP080: ortho-Xylene   | 95-47-6    | 0.5  | mg/kg | <0.5                            | 1 mg/kg                               | 107                | 68  | 120                 |      |
| EP080: Naphthalene  | 91-20-3    | 1    | mg/kg | <1                              | 1 mg/kg                               | 114                | 63  | 119                 |      |
| <b>EP080: BTEXN (QCLot: 1436810)</b>  |            |      |       |                                 |                                       |                    |     |                     |      |
| EP080: Benzene  | 71-43-2    | 0.2  | mg/kg | <0.2                            | 1 mg/kg                               | 112                | 62  | 116                 |      |
| EP080: Toluene  | 108-88-3   | 0.5  | mg/kg | <0.5                            | 1 mg/kg                               | 109                | 67  | 121                 |      |
| EP080: Ethylbenzene   | 100-41-4   | 0.5  | mg/kg | <0.5                            | 1 mg/kg                               | 106                | 65  | 117                 |      |
| EP080: meta- & para-Xylene  | 108-38-3   | 0.5  | mg/kg | <0.5                            | 2 mg/kg                               | 106                | 66  | 118                 |      |
|   | 106-42-3   |      |       |                                 |                                       |                    |     |                     |      |
| EP080: ortho-Xylene   | 95-47-6    | 0.5  | mg/kg | <0.5                            | 1 mg/kg                               | 103                | 68  | 120                 |      |
| EP080: Naphthalene  | 91-20-3    | 1    | mg/kg | <1                              | 1 mg/kg                               | 114                | 63  | 119                 |      |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1438849)</b>                   |            |      |       |                                 |                                       |                    |     |                     |      |
| EP202: 4-Chlorophenoxy acetic acid  | 122-88-3   | 0.02 | mg/kg | <0.02                           | 0.1 mg/kg                             | 68.1               | 54  | 128                 |      |



Sub-Matrix: SOIL

| Method: Compound  | CAS Number | LOR  | Unit  | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report |                    |     |                     |  |
|---|------------|------|-------|--------------------------|---------------------------------------|--------------------|-----|---------------------|--|
|   |            |      |       | Result                   | Spike                                 | Spike Recovery (%) |     | Recovery Limits (%) |  |
|   |            |      |       |                          | Concentration                         | LCS                | Low | High                |  |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1438849) - continued</b> |            |      |       |                          |                                       |                    |     |                     |  |
| EP202: 2,4-DB   | 94-82-6    | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 69.2               | 46  | 130                 |  |
| EP202: Dicamba  | 1918-00-9  | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 74.1               | 52  | 135                 |  |
| EP202: Mecoprop   | 93-65-2    | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 68.7               | 60  | 130                 |  |
| EP202: MCPA   | 94-74-6    | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 69.7               | 57  | 131                 |  |
| EP202: 2,4-DP   | 120-36-5   | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 74.4               | 50  | 141                 |  |
| EP202: 2,4-D  | 94-75-7    | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 70.0               | 69  | 131                 |  |
| EP202: Triclopyr  | 55335-06-3 | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 77.3               | 51  | 141                 |  |
| EP202: 2,4,5-TP (Silvex)  | 93-72-1    | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 66.8               | 41  | 126                 |  |
| EP202: 2,4,5-T  | 93-76-5    | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 85.4               | 57  | 139                 |  |
| EP202: MCPB   | 94-81-5    | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 65.5               | 39  | 137                 |  |
| EP202: Picloram   | 1918-02-1  | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 65.9               | 49  | 129                 |  |
| EP202: Clopyralid   | 1702-17-6  | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 75.8               | 49  | 106                 |  |
| EP202: Fluroxypyr   | 69377-81-7 | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 75.8               | 53  | 128                 |  |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1438850)</b>             |            |      |       |                          |                                       |                    |     |                     |  |
| EP202: 4-Chlorophenoxy acetic acid  | 122-88-3   | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 68.1               | 54  | 128                 |  |
| EP202: 2,4-DB   | 94-82-6    | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 72.1               | 46  | 130                 |  |
| EP202: Dicamba  | 1918-00-9  | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 81.6               | 52  | 135                 |  |
| EP202: Mecoprop   | 93-65-2    | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 73.3               | 60  | 130                 |  |
| EP202: MCPA   | 94-74-6    | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 70.7               | 57  | 131                 |  |
| EP202: 2,4-DP   | 120-36-5   | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 79.7               | 50  | 141                 |  |
| EP202: 2,4-D  | 94-75-7    | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 75.0               | 69  | 131                 |  |
| EP202: Triclopyr  | 55335-06-3 | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 84.6               | 51  | 141                 |  |
| EP202: 2,4,5-TP (Silvex)  | 93-72-1    | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 72.5               | 41  | 126                 |  |
| EP202: 2,4,5-T  | 93-76-5    | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 99.8               | 57  | 139                 |  |
| EP202: MCPB   | 94-81-5    | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 78.7               | 39  | 137                 |  |
| EP202: Picloram   | 1918-02-1  | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 75.8               | 49  | 129                 |  |
| EP202: Clopyralid   | 1702-17-6  | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 83.8               | 49  | 106                 |  |
| EP202: Fluroxypyr   | 69377-81-7 | 0.02 | mg/kg | <0.02                    | 0.1 mg/kg                             | 75.7               | 53  | 128                 |  |

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

| Laboratory sample ID                                    | Client sample ID | Method: Compound | CAS Number | Matrix Spike (MS) Report |                    |                     |      |
|---|------------------|------------------|------------|--------------------------|--------------------|---------------------|------|
|   |                  |                  |            | Spike                    | Spike Recovery (%) | Recovery Limits (%) |      |
|   |                  |                  |            | Concentration            | MS                 | Low                 | High |
| <b>EG005T: Total Metals by ICP-AES (QCLot: 1443453)</b> |                  |                  |            |                          |                    |                     |      |
| ES1804838-002   | BH1A             | EG005T: Arsenic  | 7440-38-2  | 50 mg/kg                 | 94.7               | 70                  | 130  |



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 |
| <b>EG005T: Total Metals by ICP-AES (QCLot: 1443453) - continued</b> |                  |  |            |                          |                  |                     |      |
| ES1804838-002   | BH1A             | EG005T: Cadmium  | 7440-43-9  | 50 mg/kg                 | 95.3             | 70                  | 130  |
|   |                  | EG005T: Chromium   | 7440-47-3  | 50 mg/kg                 | 95.4             | 70                  | 130  |
|   |                  | EG005T: Copper   | 7440-50-8  | 250 mg/kg                | 93.9             | 70                  | 130  |
|   |                  | EG005T: Lead   | 7439-92-1  | 250 mg/kg                | 87.2             | 70                  | 130  |
|   |                  | EG005T: Nickel   | 7440-02-0  | 50 mg/kg                 | 94.7             | 70                  | 130  |
|   |                  | EG005T: Zinc   | 7440-66-6  | 250 mg/kg                | 97.7             | 70                  | 130  |
| <b>EG005T: Total Metals by ICP-AES (QCLot: 1443455)</b>             |                  |  |            |                          |                  |                     |      |
| ES1804838-022   | BH13A            | EG005T: Arsenic  | 7440-38-2  | 50 mg/kg                 | 80.9             | 70                  | 130  |
|   |                  | EG005T: Cadmium  | 7440-43-9  | 50 mg/kg                 | 94.7             | 70                  | 130  |
|   |                  | EG005T: Chromium   | 7440-47-3  | 50 mg/kg                 | 93.4             | 70                  | 130  |
|   |                  | EG005T: Copper   | 7440-50-8  | 250 mg/kg                | 92.7             | 70                  | 130  |
|   |                  | EG005T: Lead   | 7439-92-1  | 250 mg/kg                | 85.4             | 70                  | 130  |
|   |                  | EG005T: Nickel   | 7440-02-0  | 50 mg/kg                 | 92.7             | 70                  | 130  |
|   |                  | EG005T: Zinc   | 7440-66-6  | 250 mg/kg                | 96.3             | 70                  | 130  |
| <b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 1443454)</b>   |                  |  |            |                          |                  |                     |      |
| ES1804838-002   | BH1A             | EG035T: Mercury  | 7439-97-6  | 5 mg/kg                  | 87.5             | 70                  | 130  |
| <b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 1443456)</b>   |                  |  |            |                          |                  |                     |      |
| ES1804838-022   | BH13A            | EG035T: Mercury  | 7439-97-6  | 5 mg/kg                  | 89.5             | 70                  | 130  |
| <b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1436183)</b>      |                  |  |            |                          |                  |                     |      |
| ES1804838-002   | BH1A             | EP068: gamma-BHC   | 58-89-9    | 0.5 mg/kg                | 98.2             | 70                  | 130  |
|   |                  | EP068: Heptachlor  | 76-44-8    | 0.5 mg/kg                | 80.4             | 70                  | 130  |
|   |                  | EP068: Aldrin  | 309-00-2   | 0.5 mg/kg                | 78.0             | 70                  | 130  |
|   |                  | EP068: Dieldrin  | 60-57-1    | 0.5 mg/kg                | 76.0             | 70                  | 130  |
|   |                  | EP068: Endrin  | 72-20-8    | 2 mg/kg                  | 81.9             | 70                  | 130  |
|   |                  | EP068: 4.4'-DDT  | 50-29-3    | 2 mg/kg                  | 93.7             | 70                  | 130  |
|   |                  | <b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1436204)</b>   |            |                          |                  |                     |      |
| ES1804838-022   | BH13A            | EP068: gamma-BHC   | 58-89-9    | 0.5 mg/kg                | 84.5             | 70                  | 130  |
|   |                  | EP068: Heptachlor  | 76-44-8    | 0.5 mg/kg                | 98.7             | 70                  | 130  |
|   |                  | EP068: Aldrin  | 309-00-2   | 0.5 mg/kg                | 87.6             | 70                  | 130  |
|   |                  | EP068: Dieldrin  | 60-57-1    | 0.5 mg/kg                | 79.7             | 70                  | 130  |
|   |                  | EP068: Endrin  | 72-20-8    | 2 mg/kg                  | 84.4             | 70                  | 130  |
|   |                  | EP068: 4.4'-DDT  | 50-29-3    | 2 mg/kg                  | 94.2             | 70                  | 130  |
|   |                  | <b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1436183)</b> |            |                          |                  |                     |      |
| ES1804838-002   | BH1A             | EP068: Diazinon  | 333-41-5   | 0.5 mg/kg                | 78.3             | 70                  | 130  |
|   |                  | EP068: Chlorpyrifos-methyl                                       | 5598-13-0  | 0.5 mg/kg                | 103              | 70                  | 130  |
|   |                  | EP068: Pirimphos-ethyl   | 23505-41-1 | 0.5 mg/kg                | 90.1             | 70                  | 130  |
|   |                  | EP068: Bromophos-ethyl   | 4824-78-6  | 0.5 mg/kg                | 91.7             | 70                  | 130  |



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 |
| <b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1436183) - continued</b>            |                  |                            |            |                          |                  |                     |      |
| ES1804838-002   | BH1A             | EP068: Prothiofos          | 34643-46-4 | 0.5 mg/kg                | 96.3             | 70                  | 130  |
| <b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1436204)</b>                        |                  |                            |            |                          |                  |                     |      |
| ES1804838-022   | BH13A            | EP068: Diazinon            | 333-41-5   | 0.5 mg/kg                | 78.2             | 70                  | 130  |
|   |                  | EP068: Chlorpyrifos-methyl | 5598-13-0  | 0.5 mg/kg                | 77.2             | 70                  | 130  |
|   |                  | EP068: Pirimphos-ethyl     | 23505-41-1 | 0.5 mg/kg                | 85.0             | 70                  | 130  |
|   |                  | EP068: Bromophos-ethyl     | 4824-78-6  | 0.5 mg/kg                | 75.9             | 70                  | 130  |
|   |                  | EP068: Prothiofos          | 34643-46-4 | 0.5 mg/kg                | 77.9             | 70                  | 130  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1436182)</b>                  |                  |                            |            |                          |                  |                     |      |
| ES1804838-002   | BH1A             | EP075(SIM): Acenaphthene   | 83-32-9    | 10 mg/kg                 | 106              | 70                  | 130  |
|   |                  | EP075(SIM): Pyrene         | 129-00-0   | 10 mg/kg                 | 110              | 70                  | 130  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1436206)</b>                  |                  |                            |            |                          |                  |                     |      |
| ES1804838-022   | BH13A            | EP075(SIM): Acenaphthene   | 83-32-9    | 10 mg/kg                 | 86.6             | 70                  | 130  |
|   |                  | EP075(SIM): Pyrene         | 129-00-0   | 10 mg/kg                 | 81.0             | 70                  | 130  |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1436181)</b>                         |                  |                            |            |                          |                  |                     |      |
| ES1804838-002   | BH1A             | EP071: C10 - C14 Fraction  | ----       | 523 mg/kg                | 82.6             | 73                  | 137  |
|   |                  | EP071: C15 - C28 Fraction  | ----       | 2319 mg/kg               | 74.0             | 53                  | 131  |
|   |                  | EP071: C29 - C36 Fraction  | ----       | 1714 mg/kg               | 81.8             | 52                  | 132  |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1436205)</b>                         |                  |                            |            |                          |                  |                     |      |
| ES1804838-022   | BH13A            | EP071: C10 - C14 Fraction  | ----       | 523 mg/kg                | 83.8             | 73                  | 137  |
|   |                  | EP071: C15 - C28 Fraction  | ----       | 2319 mg/kg               | 113              | 53                  | 131  |
|   |                  | EP071: C29 - C36 Fraction  | ----       | 1714 mg/kg               | 119              | 52                  | 132  |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1436801)</b>                         |                  |                            |            |                          |                  |                     |      |
| ES1804838-002   | BH1A             | EP080: C6 - C9 Fraction    | ----       | 32.5 mg/kg               | 98.4             | 70                  | 130  |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1436810)</b>                         |                  |                            |            |                          |                  |                     |      |
| ES1804859-006   | Anonymous        | EP080: C6 - C9 Fraction    | ----       | 32.5 mg/kg               | 81.0             | 70                  | 130  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1436181)</b> |                  |                            |            |                          |                  |                     |      |
| ES1804838-002   | BH1A             | EP071: >C10 - C16 Fraction | ----       | 860 mg/kg                | 117              | 73                  | 137  |
|   |                  | EP071: >C16 - C34 Fraction | ----       | 3223 mg/kg               | 75.5             | 53                  | 131  |
|   |                  | EP071: >C34 - C40 Fraction | ----       | 1058 mg/kg               | 89.3             | 52                  | 132  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1436205)</b> |                  |                            |            |                          |                  |                     |      |
| ES1804838-022   | BH13A            | EP071: >C10 - C16 Fraction | ----       | 860 mg/kg                | 90.9             | 73                  | 137  |
|   |                  | EP071: >C16 - C34 Fraction | ----       | 3223 mg/kg               | 126              | 53                  | 131  |
|   |                  | EP071: >C34 - C40 Fraction | ----       | 1058 mg/kg               | 105              | 52                  | 132  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1436801)</b> |                  |                            |            |                          |                  |                     |      |
| ES1804838-002   | BH1A             | EP080: C6 - C10 Fraction   | C6_C10     | 37.5 mg/kg               | 99.0             | 70                  | 130  |



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 |  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1436810)</b> |                  |                            |            |                          |                  |                     |      |  |
| ES1804859-006   | Anonymous        | EP080: C6 - C10 Fraction   | C6_C10     | 37.5 mg/kg               | 83.8             | 70                  | 130  |  |
| <b>EP080: BTEXN (QCLot: 1436801)</b>  |                  |                            |            |                          |                  |                     |      |  |
| ES1804838-002   | BH1A             | EP080: Benzene             | 71-43-2    | 2.5 mg/kg                | 102              | 70                  | 130  |  |
|   |                  | EP080: Toluene             | 108-88-3   | 2.5 mg/kg                | 98.6             | 70                  | 130  |  |
|   |                  | EP080: Ethylbenzene        | 100-41-4   | 2.5 mg/kg                | 97.7             | 70                  | 130  |  |
|   |                  | EP080: meta- & para-Xylene | 108-38-3   | 2.5 mg/kg                | 96.6             | 70                  | 130  |  |
|   |                  |                            | 106-42-3   |                          |                  |                     |      |  |
|   |                  | EP080: ortho-Xylene        | 95-47-6    | 2.5 mg/kg                | 98.4             | 70                  | 130  |  |
|   |                  | EP080: Naphthalene         | 91-20-3    | 2.5 mg/kg                | 101              | 70                  | 130  |  |
| <b>EP080: BTEXN (QCLot: 1436810)</b>  |                  |                            |            |                          |                  |                     |      |  |
| ES1804859-006   | Anonymous        | EP080: Benzene             | 71-43-2    | 2.5 mg/kg                | 90.7             | 70                  | 130  |  |
|   |                  | EP080: Toluene             | 108-88-3   | 2.5 mg/kg                | 94.6             | 70                  | 130  |  |
|   |                  | EP080: Ethylbenzene        | 100-41-4   | 2.5 mg/kg                | 91.5             | 70                  | 130  |  |
|   |                  | EP080: meta- & para-Xylene | 108-38-3   | 2.5 mg/kg                | 91.6             | 70                  | 130  |  |
|   |                  |                            | 106-42-3   |                          |                  |                     |      |  |
|   |                  | EP080: ortho-Xylene        | 95-47-6    | 2.5 mg/kg                | 88.8             | 70                  | 130  |  |
|   |                  | EP080: Naphthalene         | 91-20-3    | 2.5 mg/kg                | 82.9             | 70                  | 130  |  |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1438849)</b>                   |                  |                            |            |                          |                  |                     |      |  |
| ES1804838-002   | BH1A             | EP202: Mecoprop            | 93-65-2    | 0.1 mg/kg                | 61.6             | 60                  | 140  |  |
|   |                  | EP202: MCPA                | 94-74-6    | 0.1 mg/kg                | 64.6             | 57                  | 143  |  |
|   |                  | EP202: 2.4-D               | 94-75-7    | 0.1 mg/kg                | 69.6             | 68                  | 139  |  |
|   |                  | EP202: Triclopyr           | 55335-06-3 | 0.1 mg/kg                | 70.1             | 51                  | 145  |  |
|   |                  | EP202: 2.4.5-T             | 93-76-5    | 0.1 mg/kg                | 74.8             | 57                  | 142  |  |
|   |                  | EP202: Picloram            | 1918-02-1  | 0.1 mg/kg                | 74.5             | 49                  | 138  |  |
|   |                  | EP202: Clopyralid          | 1702-17-6  | 0.1 mg/kg                | 76.0             | 49                  | 149  |  |
|   |                  |                            |            |                          |                  |                     |      |  |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1438850)</b>                   |                  |                            |            |                          |                  |                     |      |  |
| ES1804838-022   | BH13A            | EP202: Mecoprop            | 93-65-2    | 0.1 mg/kg                | 60.2             | 60                  | 140  |  |
|   |                  | EP202: MCPA                | 94-74-6    | 0.1 mg/kg                | # 45.4           | 57                  | 143  |  |
|   |                  | EP202: 2.4-D               | 94-75-7    | 0.1 mg/kg                | 72.7             | 68                  | 139  |  |
|   |                  | EP202: Triclopyr           | 55335-06-3 | 0.1 mg/kg                | 60.3             | 51                  | 145  |  |
|   |                  | EP202: 2.4.5-T             | 93-76-5    | 0.1 mg/kg                | 98.4             | 57                  | 142  |  |
|   |                  | EP202: Picloram            | 1918-02-1  | 0.1 mg/kg                | 76.7             | 49                  | 138  |  |
|   |                  | EP202: Clopyralid          | 1702-17-6  | 0.1 mg/kg                | 66.4             | 49                  | 149  |  |
|   |                  |                            |            |                          |                  |                     |      |  |



## QA/QC Compliance Assessment to assist with Quality Review

|              |   |                         |                                 |
|--------------|---|-------------------------|---------------------------------|
| Work Order   | : <b>ES1804838</b>                        | Page                    | : 1 of 12                       |
| Client       | : <b>ROBERT CARR &amp; ASSOCIATES P/L</b> | Laboratory              | : Environmental Division Sydney |
| Contact      | : MS FIONA BROOKER                        | Telephone               | : +61-2-8784 8555               |
| Project      | : 13156                                   | Date Samples Received   | : 14-Feb-2018                   |
| Site         | : ----                                    | Issue Date              | : 07-Mar-2018                   |
| Sampler      | : KATY SHAW                               | No. of samples received | : 32                            |
| Order number | : ----                                    | No. of samples analysed | : 32                            |

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

### Summary of Outliers

#### Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- Matrix Spike outliers exist - please see following pages for full details.
- Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

#### Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

#### Outliers : Frequency of Quality Control Samples

- **NO** Quality Control Sample Frequency Outliers exist.



**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  |
|---|----------------------|------------------|-------------|------------|--------|---------|--|
| <b>Matrix Spike (MS) Recoveries</b>           |                      |                  |             |            |        |         |  |
| EP202A: Phenoxyacetic Acid Herbicides by LCMS | ES1804838--022       | BH13A            | <b>MCPA</b> | 94-74-6    | 45.4 % | 57-143% | <b>Recovery less than lower data quality objective</b> |

**Regular Sample Surrogates**

Sub-Matrix: **SOIL**

| Compound Group Name                            | Laboratory Sample ID | Client Sample ID | Analyte                               | CAS Number | Data   | Limits   | Comment  |
|--|----------------------|------------------|---------------------------------------|------------|--------|----------|--|
| <b>Samples Submitted</b>                       |                      |                  |                                       |            |        |          |  |
| EP202S: Phenoxyacetic Acid Herbicide Surrogate | ES1804838-005        | BH2C             | <b>2.4-Dichlorophenyl Acetic Acid</b> | 19719-28-9 | 43.4 % | 45-139 % | <b>Recovery less than lower data quality objective</b> |
| EP202S: Phenoxyacetic Acid Herbicide Surrogate | ES1804838-011        | BH6A             | <b>2.4-Dichlorophenyl Acetic Acid</b> | 19719-28-9 | 35.9 % | 45-139 % | <b>Recovery less than lower data quality objective</b> |
| EP202S: Phenoxyacetic Acid Herbicide Surrogate | ES1804838-012        | BH6B             | <b>2.4-Dichlorophenyl Acetic Acid</b> | 19719-28-9 | 42.2 % | 45-139 % | <b>Recovery less than lower data quality objective</b> |

**Outliers : Analysis Holding Time Compliance**

Matrix: **SOIL**

| Method   | Extraction / Preparation  |                |                    | Analysis     |               |                  |              |
|--|---|----------------|--------------------|--------------|---------------|------------------|--------------|
|  | Container / Client Sample ID(s)   | Date extracted | Due for extraction | Days overdue | Date analysed | Due for analysis | Days overdue |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>                         |   |                |                    |              |               |                  |              |
| <b>Soil Glass Jar - Unpreserved</b>  |   |                |                    |              |               |                  |              |
| BH1A,<br>BH2A,<br>BH3A,<br>BH4B,<br>BH5B,<br>BH6B,<br>BH8A,<br>BH9A          | BH1C,<br>BH2C,<br>BH4A,<br>BH5A,<br>BH6A,<br>BH7A,<br>BH8B,               | 05-Mar-2018    | 23-Feb-2018        | 10           | ----          | ----             | ----         |
| <b>Soil Glass Jar - Unpreserved</b>  |   |                |                    |              |               |                  |              |
| BH10A,<br>BH11A,<br>BH12A,<br>BH14A,<br>BH15B,<br>BH17A,<br>BH19A,<br>BH20B, | BH10B,<br>BH11B,<br>BH13A,<br>BH15A,<br>BH16A,<br>BH18A,<br>BH20A,<br>QA3 | 05-Mar-2018    | 26-Feb-2018        | 7            | ----          | ----             | ----         |



## 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<br>Container / Client Sample ID(s)               | Sample Date  | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|---|--|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|   |  | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EA010: Conductivity</b>                              |  |                          |                    |             |               |                  |             |   |
| <b>Soil Glass Jar - Unpreserved (EA010)</b>             |  |                          |                    |             |               |                  |             |   |
| BH1A, BH2A, BH3A, BH4B, BH5B, BH6B, BH8A, BH9A          | BH1C, BH2C, BH4A, BH5A, BH6A, BH7A, BH8B,            | 09-Feb-2018              | 16-Feb-2018        | 16-Feb-2018 | ✓             | 16-Feb-2018      | 16-Mar-2018 | ✓ |
| <b>Soil Glass Jar - Unpreserved (EA010)</b>             |  |                          |                    |             |               |                  |             |   |
| BH10A, BH11A, BH12A, BH14A, BH15B, BH17A, BH19A, BH20B, | BH10B, BH11B, BH13A, BH15A, BH16A, BH18A, BH20A, QA3 | 12-Feb-2018              | 19-Feb-2018        | 19-Feb-2018 | ✓             | 19-Feb-2018      | 19-Mar-2018 | ✓ |



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)                                    | Sample Date   | Extraction / Preparation |                    |            | Analysis      |                  |             |   |
|--|---|--------------------------|--------------------|------------|---------------|------------------|-------------|---|
|  |   | Date extracted           | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation  |   |
| <b>EA055: Moisture Content (Dried @ 105-110°C)</b>                           |   |                          |                    |            |               |                  |             |   |
| <b>Soil Glass Jar - Unpreserved (EA055)</b>                                  |   |                          |                    |            |               |                  |             |   |
| BH1A,<br>BH2A,<br>BH3A,<br>BH4B,<br>BH5B,<br>BH6B,<br>BH8A,<br>BH9A          | BH1C,<br>BH2C,<br>BH4A,<br>BH5A,<br>BH6A,<br>BH7A,<br>BH8B,               | 09-Feb-2018              | ----               | ----       | ----          | 16-Feb-2018      | 23-Feb-2018 | ✓ |
| <b>Soil Glass Jar - Unpreserved (EA055)</b>                                  |   |                          |                    |            |               |                  |             |   |
| BH10A,<br>BH11A,<br>BH12A,<br>BH14A,<br>BH15B,<br>BH17A,<br>BH19A,<br>BH20B, | BH10B,<br>BH11B,<br>BH13A,<br>BH15A,<br>BH16A,<br>BH18A,<br>BH20A,<br>QA3 | 12-Feb-2018              | ----               | ----       | ----          | 16-Feb-2018      | 26-Feb-2018 | ✓ |
| <b>EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples</b>      |   |                          |                    |            |               |                  |             |   |
| <b>Snap Lock Bag: Separate bag received (EA200)</b>                          |   |                          |                    |            |               |                  |             |   |
| B1   |   | 09-Feb-2018              | ----               | ----       | ----          | 20-Feb-2018      | 08-Aug-2018 | ✓ |
| <b>EA200: AS 4964 - 2004 Identification of Asbestos in Soils</b>             |   |                          |                    |            |               |                  |             |   |
| <b>Snap Lock Bag: Separate bag received (EA200)</b>                          |   |                          |                    |            |               |                  |             |   |
| B1   |   | 09-Feb-2018              | ----               | ----       | ----          | 20-Feb-2018      | 08-Aug-2018 | ✓ |



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)   | Sample Date | Extraction / Preparation |                    |            | Analysis      |                  |            |  |
|---|-------------|--------------------------|--------------------|------------|---------------|------------------|------------|--|
|   |             | Date extracted           | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |  |
| <b>EG005T: Total Metals by ICP-AES</b>  |             |                          |                    |            |               |                  |            |  |
| <b>Soil Glass Jar - Unpreserved (EG005T)</b><br>BH1A, BH2A, BH3A, BH4B, BH5B, BH6B, BH8A, BH9A<br>BH1C, BH2C, BH4A, BH5A, BH6A, BH7A, BH8B,                     | 09-Feb-2018 | 20-Feb-2018              | 08-Aug-2018        | ✓          | 20-Feb-2018   | 08-Aug-2018      | ✓          |  |
| <b>Soil Glass Jar - Unpreserved (EG005T)</b><br>BH10A, BH11A, BH12A, BH14A, BH15B, BH17A, BH19A, BH20B,<br>BH10B, BH11B, BH13A, BH15A, BH16A, BH18A, BH20A, QA3 | 12-Feb-2018 | 20-Feb-2018              | 11-Aug-2018        | ✓          | 20-Feb-2018   | 11-Aug-2018      | ✓          |  |
| <b>EG035T: Total Recoverable Mercury by FIMS</b>  |             |                          |                    |            |               |                  |            |  |
| <b>Soil Glass Jar - Unpreserved (EG035T)</b><br>BH1A, BH2A, BH3A, BH4B, BH5B, BH6B, BH8A, BH9A<br>BH1C, BH2C, BH4A, BH5A, BH6A, BH7A, BH8B,                     | 09-Feb-2018 | 20-Feb-2018              | 09-Mar-2018        | ✓          | 20-Feb-2018   | 09-Mar-2018      | ✓          |  |
| <b>Soil Glass Jar - Unpreserved (EG035T)</b><br>BH10A, BH11A, BH12A, BH14A, BH15B, BH17A, BH19A, BH20B,<br>BH10B, BH11B, BH13A, BH15A, BH16A, BH18A, BH20A, QA3 | 12-Feb-2018 | 20-Feb-2018              | 12-Mar-2018        | ✓          | 20-Feb-2018   | 12-Mar-2018      | ✓          |  |



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)  | Sample Date  | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|--|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |  | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP068A: Organochlorine Pesticides (OC)</b>  |  |                          |                    |             |               |                  |             |   |
| <b>Soil Glass Jar - Unpreserved (EP068)</b><br>BH1A, BH2A, BH3A, BH4B, BH5B, BH6B, BH8A, BH9A          | BH1C, BH2C, BH4A, BH5A, BH6A, BH7A, BH8B,            | 09-Feb-2018              | 16-Feb-2018        | 23-Feb-2018 | ✓             | 17-Feb-2018      | 28-Mar-2018 | ✓ |
| <b>Soil Glass Jar - Unpreserved (EP068)</b><br>BH10A, BH11A, BH12A, BH14A, BH15B, BH17A, BH19A, BH20B, | BH10B, BH11B, BH13A, BH15A, BH16A, BH18A, BH20A, QA3 | 12-Feb-2018              | 16-Feb-2018        | 26-Feb-2018 | ✓             | 17-Feb-2018      | 28-Mar-2018 | ✓ |
| <b>EP068B: Organophosphorus Pesticides (OP)</b>  |  |                          |                    |             |               |                  |             |   |
| <b>Soil Glass Jar - Unpreserved (EP068)</b><br>BH1A, BH2A, BH3A, BH4B, BH5B, BH6B, BH8A, BH9A          | BH1C, BH2C, BH4A, BH5A, BH6A, BH7A, BH8B,            | 09-Feb-2018              | 16-Feb-2018        | 23-Feb-2018 | ✓             | 17-Feb-2018      | 28-Mar-2018 | ✓ |
| <b>Soil Glass Jar - Unpreserved (EP068)</b><br>BH10A, BH11A, BH12A, BH14A, BH15B, BH17A, BH19A, BH20B, | BH10B, BH11B, BH13A, BH15A, BH16A, BH18A, BH20A, QA3 | 12-Feb-2018              | 16-Feb-2018        | 26-Feb-2018 | ✓             | 17-Feb-2018      | 28-Mar-2018 | ✓ |



Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)  | Sample Date   | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|---|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>  |   |                          |                    |             |               |                  |             |   |
| <b>Soil Glass Jar - Unpreserved (EP075(SIM))</b><br>BH1A,<br>BH3A,<br>BH5A,<br>BH7A,<br>BH9A                 | BH2A,<br>BH4A,<br>BH6A,<br>BH8A,                      | 09-Feb-2018              | 16-Feb-2018        | 23-Feb-2018 | ✓             | 16-Feb-2018      | 28-Mar-2018 | ✓ |
| <b>Soil Glass Jar - Unpreserved (EP075(SIM))</b><br>BH10A,<br>BH12A,<br>BH14A,<br>BH16A,<br>BH18A,<br>BH20A, | BH11A,<br>BH13A,<br>BH15A,<br>BH17A,<br>BH19A,<br>QA3 | 12-Feb-2018              | 16-Feb-2018        | 26-Feb-2018 | ✓             | 16-Feb-2018      | 28-Mar-2018 | ✓ |
| <b>EP080/071: Total Petroleum Hydrocarbons</b>   |   |                          |                    |             |               |                  |             |   |
| <b>Soil Glass Jar - Unpreserved (EP080)</b><br>BH1A,<br>BH3A,<br>BH5A,<br>BH7A,<br>BH9A                      | BH2A,<br>BH4A,<br>BH6A,<br>BH8A,                      | 09-Feb-2018              | 16-Feb-2018        | 23-Feb-2018 | ✓             | 16-Feb-2018      | 23-Feb-2018 | ✓ |
| <b>Soil Glass Jar - Unpreserved (EP071)</b><br>BH1A,<br>BH3A,<br>BH5A,<br>BH7A,<br>BH9A                      | BH2A,<br>BH4A,<br>BH6A,<br>BH8A,                      | 09-Feb-2018              | 16-Feb-2018        | 23-Feb-2018 | ✓             | 17-Feb-2018      | 28-Mar-2018 | ✓ |
| <b>Soil Glass Jar - Unpreserved (EP071)</b><br>BH10A,<br>BH12A,<br>BH14A,<br>BH16A,<br>BH18A,<br>BH20A,      | BH11A,<br>BH13A,<br>BH15A,<br>BH17A,<br>BH19A,<br>QA3 | 12-Feb-2018              | 16-Feb-2018        | 26-Feb-2018 | ✓             | 16-Feb-2018      | 28-Mar-2018 | ✓ |
| <b>Soil Glass Jar - Unpreserved (EP071)</b><br>BH10A,<br>BH12A   | BH11A,  | 12-Feb-2018              | 16-Feb-2018        | 26-Feb-2018 | ✓             | 17-Feb-2018      | 28-Mar-2018 | ✓ |
| <b>Soil Glass Jar - Unpreserved (EP080)</b><br>QA3   |   | 12-Feb-2018              | 16-Feb-2018        | 26-Feb-2018 | ✓             | 19-Feb-2018      | 26-Feb-2018 | ✓ |



Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)   | Sample Date   | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|---|---|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|   |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>                                  |   |                          |                    |             |               |                  |             |   |
| <b>Soil Glass Jar - Unpreserved (EP080)</b><br>BH1A,<br>BH3A,<br>BH5A,<br>BH7A,<br>BH9A                 | BH2A,<br>BH4A,<br>BH6A,<br>BH8A,                      | 09-Feb-2018              | 16-Feb-2018        | 23-Feb-2018 | ✓             | 16-Feb-2018      | 23-Feb-2018 | ✓ |
| <b>Soil Glass Jar - Unpreserved (EP071)</b><br>BH1A,<br>BH3A,<br>BH5A,<br>BH7A,<br>BH9A                 | BH2A,<br>BH4A,<br>BH6A,<br>BH8A,                      | 09-Feb-2018              | 16-Feb-2018        | 23-Feb-2018 | ✓             | 17-Feb-2018      | 28-Mar-2018 | ✓ |
| <b>Soil Glass Jar - Unpreserved (EP071)</b><br>BH10A,<br>BH12A,<br>BH14A,<br>BH16A,<br>BH18A,<br>BH20A, | BH11A,<br>BH13A,<br>BH15A,<br>BH17A,<br>BH19A,<br>QA3 | 12-Feb-2018              | 16-Feb-2018        | 26-Feb-2018 | ✓             | 16-Feb-2018      | 28-Mar-2018 | ✓ |
| <b>Soil Glass Jar - Unpreserved (EP071)</b><br>BH10A,<br>BH12A  | BH11A,  | 12-Feb-2018              | 16-Feb-2018        | 26-Feb-2018 | ✓             | 17-Feb-2018      | 28-Mar-2018 | ✓ |
| <b>Soil Glass Jar - Unpreserved (EP080)</b><br>QA3  |   | 12-Feb-2018              | 16-Feb-2018        | 26-Feb-2018 | ✓             | 19-Feb-2018      | 26-Feb-2018 | ✓ |
| <b>EP080: BTEXN</b>   |   |                          |                    |             |               |                  |             |   |
| <b>Soil Glass Jar - Unpreserved (EP080)</b><br>BH1A,<br>BH3A,<br>BH5A,<br>BH7A,<br>BH9A                 | BH2A,<br>BH4A,<br>BH6A,<br>BH8A,                      | 09-Feb-2018              | 16-Feb-2018        | 23-Feb-2018 | ✓             | 16-Feb-2018      | 23-Feb-2018 | ✓ |
| <b>Soil Glass Jar - Unpreserved (EP080)</b><br>BH10A,<br>BH12A,<br>BH14A,<br>BH16A,<br>BH18A,<br>BH20A  | BH11A,<br>BH13A,<br>BH15A,<br>BH17A,<br>BH19A,        | 12-Feb-2018              | 16-Feb-2018        | 26-Feb-2018 | ✓             | 16-Feb-2018      | 26-Feb-2018 | ✓ |
| <b>Soil Glass Jar - Unpreserved (EP080)</b><br>QA3  |   | 12-Feb-2018              | 16-Feb-2018        | 26-Feb-2018 | ✓             | 19-Feb-2018      | 26-Feb-2018 | ✓ |



Matrix: **SOIL**

Evaluation: ✘ = Holding time breach ; ✔ = Within holding time.

| Method<br>Container / Client Sample ID(s)                                    | Sample Date   | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|---|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |   | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>                         |   |                          |                    |             |               |                  |             |   |
| <b>Soil Glass Jar - Unpreserved (EP202)</b>                                  |   |                          |                    |             |               |                  |             |   |
| BH1A,<br>BH2A,<br>BH3A,<br>BH4B,<br>BH5B,<br>BH6B,<br>BH8A,<br>BH9A          | BH1C,<br>BH2C,<br>BH4A,<br>BH5A,<br>BH6A,<br>BH7A,<br>BH8B,               | 09-Feb-2018              | 05-Mar-2018        | 23-Feb-2018 | ✘             | 05-Mar-2018      | 14-Apr-2018 | ✔ |
| <b>Soil Glass Jar - Unpreserved (EP202)</b>                                  |   |                          |                    |             |               |                  |             |   |
| BH10A,<br>BH11A,<br>BH12A,<br>BH14A,<br>BH15B,<br>BH17A,<br>BH19A,<br>BH20B, | BH10B,<br>BH11B,<br>BH13A,<br>BH15A,<br>BH16A,<br>BH18A,<br>BH20A,<br>QA3 | 12-Feb-2018              | 05-Mar-2018        | 26-Feb-2018 | ✘             | 05-Mar-2018      | 14-Apr-2018 | ✔ |



## 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                        | Method     | Count |         | Rate (%) |          |            | Quality Control Specification  |
|--|------------|-------|---------|----------|----------|------------|--------------------------------|
|  |            | QC    | Reaular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                          |            |       |         |          |          |            |                                |
| <b>Laboratory Duplicates (DUP)</b>                 |            |       |         |          |          |            |                                |
| Electrical Conductivity (1:5)                      | EA010      | 5     | 42      | 11.90    | 10.00    | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Moisture Content                                   | EA055      | 4     | 38      | 10.53    | 10.00    | ✔          | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM)                                  | EP075(SIM) | 3     | 21      | 14.29    | 10.00    | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Pesticides by GCMS                                 | EP068      | 4     | 31      | 12.90    | 10.00    | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Phenoxyacetic Acid Herbicides (LCMS - Standard DL) | EP202      | 4     | 31      | 12.90    | 10.00    | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS                              | EG035T     | 4     | 40      | 10.00    | 10.00    | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES                            | EG005T     | 4     | 40      | 10.00    | 10.00    | ✔          | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction                        | EP071      | 3     | 21      | 14.29    | 10.00    | ✔          | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX                                 | EP080      | 4     | 39      | 10.26    | 10.00    | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Laboratory Control Samples (LCS)</b>            |            |       |         |          |          |            |                                |
| Electrical Conductivity (1:5)                      | EA010      | 3     | 42      | 7.14     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM)                                  | EP075(SIM) | 2     | 21      | 9.52     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Pesticides by GCMS                                 | EP068      | 2     | 31      | 6.45     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Phenoxyacetic Acid Herbicides (LCMS - Standard DL) | EP202      | 2     | 31      | 6.45     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS                              | EG035T     | 2     | 40      | 5.00     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES                            | EG005T     | 2     | 40      | 5.00     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction                        | EP071      | 2     | 21      | 9.52     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX                                 | EP080      | 2     | 39      | 5.13     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Method Blanks (MB)</b>                          |            |       |         |          |          |            |                                |
| Electrical Conductivity (1:5)                      | EA010      | 3     | 42      | 7.14     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM)                                  | EP075(SIM) | 2     | 21      | 9.52     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Pesticides by GCMS                                 | EP068      | 2     | 31      | 6.45     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Phenoxyacetic Acid Herbicides (LCMS - Standard DL) | EP202      | 2     | 31      | 6.45     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS                              | EG035T     | 2     | 40      | 5.00     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES                            | EG005T     | 2     | 40      | 5.00     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction                        | EP071      | 2     | 21      | 9.52     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX                                 | EP080      | 2     | 39      | 5.13     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                          |            |       |         |          |          |            |                                |
| PAH/Phenols (SIM)                                  | EP075(SIM) | 2     | 21      | 9.52     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Pesticides by GCMS                                 | EP068      | 2     | 31      | 6.45     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Phenoxyacetic Acid Herbicides (LCMS - Standard DL) | EP202      | 2     | 31      | 6.45     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS                              | EG035T     | 2     | 40      | 5.00     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES                            | EG005T     | 2     | 40      | 5.00     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction                        | EP071      | 2     | 21      | 9.52     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX                                 | EP080      | 2     | 39      | 5.13     | 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  |
|--|------------|--------|--|
| Electrical Conductivity (1:5)                      | EA010      | SOIL   | In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3)  |
| Moisture Content                                   | EA055      | SOIL   | In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).   |
| Asbestos Identification in Soils                   | EA200      | SOIL   | AS 4964 - 2004 Method for the qualitative identification of asbestos in bulk samples<br>Analysis by Polarised Light Microscopy including dispersion staining   |
| 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 <sub>2</sub> ) (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 <sub>2</sub> 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) |
| 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.  |
| Phenoxyacetic Acid Herbicides (LCMS - Standard DL) | EP202      | SOIL   | In house: LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.   |
| Preparation Methods                                | Method     | Matrix | Method Descriptions  |
| 1:5 solid / water leach for soluble analytes       | EN34       | SOIL   | 10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.  |



| <i>Preparation Methods</i>                                 | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>  |
|--|---------------|---------------|---|
| 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) |
| Extraction for Phenoxy Acid Herbicides in Soils.           | EP202-PR      | SOIL          | In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.   |
| 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 <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.   |



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : ES1804838

|              |   |              |  |
|--------------|---|--------------|--|
| Client       | : ROBERT CARR & ASSOCIATES P/L                  | Laboratory   | : Environmental Division Sydney                          |
| Contact      | : MS FIONA BROOKER                              | Contact      | : Customer Services ES                                   |
| Address      | : P O BOX 175<br>CARRINGTON NSW, AUSTRALIA 2294 | Address      | : 277-289 Woodpark Road Smithfield<br>NSW Australia 2164 |
| E-mail       | : fionab@rca.com.au                             | E-mail       | : ALSEnviro.Sydney@alsglobal.com                         |
| Telephone    | : +61 02 4902 9200                              | Telephone    | : +61-2-8784 8555  |
| Facsimile    | : +61 02 4902 9299                              | Facsimile    | : +61-2-8784 8500  |
| Project      | : 13156   | Page         | : 1 of 3   |
| Order number | : ----  | Quote number | : ES2017ROBCAR0004 (SYBQ/400/17)                         |
| C-O-C number | : ----  | QC Level     | : NEPM 2013 B3 & ALS QC Standard                         |
| Site         | : ----  |              |  |
| Sampler      | : KATY SHAW                                     |              |  |

Dates

|                           |                     |                          |                      |
|---------------------------|---------------------|--------------------------|----------------------|
| Date Samples Received     | : 14-Feb-2018 16:12 | Issue Date               | : 15-Feb-2018        |
| Client Requested Due Date | : 20-Feb-2018       | Scheduled Reporting Date | : <b>20-Feb-2018</b> |

Delivery Details

|                      |             |                                    |                 |
|----------------------|-------------|------------------------------------|-----------------|
| Mode of Delivery     | : Undefined | Security Seal                      | : Not Available |
| No. of coolers/boxes | : 2         | Temperature                        | : 16.1          |
| Receipt Detail       | :           | No. of samples received / analysed | : 32 / 32       |

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).**
- **Asbestos analysis will be conducted by ALS Newcastle.**
- 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) 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 - EA010 (solids): Electrical Conductivity (1:5) | SOIL - EA055-103 Moisture Content | SOIL - EA200 Asbestos Identification in Soils - | SOIL - EP202(solids) Phenoxyacetic acids | SOIL - S-02 8 Metals (incl. Digestion) | SOIL - S-07 TRH/TEX/PAH (SIM) | SOIL - S-12 OC/OP Pesticides |
|----------------------|-----------------------------|------------------|--|-----------------------------------|---|--|--|-------------------------------|------------------------------|
| ES1804838-001        | 09-Feb-2018 00:00           | B1               |  |                                   | ✓   |  |  |                               |                              |
| ES1804838-002        | 09-Feb-2018 00:00           | BH1A             | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-003        | 09-Feb-2018 00:00           | BH1C             | ✓  | ✓                                 |   | ✓  | ✓                                      |                               | ✓                            |
| ES1804838-004        | 09-Feb-2018 00:00           | BH2A             | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-005        | 09-Feb-2018 00:00           | BH2C             | ✓  | ✓                                 |   | ✓  | ✓                                      |                               | ✓                            |
| ES1804838-006        | 09-Feb-2018 00:00           | BH3A             | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-007        | 09-Feb-2018 00:00           | BH4A             | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-008        | 09-Feb-2018 00:00           | BH4B             | ✓  | ✓                                 |   | ✓  | ✓                                      |                               | ✓                            |
| ES1804838-009        | 09-Feb-2018 00:00           | BH5A             | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-010        | 09-Feb-2018 00:00           | BH5B             | ✓  | ✓                                 |   | ✓  | ✓                                      |                               | ✓                            |
| ES1804838-011        | 09-Feb-2018 00:00           | BH6A             | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-012        | 09-Feb-2018 00:00           | BH6B             | ✓  | ✓                                 |   | ✓  | ✓                                      |                               | ✓                            |
| ES1804838-013        | 09-Feb-2018 00:00           | BH7A             | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-014        | 09-Feb-2018 00:00           | BH8A             | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-015        | 09-Feb-2018 00:00           | BH8B             | ✓  | ✓                                 |   | ✓  | ✓                                      |                               | ✓                            |
| ES1804838-016        | 09-Feb-2018 00:00           | BH9A             | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-017        | 12-Feb-2018 00:00           | BH10A            | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-018        | 12-Feb-2018 00:00           | BH10B            | ✓  | ✓                                 |   | ✓  | ✓                                      |                               | ✓                            |
| ES1804838-019        | 12-Feb-2018 00:00           | BH11A            | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-020        | 12-Feb-2018 00:00           | BH11B            | ✓  | ✓                                 |   | ✓  | ✓                                      |                               | ✓                            |
| ES1804838-021        | 12-Feb-2018 00:00           | BH12A            | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-022        | 12-Feb-2018 00:00           | BH13A            | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-023        | 12-Feb-2018 00:00           | BH14A            | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-024        | 12-Feb-2018 00:00           | BH15A            | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-025        | 12-Feb-2018 00:00           | BH15B            | ✓  | ✓                                 |   | ✓  | ✓                                      |                               | ✓                            |
| ES1804838-026        | 12-Feb-2018 00:00           | BH16A            | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-027        | 12-Feb-2018 00:00           | BH17A            | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-028        | 12-Feb-2018 00:00           | BH18A            | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-029        | 12-Feb-2018 00:00           | BH19A            | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-030        | 12-Feb-2018 00:00           | BH20A            | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |
| ES1804838-031        | 12-Feb-2018 00:00           | BH20B            | ✓  | ✓                                 |   | ✓  | ✓                                      |                               | ✓                            |
| ES1804838-032        | 12-Feb-2018 00:00           | QA3              | ✓  | ✓                                 |   | ✓  | ✓                                      | ✓                             | ✓                            |

## Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.



## Requested Deliverables

### ALL INVOICES

|  |       |                          |
|--|-------|--------------------------|
| - *AU Certificate of Analysis - NATA (COA)                     | Email | administrator@rca.com.au |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)    | Email | administrator@rca.com.au |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)            | Email | administrator@rca.com.au |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | administrator@rca.com.au |
| - A4 - AU Tax Invoice (INV)                                    | Email | administrator@rca.com.au |
| - Chain of Custody (CoC) (COC)                                 | Email | administrator@rca.com.au |
| - EDI Format - ENMRG (ENMRG)                                   | Email | administrator@rca.com.au |
| - EDI Format - ESDAT (ESDAT)                                   | Email | administrator@rca.com.au |

### FIONA BROOKER

|  |       |                   |
|--|-------|-------------------|
| - *AU Certificate of Analysis - NATA (COA)                     | Email | fionab@rca.com.au |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)    | Email | fionab@rca.com.au |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)            | Email | fionab@rca.com.au |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | fionab@rca.com.au |
| - A4 - AU Tax Invoice (INV)                                    | Email | fionab@rca.com.au |
| - Chain of Custody (CoC) (COC)                                 | Email | fionab@rca.com.au |
| - EDI Format - ENMRG (ENMRG)                                   | Email | fionab@rca.com.au |
| - EDI Format - ESDAT (ESDAT)                                   | Email | fionab@rca.com.au |

### KATY SHAW

|  |       |                  |
|--|-------|------------------|
| - *AU Certificate of Analysis - NATA (COA)                     | Email | katys@rca.com.au |
| - *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)    | Email | katys@rca.com.au |
| - *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)            | Email | katys@rca.com.au |
| - A4 - AU Sample Receipt Notification - Environmental HT (SRN) | Email | katys@rca.com.au |
| - A4 - AU Tax Invoice (INV)                                    | Email | katys@rca.com.au |
| - Chain of Custody (CoC) (COC)                                 | Email | katys@rca.com.au |
| - EDI Format - ENMRG (ENMRG)                                   | Email | katys@rca.com.au |
| - EDI Format - ESDAT (ESDAT)                                   | Email | katys@rca.com.au |



# CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ Sydney: 277 Woodpark Rd, Smithfield NSW 2176  
Ph: 02 8784 8555 E: samples.sydney@alsenviro.com  
☐ Newcastle: 5 Rosegum Rd, Warabrook NSW 2304  
Ph: 02 4968 8433 E: samples.newcastle@alsenviro.com

☐ Brisbane: 32 Shand St, Stafford QLD 4053  
Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com  
☐ Townsville: 14-15 Desma Ct, Bolite QLD 4818  
Ph: 07 4796 0600 E: townsville.environmental@alsenviro.com

☐ Melbourne: 2-4 Westall Rd, Springvale VIC 3171  
Ph: 03 9549 9600 E: samples.melbourne@alsenviro.com  
☐ Adelaide: 2-1 Burma Rd, Pooraka SA 5095  
Ph: 08 8359 0890 E: adelaide@alsenviro.com

☐ Perth: 10 Hod Way, Malaga WA 6090  
Ph: 08 9209 7655 E: samples.perth@alsenviro.com  
☐ Launceston: 27 Wellington St, Launceston TAS 7250  
Ph: 03 6331 2158 E: launceston@alsenviro.com

|   |  |  |
|---|--|--|
| CLIENT: RCA Australia   | TURNAROUND REQUIREMENTS : <input checked="" type="checkbox"/> Standard TAT (List due date): 21/2/18  | FOR LABORATORY USE ONLY (Circle)<br>Custody Seal Intact? Yes No <input checked="" type="checkbox"/> <input type="checkbox"/><br>Free lead, frozen ice bricks present upon receipt? Yes No <input checked="" type="checkbox"/> <input type="checkbox"/><br>Random Sample Temperature on Receipt: C<br>Other comment: 16.1 |
| OFFICE: 92 Hill Street, Carrington  | (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)<br><input type="checkbox"/> Non Standard or urgent TAT (List due date): |  |
| RCA Ref No: 13156   | ALS QUOTE NO.: SYBQ_400_17   | COC SEQUENCE NUMBER (Circle)<br>COC: ① 2 3 4 5 6 7<br>OF: 1 2 ③ 4 5 6 7  |
| PROJECT MANAGER: Fiona Brooker  | CONTACT PH:  | RECEIVED BY: <i>MSB</i>  |
| SAMPLER: Katy Shaw  | SAMPLER MOBILE: 0408 467 698   | RECEIVED BY: <i>DB Sr</i>  |
| COC Emailed to ALS? ( YES / NO)   | EDD FORMAT (or default):   | RECEIVED BY: <i>P. Tran</i>  |
| Email Reports to: administrator@rca.com.au + katys@rca.com.au + fionab@rca.com.au | RELINQUISHED BY: <i>[Signature]</i>  | RECEIVED BY: <i>[Signature]</i>  |
| Email Invoice to: as above  | DATE/TIME: 14/2/18 16:10   | DATE/TIME: 14-2-18 4:15pm  |
|   |  | DATE/TIME: 14/2/18   |
|   |  | DATE/TIME: 14/2/18   |

### COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

| ALS USE ONLY | SAMPLE DETAILS<br>MATRIX: Solid(S) Water(W) |             |        | CONTAINER INFORMATION                         | ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price)<br>Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required). |          |                         |                        |  |   | Additional Information            |   |
|--------------|---|-------------|--------|---|--|----------|-------------------------|------------------------|--|---|-----------------------------------|---|
| LAB ID       | SAMPLE ID                                   | DATE / TIME | MATRIX | TYPE & PRESERVATIVE<br>(refer to codes below) | TOTAL BOTTLES  | Asbestos | Electrical Conductivity | 512 - OC/OP Pesticides | Phenoxy Acid Herbicides - standard level | S02 - 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg) | S07 - TRH (G6-C36/40), BTEXN, PAH | Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis   |
| 1            | B1  | 07/02/2018  | Bulk   |   |  | x        |                         |                        |  |   |                                   | <b>LAB OF ORIGIN:<br/>NEWCASTLE</b><br><br><b>E-MAILED</b><br><br>Environmental Division<br>Sydney<br>Work Order Reference<br><b>ES1804838</b><br><br><br>Telephone : + 61-2-8784 8555 |
| 2            | BH1a  | 9/2/18      | Soil   |   |  |          | x                       | x                      | x  | x   | x                                 |   |
| 3            | BH1c  |             |        |   |  |          | x                       | x                      | x  | x   |                                   |   |
| 4            | BH2a  |             |        |   |  |          | x                       | x                      | x  | x   | x                                 |   |
| 5            | BH2c  |             |        |   |  |          | x                       | x                      | x  | x   |                                   |   |
| 6            | BH3a  |             |        |   |  |          | x                       | x                      | x  | x   | x                                 |   |
| 7            | BH4a  |             |        |   |  |          | x                       | x                      | x  | x   | x                                 |   |
| 8            | BH4b  |             |        |   |  |          | x                       | x                      | x  | x   |                                   |   |
| 9            | BH5a  |             |        |   |  |          | x                       | x                      | x  | x   | x                                 |   |
| 10           | BH5b  |             |        |   |  |          | x                       | x                      | x  | x   |                                   |   |
| 11           | BH6a  |             |        |   |  |          | x                       | x                      | x  | x   | x                                 |   |
| 12           | BH6b  |             |        |   |  |          | x                       | x                      | x  | x   |                                   |   |
| TOTAL        |   |             |        |   |  |          |                         |                        |  |   |                                   |   |

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial; SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.



# CHAIN OF CUSTODY

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□ Sydney: 277 Woodpark Rd, Smithfield NSW 2176  
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Ph: 02 4968 9433 E: samples.newcastle@alsenviro.com

□ Brisbane: 32 Shand St, Stafford QLD 4053  
Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com  
□ Townsville: 14-15 Desma Ct, Bohle QLD 4818  
Ph: 07 4796 0600 E: townsville.environmental@alsenviro.com

□ Melbourne: 2-4 Westall Rd, Springvale VIC 3171  
Ph: 03 8549 9600 E: samples.melbourne@alsenviro.com  
□ Adelaide: 2-1 Burma Rd, Pooraka SA 5095  
Ph: 08 8359 0890 E: adelaide@alsenviro.com

□ Perth: 10 Hod Way, Malaga WA 6090  
Ph: 08 9209 7665 E: samples.perth@alsenviro.com  
□ Launceston: 27 Wellington St, Launceston TAS 7250  
Ph: 03 6331 2158 E: launceston@alsenviro.com

|  |  |   |  |  |  |
|--|--|---|--|--|--|
| <b>CLIENT:</b> RCA Australia   |  | <b>TURNAROUND REQUIREMENTS:</b> <input checked="" type="checkbox"/> Standard TAT (List due date): 21/2/18 |  | <b>FOR LABORATORY USE ONLY (Circle)</b>  |  |
| <b>OFFICE:</b> 92 Hill Street, Carrington  |  | (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)                                    |  | Custody Seal intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>                             |  |
| <b>RCA Ref No:</b> 13156   |  | <b>ALS QUOTE NO.:</b> SYBQ_400_17   |  | Free ice/frozen ice blocks present upon receipt: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |  |
| <b>PROJECT MANAGER:</b> Fiona Brooker  |  | <b>CONTACT PH:</b>  |  | Random Sample Temperature on Receipt: C  |  |
| <b>SAMPLER:</b> Katy Shaw  |  | <b>SAMPLER MOBILE:</b> 0408 467 698   |  | Other comment: 16'   |  |
| <b>COC Emailed to ALS? (YES / NO)</b>  |  | <b>EDD FORMAT (or default):</b>   |  | <b>RELINQUISHED BY:</b> [Signature]  |  |
| <b>Email Reports to:</b> administrator@rca.com.au + katys@rca.com.au + fionab@rca.com.au |  | <b>DATE/TIME:</b> 14/2/18 16:10   |  | <b>RECEIVED BY:</b> [Signature]  |  |
| <b>Email Invoice to:</b> as above  |  |   |  | <b>DATE/TIME:</b> 14-2-18 4:15   |  |
|  |  |   |  | <b>RELINQUISHED BY:</b> [Signature]  |  |
|  |  |   |  | <b>DATE/TIME:</b> 14/2/18  |  |
|  |  |   |  | <b>RECEIVED BY:</b> [Signature]  |  |
|  |  |   |  | <b>DATE/TIME:</b> 14/2/18 7:30   |  |

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

| ALS USE ONLY | SAMPLE DETAILS<br>MATRIX: Solid(S) Water(W) |             |        | CONTAINER INFORMATION                         |               | ANALYSIS REQUIRED Including SUITES (NB. Suite Codes must be listed to attract suite price)<br>Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required). |                         |                        |  |   |                                   | Additional Information |                             |
|--------------|---|-------------|--------|---|---------------|--|-------------------------|------------------------|--|---|-----------------------------------|------------------------|-----------------------------|
| LAB ID       | SAMPLE ID                                   | DATE / TIME | MATRIX | TYPE & PRESERVATIVE<br>(refer to codes below) | TOTAL BOTTLES | Asbestos   | Electrical Conductivity | S12 - OC/OP Pesticides | Phenoxy Acid Herbicides - standard level | S02 - 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg) | S07 - TRH (C6-C36/40), BTEXN, PAH |                        |                             |
| 13           | BH7a  | 9/2/18      | Soil   |   | 1             |  | X                       | X                      | X  | X   | X                                 |                        |                             |
| 14           | BH8a  |             |        |   |               |  | X                       | X                      | X  | X   | X                                 |                        |                             |
| 15           | BH8b  |             |        |   |               |  | X                       | X                      | X  | X   |                                   |                        |                             |
| 16           | BH9a  |             |        |   |               |  | X                       | X                      | X  | X   | X                                 |                        | LAB OF ORIGIN:<br>NEWCASTLE |
| 17           | BH10a                                       | 12/2/18     |        |   |               |  | X                       | X                      | X  | X   | X                                 |                        |                             |
| 18           | BH10b                                       |             |        |   |               |  | X                       | X                      | X  | X   |                                   |                        |                             |
| 19           | BH11a                                       |             |        |   |               |  | X                       | X                      | X  | X   | X                                 |                        |                             |
| 20           | BH11b                                       |             |        |   |               |  | X                       | X                      | X  | X   |                                   |                        | E-MAILED                    |
| 21           | BH12a                                       |             |        |   |               |  | X                       | X                      | X  | X   | X                                 |                        |                             |
| 22           | BH13a                                       |             |        |   |               |  | X                       | X                      | X  | X   | X                                 |                        |                             |
| 23           | BH14a                                       |             |        |   |               |  | X                       | X                      | X  | X   | X                                 |                        |                             |
| 24           | BH15a                                       |             |        |   |               |  | X                       | X                      | X  | X   | X                                 |                        |                             |
|              |   |             |        |   | TOTAL         |  |                         |                        |  |   |                                   |                        |                             |

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic  
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.



# CHAIN OF CUSTODY

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Brisbane: 32 Shand St, Stafford QLD 4053  
 Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com  
 Townsville: 14-15 Deema Ct, Bohle QLD 4818  
 Ph: 07 4796 6690 E: townsville.environmental@alsenviro.com

Melbourne: 2-4 Westliff Rd, Springvale VIC 3171  
 Ph: 03 8549 9800 E: samples.melbourne@alsenviro.com  
 Adelaide: 2-1 Burma Rd, Pooraka SA 5095  
 Ph: 08 8359 0890 E: adelaide@alsenviro.com

Perth: 10 Hod Way, Malaga WA 6090  
 Ph: 08 9209 7655 E: samples.perth@alsenviro.com  
 Launceston: 27 Wellington St, Launceston TAS 7250  
 Ph: 03 6331 2158 E: launceston@alsenviro.com

|  |                                     |   |                     |   |                     |
|--|-------------------------------------|---|---------------------|---|---------------------|
| <b>CLIENT:</b> RCA Australia   |                                     | <b>TURNAROUND REQUIREMENTS:</b> <input checked="" type="checkbox"/> Standard TAT (List due date): 21/2/18 |                     | <b>FOR LABORATORY USE ONLY (Circle)</b>   |                     |
| <b>OFFICE:</b> 92 Hill Street, Carrington  |                                     | (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)                                    |                     | Custody Seal (Plastic) Yes No N/A<br>Freezer / Frozen Ice (Plastic) present upon receipt Yes No N/A<br>Random Sample Temperature on Receipt 16.1 °C<br>Other comment: |                     |
| <b>RCA Ref No:</b> 13156   | <b>ALS QUOTE NO.:</b> SYBQ_400_17   | <b>COC SEQUENCE NUMBER (Circle)</b>   |                     |   |                     |
|  |                                     | COC: 1 2 3 4 5 6 7  |                     |   |                     |
|  |                                     | OF: 1 2 3 4 5 6 7   |                     |   |                     |
| <b>PROJECT MANAGER:</b> Fiona Brooker  |                                     | <b>CONTACT PH:</b>  |                     |   |                     |
| <b>SAMPLER:</b> Katy Shaw  | <b>SAMPLER MOBILE:</b> 0408 467 698 | <b>RELINQUISHED BY:</b>   | <b>RECEIVED BY:</b> | <b>RELINQUISHED BY:</b>   | <b>RECEIVED BY:</b> |
| <b>COC Emailed to ALS? (YES / NO)</b>  |                                     | <b>EDD FORMAT (or default):</b>   |                     |   |                     |
| <b>Email Reports to:</b> administrator@rca.com.au + katys@rca.com.au + fionab@rca.com.au |                                     | <b>DATE/TIME:</b> 14/2/18 16:10   |                     | <b>DATE/TIME:</b> 14-2-18 4:15AM  |                     |
| <b>Email Invoice to:</b> as above  |                                     |   |                     | <b>DATE/TIME:</b> 14/2/18 7:30pm  |                     |

### COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

| ALS USE ONLY | SAMPLE DETAILS<br>MATRIX: Solid(S) Water(W) |             |        | CONTAINER INFORMATION                         |               | ANALYSIS REQUIRED Including SUITES (NB. Suite Codes must be listed to attract suite price)<br>Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required). |                         |                        |  |   |                                   | Additional Information |
|--------------|---|-------------|--------|---|---------------|--|-------------------------|------------------------|--|---|-----------------------------------|------------------------|
| LAB ID       | SAMPLE ID                                   | DATE / TIME | MATRIX | TYPE & PRESERVATIVE<br>(refer to codes below) | TOTAL BOTTLES | Asbestos   | Electrical Conductivity | S12 - OC/OP Pesticides | Phenoxy Acid Herbicides - standard level | S02 - 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg) | S07 - TRH (C6-C36/40), BTEXN, PAH |                        |
| 25           | BH15b                                       | 12/2/18     | Soil   |   | 1             |  | X                       | X                      | X  | X   |                                   |                        |
| 26           | BH16a                                       | ↓           | ↓      |   | ↓             |  | X                       | X                      | X  | X   |                                   |                        |
| 27           | BH17a                                       |             |        |   |               |  | X                       | X                      | X  | X   |                                   |                        |
| 28           | BH18a                                       |             |        |   |               |  | X                       | X                      | X  | X   |                                   |                        |
| 29           | BH19a                                       |             |        |   |               |  | X                       | X                      | X  | X   |                                   |                        |
| 30           | BH20a                                       |             |        |   |               |  | X                       | X                      | X  | X   |                                   |                        |
| 31           | BH20b                                       | ↓           | ↓      |   | ↓             |  | X                       | X                      | X  | X   |                                   |                        |
| 32           | QA3   | 12/2/18     | Soil   |   | 1             |  | X                       | X                      | X  | X   | X                                 |                        |
| <b>TOTAL</b> |   |             |        |   |               |  |                         |                        |  |   |                                   |                        |

LAB OF ORIGIN: NEWCASTLE

E-MANUAL

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

## CERTIFICATE OF ANALYSIS

**Work Order** : **ES1805085**  
**Client** : **ROBERT CARR & ASSOCIATES P/L**  
**Contact** : MS FIONA BROOKER  
**Address** : P O BOX 175  
                   CARRINGTON NSW, AUSTRALIA 2294  
**Telephone** : +61 02 4902 9200  
**Project** : 13156  
**Order number** : ----  
**C-O-C number** : ----  
**Sampler** : KATY SHAW  
**Site** : ----  
**Quote number** : SYBQ/400/17  
**No. of samples received** : 21  
**No. of samples analysed** : 21

**Page** : 1 of 21  
**Laboratory** : Environmental Division Sydney  
**Contact** : Customer Services ES  
**Address** : 277-289 Woodpark Road Smithfield NSW Australia 2164  
**Telephone** : +61-2-8784 8555  
**Date Samples Received** : 16-Feb-2018 13:41  
**Date Analysis Commenced** : 19-Feb-2018  
**Issue Date** : 07-Mar-2018 14:48



Accreditation No. 825  
 Accredited for compliance with  
 ISO/IEC 17025 - Testing

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.

| <i>Signatories</i>  | <i>Position</i>               | <i>Accreditation Category</i>               |
|---------------------|-------------------------------|---|
| Alex Rossi          | Organic Chemist               | Sydney Organics, Smithfield, NSW            |
| Ankit Joshi         | Inorganic Chemist             | Sydney Inorganics, Smithfield, NSW          |
| Celine Conceicao    | Senior Spectroscopist         | Sydney Inorganics, Smithfield, NSW          |
| Edwandy Fadjar      | Organic Coordinator           | Sydney Inorganics, Smithfield, NSW          |
| Edwandy Fadjar      | Organic Coordinator           | Sydney Organics, Smithfield, NSW            |
| Franco Lentini      |                               | Sydney Organics, Smithfield, NSW            |
| Ivan Taylor         | Analyst                       | Sydney Inorganics, Smithfield, NSW          |
| Sanjeshni Jyoti     | Senior Chemist Volatiles      | Sydney Organics, Smithfield, NSW            |
| Satishkumar Trivedi | Acid Sulfate Soils Supervisor | Brisbane Acid Sulphate Soils, Stafford, QLD |



## 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.

- EP202: Particular samples required dilution due to sample matrix. LOR values have been adjusted accordingly.
- ASS: EA033 (CRS Suite): ANC not required because pH KCl less than 6.5
- EP080: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEX compounds spiked at 20 ug/L.
- EP231X: Particular samples required dilution due to High Conductivity . LOR values have been adjusted accordingly.
- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO<sub>3</sub>) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m<sup>3</sup> in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m<sup>3</sup>'.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR.  
Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                 |            |      |       | Client sample ID  | QA1               | BH2A              | BH3A              | BH4A              | BH17B |
|--|------------|------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|
| Client sampling date / time                        |            |      |       | 09-Feb-2018 00:00 | 09-Feb-2018 00:00 | 09-Feb-2018 00:00 | 09-Feb-2018 00:00 | 12-Feb-2018 00:00 |       |
| Compound   | CAS Number | LOR  | Unit  | ES1805085-001     | ES1805085-002     | ES1805085-003     | ES1805085-004     | ES1805085-005     |       |
|  |            |      |       | Result            | Result            | Result            | Result            | Result            |       |
| <b>EA010: Conductivity</b>                         |            |      |       |                   |                   |                   |                   |                   |       |
| Electrical Conductivity @ 25°C                     | ----       | 1    | µS/cm | 13                | ----              | ----              | ----              | 98                |       |
| <b>EA055: Moisture Content (Dried @ 105-110°C)</b> |            |      |       |                   |                   |                   |                   |                   |       |
| Moisture Content                                   | ----       | 1.0  | %     | 4.1               | 1.0               | <1.0              | 6.9               | 15.0              |       |
| <b>EG005T: Total Metals by ICP-AES</b>             |            |      |       |                   |                   |                   |                   |                   |       |
| Arsenic  | 7440-38-2  | 5    | mg/kg | <5                | ----              | ----              | ----              | <5                |       |
| Cadmium  | 7440-43-9  | 1    | mg/kg | <1                | ----              | ----              | ----              | <1                |       |
| Chromium   | 7440-47-3  | 2    | mg/kg | <2                | ----              | ----              | ----              | 23                |       |
| Copper   | 7440-50-8  | 5    | mg/kg | <5                | ----              | ----              | ----              | 6                 |       |
| Lead   | 7439-92-1  | 5    | mg/kg | <5                | ----              | ----              | ----              | 14                |       |
| Nickel   | 7440-02-0  | 2    | mg/kg | <2                | ----              | ----              | ----              | 6                 |       |
| Zinc   | 7440-66-6  | 5    | mg/kg | <5                | ----              | ----              | ----              | 13                |       |
| <b>EG035T: Total Recoverable Mercury by FIMS</b>   |            |      |       |                   |                   |                   |                   |                   |       |
| Mercury  | 7439-97-6  | 0.1  | mg/kg | <0.1              | ----              | ----              | ----              | <0.1              |       |
| <b>EP068A: Organochlorine Pesticides (OC)</b>      |            |      |       |                   |                   |                   |                   |                   |       |
| alpha-BHC  | 319-84-6   | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| Hexachlorobenzene (HCB)                            | 118-74-1   | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| beta-BHC   | 319-85-7   | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| gamma-BHC  | 58-89-9    | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| delta-BHC  | 319-86-8   | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| Heptachlor   | 76-44-8    | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| Aldrin   | 309-00-2   | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| Heptachlor epoxide                                 | 1024-57-3  | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| ^ Total Chlordane (sum)                            | ----       | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| trans-Chlordane                                    | 5103-74-2  | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| alpha-Endosulfan                                   | 959-98-8   | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| cis-Chlordane                                      | 5103-71-9  | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| Dieldrin   | 60-57-1    | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| 4,4'-DDE   | 72-55-9    | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| Endrin   | 72-20-8    | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| beta-Endosulfan                                    | 33213-65-9 | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| ^ Endosulfan (sum)                                 | 115-29-7   | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| 4,4'-DDD   | 72-54-8    | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| Endrin aldehyde                                    | 7421-93-4  | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |
| Endosulfan sulfate                                 | 1031-07-8  | 0.05 | mg/kg | <0.05             | ----              | ----              | ----              | ----              |       |







## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                   |             |        |       | Client sample ID  | QA1               | BH2A              | BH3A              | BH4A              | BH17B |
|--|-------------|--------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|
| Client sampling date / time                          |             |        |       | 09-Feb-2018 00:00 | 09-Feb-2018 00:00 | 09-Feb-2018 00:00 | 09-Feb-2018 00:00 | 12-Feb-2018 00:00 |       |
| Compound   | CAS Number  | LOR    | Unit  | ES1805085-001     | ES1805085-002     | ES1805085-003     | ES1805085-004     | ES1805085-005     |       |
|  |             |        |       | Result            | Result            | Result            | Result            | Result            |       |
| <b>EP080: BTEXN - Continued</b>                      |             |        |       |                   |                   |                   |                   |                   |       |
| ^ Sum of BTEX  | ----        | 0.2    | mg/kg | ----              | ----              | ----              | ----              | <0.2              |       |
| ^ Total Xylenes                                      | ----        | 0.5    | mg/kg | ----              | ----              | ----              | ----              | <0.5              |       |
| Naphthalene  | 91-20-3     | 1      | mg/kg | ----              | ----              | ----              | ----              | 2                 |       |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b> |             |        |       |                   |                   |                   |                   |                   |       |
| 4-Chlorophenoxy acetic acid                          | 122-88-3    | 0.02   | mg/kg | <0.04             | ----              | ----              | ----              | ----              |       |
| 2,4-DB   | 94-82-6     | 0.02   | mg/kg | <0.04             | ----              | ----              | ----              | ----              |       |
| Dicamba  | 1918-00-9   | 0.02   | mg/kg | <0.04             | ----              | ----              | ----              | ----              |       |
| Mecoprop   | 93-65-2     | 0.02   | mg/kg | <0.04             | ----              | ----              | ----              | ----              |       |
| MCPA   | 94-74-6     | 0.02   | mg/kg | <0.04             | ----              | ----              | ----              | ----              |       |
| 2,4-DP   | 120-36-5    | 0.02   | mg/kg | <0.04             | ----              | ----              | ----              | ----              |       |
| 2,4-D  | 94-75-7     | 0.02   | mg/kg | <0.04             | ----              | ----              | ----              | ----              |       |
| Triclopyr  | 55335-06-3  | 0.02   | mg/kg | <0.04             | ----              | ----              | ----              | ----              |       |
| 2,4,5-TP (Silvex)                                    | 93-72-1     | 0.02   | mg/kg | <0.04             | ----              | ----              | ----              | ----              |       |
| 2,4,5-T  | 93-76-5     | 0.02   | mg/kg | <0.04             | ----              | ----              | ----              | ----              |       |
| MCPB   | 94-81-5     | 0.02   | mg/kg | <0.04             | ----              | ----              | ----              | ----              |       |
| Picloram   | 1918-02-1   | 0.02   | mg/kg | <0.04             | ----              | ----              | ----              | ----              |       |
| Clopyralid   | 1702-17-6   | 0.02   | mg/kg | <0.04             | ----              | ----              | ----              | ----              |       |
| Fluroxypyr   | 69377-81-7  | 0.02   | mg/kg | <0.04             | ----              | ----              | ----              | ----              |       |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>         |             |        |       |                   |                   |                   |                   |                   |       |
| Perfluorobutane sulfonic acid (PFBS)                 | 375-73-5    | 0.0002 | mg/kg | ----              | <0.0002           | <0.0002           | <0.0002           | ----              |       |
| Perfluorohexane sulfonic acid (PFHxS)                | 355-46-4    | 0.0002 | mg/kg | ----              | <0.0002           | <0.0002           | <0.0002           | ----              |       |
| Perfluorooctane sulfonic acid (PFOS)                 | 1763-23-1   | 0.0002 | mg/kg | ----              | <0.0002           | <0.0002           | 0.0004            | ----              |       |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b>       |             |        |       |                   |                   |                   |                   |                   |       |
| Perfluorobutanoic acid (PFBA)                        | 375-22-4    | 0.001  | mg/kg | ----              | <0.001            | <0.001            | <0.001            | ----              |       |
| Perfluoropentanoic acid (PFPeA)                      | 2706-90-3   | 0.0002 | mg/kg | ----              | <0.0002           | <0.0002           | <0.0002           | ----              |       |
| Perfluorohexanoic acid (PFHxA)                       | 307-24-4    | 0.0002 | mg/kg | ----              | <0.0002           | <0.0002           | <0.0002           | ----              |       |
| Perfluoroheptanoic acid (PFHpA)                      | 375-85-9    | 0.0002 | mg/kg | ----              | <0.0002           | <0.0002           | <0.0002           | ----              |       |
| Perfluorooctanoic acid (PFOA)                        | 335-67-1    | 0.0002 | mg/kg | ----              | <0.0002           | <0.0002           | 0.0005            | ----              |       |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>    |             |        |       |                   |                   |                   |                   |                   |       |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)            | 757124-72-4 | 0.0005 | mg/kg | ----              | <0.0005           | <0.0005           | <0.0005           | ----              |       |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                            |                    |        |       | Client sample ID  | QA1               | BH2A              | BH3A              | BH4A              | BH17B |
|---|--------------------|--------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|
| Client sampling date / time                                   |                    |        |       | 09-Feb-2018 00:00 | 09-Feb-2018 00:00 | 09-Feb-2018 00:00 | 09-Feb-2018 00:00 | 12-Feb-2018 00:00 |       |
| Compound  | CAS Number         | LOR    | Unit  | ES1805085-001     | ES1805085-002     | ES1805085-003     | ES1805085-004     | ES1805085-005     |       |
|   |                    |        |       | Result            | Result            | Result            | Result            | Result            |       |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued</b> |                    |        |       |                   |                   |                   |                   |                   |       |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                     | 27619-97-2         | 0.0005 | mg/kg | ----              | <0.0005           | <0.0005           | <0.0005           | ----              |       |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                     | 39108-34-4         | 0.0005 | mg/kg | ----              | <0.0005           | <0.0005           | <0.0005           | ----              |       |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                   | 120226-60-0        | 0.0005 | mg/kg | ----              | <0.0005           | <0.0005           | <0.0005           | ----              |       |
| <b>EP231P: PFAS Sums</b>                                      |                    |        |       |                   |                   |                   |                   |                   |       |
| Sum of PFHxS and PFOS   | 355-46-4/1763-23-1 | 0.0002 | mg/kg | ----              | <0.0002           | <0.0002           | 0.0004            | ----              |       |
| Sum of PFAS (WA DER List)                                     | ----               | 0.0002 | mg/kg | ----              | <0.0002           | <0.0002           | 0.0009            | ----              |       |
| <b>EP068S: Organochlorine Pesticide Surrogate</b>             |                    |        |       |                   |                   |                   |                   |                   |       |
| Dibromo-DDE   | 21655-73-2         | 0.05   | %     | 103               | ----              | ----              | ----              | ----              |       |
| <b>EP068T: Organophosphorus Pesticide Surrogate</b>           |                    |        |       |                   |                   |                   |                   |                   |       |
| DEF   | 78-48-8            | 0.05   | %     | 78.4              | ----              | ----              | ----              | ----              |       |
| <b>EP075(SIM)S: Phenolic Compound Surrogates</b>              |                    |        |       |                   |                   |                   |                   |                   |       |
| Phenol-d6   | 13127-88-3         | 0.5    | %     | ----              | ----              | ----              | ----              | 72.0              |       |
| 2-Chlorophenol-D4   | 93951-73-6         | 0.5    | %     | ----              | ----              | ----              | ----              | 76.9              |       |
| 2,4,6-Tribromophenol  | 118-79-6           | 0.5    | %     | ----              | ----              | ----              | ----              | 63.0              |       |
| <b>EP075(SIM)T: PAH Surrogates</b>                            |                    |        |       |                   |                   |                   |                   |                   |       |
| 2-Fluorobiphenyl  | 321-60-8           | 0.5    | %     | ----              | ----              | ----              | ----              | 88.0              |       |
| Anthracene-d10  | 1719-06-8          | 0.5    | %     | ----              | ----              | ----              | ----              | 80.3              |       |
| 4-Terphenyl-d14   | 1718-51-0          | 0.5    | %     | ----              | ----              | ----              | ----              | 75.9              |       |
| <b>EP080S: TPH(V)/BTEX Surrogates</b>                         |                    |        |       |                   |                   |                   |                   |                   |       |
| 1,2-Dichloroethane-D4   | 17060-07-0         | 0.2    | %     | ----              | ----              | ----              | ----              | 110               |       |
| Toluene-D8  | 2037-26-5          | 0.2    | %     | ----              | ----              | ----              | ----              | 113               |       |
| 4-Bromofluorobenzene  | 460-00-4           | 0.2    | %     | ----              | ----              | ----              | ----              | 108               |       |
| <b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b>         |                    |        |       |                   |                   |                   |                   |                   |       |
| 2,4-Dichlorophenyl Acetic Acid                                | 19719-28-9         | 0.02   | %     | 50.5              | ----              | ----              | ----              | ----              |       |
| <b>EP231S: PFAS Surrogate</b>                                 |                    |        |       |                   |                   |                   |                   |                   |       |
| 13C4-PFOS   | ----               | 0.0002 | %     | ----              | 97.0              | 96.0              | 64.0              | ----              |       |
| 13C8-PFOA   | ----               | 0.0002 | %     | ----              | 87.0              | 93.0              | 96.0              | ----              |       |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                 |            |      |       | Client sample ID  | BH17C             | BH17D             | BH18B             | BH18C             | BH19B |
|--|------------|------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|
| Client sampling date / time                        |            |      |       | 12-Feb-2018 00:00 |       |
| Compound   | CAS Number | LOR  | Unit  | ES1805085-006     | ES1805085-007     | ES1805085-008     | ES1805085-009     | ES1805085-010     |       |
|  |            |      |       | Result            | Result            | Result            | Result            | Result            |       |
| <b>EA010: Conductivity</b>                         |            |      |       |                   |                   |                   |                   |                   |       |
| Electrical Conductivity @ 25°C                     | ----       | 1    | µS/cm | 210               | 68                | 82                | 113               | 83                |       |
| <b>EA055: Moisture Content (Dried @ 105-110°C)</b> |            |      |       |                   |                   |                   |                   |                   |       |
| Moisture Content                                   | ----       | 1.0  | %     | 12.9              | 17.4              | 9.7               | 17.9              | 8.5               |       |
| <b>EG005T: Total Metals by ICP-AES</b>             |            |      |       |                   |                   |                   |                   |                   |       |
| Arsenic  | 7440-38-2  | 5    | mg/kg | <5                | <5                | <5                | <5                | <5                |       |
| Cadmium  | 7440-43-9  | 1    | mg/kg | <1                | <1                | <1                | <1                | <1                |       |
| Chromium   | 7440-47-3  | 2    | mg/kg | 15                | 18                | 28                | 23                | 21                |       |
| Copper   | 7440-50-8  | 5    | mg/kg | 20                | <5                | 7                 | <5                | <5                |       |
| Lead   | 7439-92-1  | 5    | mg/kg | 24                | 7                 | 12                | 6                 | 9                 |       |
| Nickel   | 7440-02-0  | 2    | mg/kg | 11                | 3                 | 4                 | <2                | 4                 |       |
| Zinc   | 7440-66-6  | 5    | mg/kg | 25                | <5                | 39                | 7                 | 10                |       |
| <b>EG035T: Total Recoverable Mercury by FIMS</b>   |            |      |       |                   |                   |                   |                   |                   |       |
| Mercury  | 7439-97-6  | 0.1  | mg/kg | <0.1              | <0.1              | <0.1              | <0.1              | <0.1              |       |
| <b>EP068A: Organochlorine Pesticides (OC)</b>      |            |      |       |                   |                   |                   |                   |                   |       |
| 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<br>(Matrix: SOIL)                        |                          |      |       | Client sample ID | BH17C             | BH17D             | BH18B             | BH18C             | BH19B             |
|---|--------------------------|------|-------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time                               |                          |      |       |                  | 12-Feb-2018 00:00 |
| Compound  | CAS Number               | LOR  | Unit  | ES1805085-006    | ES1805085-007     | ES1805085-008     | ES1805085-009     | ES1805085-010     |                   |
|   |                          |      |       | Result           | Result            | Result            | Result            | Result            |                   |
| <b>EP068A: Organochlorine Pesticides (OC) - Continued</b> |                          |      |       |                  |                   |                   |                   |                   |                   |
| 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<br>0-2 | 0.05 | mg/kg | ----             | <0.05             | ----              | <0.05             | <0.05             |                   |
| <b>EP068B: Organophosphorus Pesticides (OP)</b>           |                          |      |       |                  |                   |                   |                   |                   |                   |
| 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             |                   |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>     |                          |      |       |                  |                   |                   |                   |                   |                   |
| Naphthalene   | 91-20-3                  | 0.5  | mg/kg | <b>0.5</b>       | <0.5              | <0.5              | ----              | ----              |                   |
| Acenaphthylene  | 208-96-8                 | 0.5  | mg/kg | <0.5             | <0.5              | <0.5              | ----              | ----              |                   |
| Acenaphthene  | 83-32-9                  | 0.5  | mg/kg | <b>0.6</b>       | <0.5              | <0.5              | ----              | ----              |                   |
| Fluorene  | 86-73-7                  | 0.5  | mg/kg | <b>0.8</b>       | <0.5              | <0.5              | ----              | ----              |                   |
| Phenanthrene  | 85-01-8                  | 0.5  | mg/kg | <b>9.7</b>       | <b>0.8</b>        | <0.5              | ----              | ----              |                   |
| Anthracene  | 120-12-7                 | 0.5  | mg/kg | <b>2.0</b>       | <0.5              | <0.5              | ----              | ----              |                   |
| Fluoranthene  | 206-44-0                 | 0.5  | mg/kg | <b>13.9</b>      | <b>1.7</b>        | <b>1.0</b>        | ----              | ----              |                   |
| Pyrene  | 129-00-0                 | 0.5  | mg/kg | <b>12.2</b>      | <b>1.4</b>        | <b>1.1</b>        | ----              | ----              |                   |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                                     |                   |     |       | Client sample ID | BH17C             | BH17D             | BH18B             | BH18C             | BH19B             |
|--|-------------------|-----|-------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time  |                   |     |       |                  | 12-Feb-2018 00:00 |
| Compound   | CAS Number        | LOR | Unit  |                  | ES1805085-006     | ES1805085-007     | ES1805085-008     | ES1805085-009     | ES1805085-010     |
|  |                   |     |       |                  | Result            | Result            | Result            | Result            | Result            |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>      |                   |     |       |                  |                   |                   |                   |                   |                   |
| Benz(a)anthracene  | 56-55-3           | 0.5 | mg/kg |                  | 4.0               | <0.5              | 0.5               | ----              | ----              |
| Chrysene   | 218-01-9          | 0.5 | mg/kg |                  | 3.8               | <0.5              | 0.6               | ----              | ----              |
| Benzo(b+j)fluoranthene   | 205-99-2 205-82-3 | 0.5 | mg/kg |                  | 4.1               | <0.5              | 1.0               | ----              | ----              |
| Benzo(k)fluoranthene   | 207-08-9          | 0.5 | mg/kg |                  | 1.8               | <0.5              | <0.5              | ----              | ----              |
| Benzo(a)pyrene   | 50-32-8           | 0.5 | mg/kg |                  | 4.1               | <0.5              | 1.0               | ----              | ----              |
| Indeno(1.2.3.cd)pyrene   | 193-39-5          | 0.5 | mg/kg |                  | 1.5               | <0.5              | <0.5              | ----              | ----              |
| Dibenz(a.h)anthracene  | 53-70-3           | 0.5 | mg/kg |                  | <0.5              | <0.5              | <0.5              | ----              | ----              |
| Benzo(g.h.i)perylene   | 191-24-2          | 0.5 | mg/kg |                  | 1.6               | <0.5              | 0.7               | ----              | ----              |
| ^ Sum of polycyclic aromatic hydrocarbons                              | ----              | 0.5 | mg/kg |                  | 60.6              | 3.9               | 5.9               | ----              | ----              |
| ^ Benzo(a)pyrene TEQ (zero)  | ----              | 0.5 | mg/kg |                  | 5.3               | <0.5              | 1.2               | ----              | ----              |
| ^ Benzo(a)pyrene TEQ (half LOR)  | ----              | 0.5 | mg/kg |                  | 5.5               | 0.6               | 1.5               | ----              | ----              |
| ^ Benzo(a)pyrene TEQ (LOR)   | ----              | 0.5 | mg/kg |                  | 5.8               | 1.2               | 1.8               | ----              | ----              |
| <b>EP080/071: Total Petroleum Hydrocarbons</b>                         |                   |     |       |                  |                   |                   |                   |                   |                   |
| C6 - C9 Fraction   | ----              | 10  | mg/kg |                  | <10               | ----              | <10               | ----              | ----              |
| C10 - C14 Fraction   | ----              | 50  | mg/kg |                  | <50               | ----              | <50               | ----              | ----              |
| C15 - C28 Fraction   | ----              | 100 | mg/kg |                  | 140               | ----              | <100              | ----              | ----              |
| C29 - C36 Fraction   | ----              | 100 | mg/kg |                  | 200               | ----              | <100              | ----              | ----              |
| ^ C10 - C36 Fraction (sum)   | ----              | 50  | mg/kg |                  | 340               | ----              | <50               | ----              | ----              |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b> |                   |     |       |                  |                   |                   |                   |                   |                   |
| C6 - C10 Fraction  | C6_C10            | 10  | mg/kg |                  | <10               | ----              | <10               | ----              | ----              |
| ^ C6 - C10 Fraction minus BTEX (F1)                                    | C6_C10-BTEX       | 10  | mg/kg |                  | <10               | ----              | <10               | ----              | ----              |
| >C10 - C16 Fraction  | ----              | 50  | mg/kg |                  | <50               | ----              | <50               | ----              | ----              |
| >C16 - C34 Fraction  | ----              | 100 | mg/kg |                  | 260               | ----              | <100              | ----              | ----              |
| >C34 - C40 Fraction  | ----              | 100 | mg/kg |                  | 320               | ----              | <100              | ----              | ----              |
| ^ >C10 - C40 Fraction (sum)  | ----              | 50  | mg/kg |                  | 580               | ----              | <50               | ----              | ----              |
| ^ >C10 - C16 Fraction minus Naphthalene (F2)                           | ----              | 50  | mg/kg |                  | <50               | ----              | <50               | ----              | ----              |
| <b>EP080: BTEXN</b>  |                   |     |       |                  |                   |                   |                   |                   |                   |
| Benzene  | 71-43-2           | 0.2 | mg/kg |                  | <0.2              | ----              | <0.2              | ----              | ----              |
| Toluene  | 108-88-3          | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | ----              | ----              |
| Ethylbenzene   | 100-41-4          | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | ----              | ----              |
| meta- & para-Xylene  | 108-38-3 106-42-3 | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | ----              | ----              |
| ortho-Xylene   | 95-47-6           | 0.5 | mg/kg |                  | <0.5              | ----              | <0.5              | ----              | ----              |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                   |            |      |       | Client sample ID | BH17C             | BH17D             | BH18B             | BH18C             | BH19B             |
|--|------------|------|-------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time                          |            |      |       |                  | 12-Feb-2018 00:00 |
| Compound   | CAS Number | LOR  | Unit  |                  | ES1805085-006     | ES1805085-007     | ES1805085-008     | ES1805085-009     | ES1805085-010     |
|  |            |      |       |                  | Result            | Result            | Result            | Result            | Result            |
| <b>EP080: BTEXN - Continued</b>                      |            |      |       |                  |                   |                   |                   |                   |                   |
| ^ Sum of BTEX  | ----       | 0.2  | mg/kg |                  | <0.2              | ----              | <0.2              | ----              | ----              |
| ^ Total Xylenes                                      | ----       | 0.5  | mg/kg |                  | <0.5              | ----              | <0.5              | ----              | ----              |
| Naphthalene  | 91-20-3    | 1    | mg/kg |                  | <1                | ----              | <1                | ----              | ----              |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b> |            |      |       |                  |                   |                   |                   |                   |                   |
| 4-Chlorophenoxy acetic acid                          | 122-88-3   | 0.02 | mg/kg |                  | ----              | <0.02             | ----              | <0.02             | <0.04             |
| 2,4-DB   | 94-82-6    | 0.02 | mg/kg |                  | ----              | <0.02             | ----              | <0.02             | <0.04             |
| Dicamba  | 1918-00-9  | 0.02 | mg/kg |                  | ----              | <0.02             | ----              | <0.02             | <0.04             |
| Mecoprop   | 93-65-2    | 0.02 | mg/kg |                  | ----              | <0.02             | ----              | <0.02             | <0.04             |
| MCPA   | 94-74-6    | 0.02 | mg/kg |                  | ----              | <0.02             | ----              | <0.02             | <0.04             |
| 2,4-DP   | 120-36-5   | 0.02 | mg/kg |                  | ----              | <0.02             | ----              | <0.02             | <0.04             |
| 2,4-D  | 94-75-7    | 0.02 | mg/kg |                  | ----              | <0.02             | ----              | <0.02             | <0.04             |
| Triclopyr  | 55335-06-3 | 0.02 | mg/kg |                  | ----              | <0.02             | ----              | <0.02             | <0.04             |
| 2,4,5-TP (Silvex)                                    | 93-72-1    | 0.02 | mg/kg |                  | ----              | <0.02             | ----              | <0.02             | <0.04             |
| 2,4,5-T  | 93-76-5    | 0.02 | mg/kg |                  | ----              | <0.02             | ----              | <0.02             | <0.04             |
| MCPB   | 94-81-5    | 0.02 | mg/kg |                  | ----              | <0.02             | ----              | <0.02             | <0.04             |
| Picloram   | 1918-02-1  | 0.02 | mg/kg |                  | ----              | <0.02             | ----              | <0.02             | <0.04             |
| Clopyralid   | 1702-17-6  | 0.02 | mg/kg |                  | ----              | <0.02             | ----              | <0.02             | <0.04             |
| Fluroxypyr   | 69377-81-7 | 0.02 | mg/kg |                  | ----              | <0.02             | ----              | <0.02             | <0.04             |
| <b>EP068S: Organochlorine Pesticide Surrogate</b>    |            |      |       |                  |                   |                   |                   |                   |                   |
| Dibromo-DDE  | 21655-73-2 | 0.05 | %     |                  | ----              | 79.3              | ----              | 68.9              | 67.4              |
| <b>EP068T: Organophosphorus Pesticide Surrogate</b>  |            |      |       |                  |                   |                   |                   |                   |                   |
| DEF  | 78-48-8    | 0.05 | %     |                  | ----              | 70.6              | ----              | 60.1              | 63.5              |
| <b>EP075(SIM)S: Phenolic Compound Surrogates</b>     |            |      |       |                  |                   |                   |                   |                   |                   |
| Phenol-d6  | 13127-88-3 | 0.5  | %     |                  | 70.6              | 90.5              | 75.0              | ----              | ----              |
| 2-Chlorophenol-D4                                    | 93951-73-6 | 0.5  | %     |                  | 76.1              | 89.0              | 77.2              | ----              | ----              |
| 2,4,6-Tribromophenol                                 | 118-79-6   | 0.5  | %     |                  | 61.6              | 81.3              | 57.9              | ----              | ----              |
| <b>EP075(SIM)T: PAH Surrogates</b>                   |            |      |       |                  |                   |                   |                   |                   |                   |
| 2-Fluorobiphenyl                                     | 321-60-8   | 0.5  | %     |                  | 85.8              | 85.6              | 84.7              | ----              | ----              |
| Anthracene-d10                                       | 1719-06-8  | 0.5  | %     |                  | 84.0              | 83.3              | 88.1              | ----              | ----              |
| 4-Terphenyl-d14                                      | 1718-51-0  | 0.5  | %     |                  | 75.9              | 80.6              | 81.4              | ----              | ----              |
| <b>EP080S: TPH(V)/BTEX Surrogates</b>                |            |      |       |                  |                   |                   |                   |                   |                   |
| 1,2-Dichloroethane-D4                                | 17060-07-0 | 0.2  | %     |                  | 109               | ----              | 113               | ----              | ----              |
| Toluene-D8   | 2037-26-5  | 0.2  | %     |                  | 116               | ----              | 120               | ----              | ----              |
| 4-Bromofluorobenzene                                 | 460-00-4   | 0.2  | %     |                  | 108               | ----              | 113               | ----              | ----              |



### Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)                    |            |      |      | Client sample ID  | BH17C             | BH17D             | BH18B             | BH18C             | BH19B |
|---|------------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------|
| Client sampling date / time                           |            |      |      | 12-Feb-2018 00:00 |       |
| Compound  | CAS Number | LOR  | Unit | ES1805085-006     | ES1805085-007     | ES1805085-008     | ES1805085-009     | ES1805085-010     |       |
|   |            |      |      | Result            | Result            | Result            | Result            | Result            |       |
| <b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b> |            |      |      |                   |                   |                   |                   |                   |       |
| 2,4-Dichlorophenyl Acetic Acid                        | 19719-28-9 | 0.02 | %    | ----              | 55.6              | ----              | 59.1              | 52.0              |       |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)            |            |       |             | Client sample ID  | MW1C              | MW1D              | MW2A              | MW2D              | MW3A |
|---|------------|-------|-------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|
| Client sampling date / time                   |            |       |             | 09-Feb-2018 00:00 | 09-Feb-2018 00:00 | 09-Feb-2018 00:00 | 09-Feb-2018 00:00 | 12-Feb-2018 00:00 |      |
| Compound                                      | CAS Number | LOR   | Unit        | ES1805085-016     | ES1805085-017     | ES1805085-018     | ES1805085-019     | ES1805085-020     |      |
|   |            |       |             | Result            | Result            | Result            | Result            | Result            |      |
| <b>EA033-A: Actual Acidity</b>                |            |       |             |                   |                   |                   |                   |                   |      |
| pH KCl (23A)                                  | ----       | 0.1   | pH Unit     | 5.6               | 5.6               | 4.4               | 4.1               | 4.8               |      |
| Titrateable Actual Acidity (23F)              | ----       | 2     | mole H+ / t | <2                | <2                | 131               | 117               | 13                |      |
| sulfidic - Titrateable Actual Acidity (s-23F) | ----       | 0.02  | % pyrite S  | <0.02             | <0.02             | 0.21              | 0.19              | 0.02              |      |
| <b>EA033-B: Potential Acidity</b>             |            |       |             |                   |                   |                   |                   |                   |      |
| Chromium Reducible Sulfur (22B)               | ----       | 0.005 | % S         | 0.026             | 0.022             | 0.005             | 0.005             | 0.006             |      |
| acidity - Chromium Reducible Sulfur (a-22B)   | ----       | 10    | mole H+ / t | 16                | 14                | <10               | <10               | <10               |      |
| <b>EA033-D: Retained Acidity</b>              |            |       |             |                   |                   |                   |                   |                   |      |
| KCl Extractable Sulfur (23Ce)                 | ----       | 0.02  | % S         | ----              | ----              | 0.02              | <0.02             | ----              |      |
| HCl Extractable Sulfur (20Be)                 | ----       | 0.02  | % S         | ----              | ----              | 0.02              | <0.02             | ----              |      |
| Net Acid Soluble Sulfur (20Je)                | ----       | 0.02  | % S         | ----              | ----              | <0.02             | <0.02             | ----              |      |
| acidity - Net Acid Soluble Sulfur (a-20J)     | ----       | 10    | mole H+ / t | ----              | ----              | <10               | <10               | ----              |      |
| sulfidic - Net Acid Soluble Sulfur (s-20J)    | ----       | 0.02  | % pyrite S  | ----              | ----              | <0.02             | <0.02             | ----              |      |
| <b>EA033-E: Acid Base Accounting</b>          |            |       |             |                   |                   |                   |                   |                   |      |
| ANC Fineness Factor                           | ----       | 0.5   | -           | 1.5               | 1.5               | 1.5               | 1.5               | 1.5               |      |
| Net Acidity (sulfur units)                    | ----       | 0.02  | % S         | 0.02              | 0.02              | 0.22              | 0.19              | 0.03              |      |
| Net Acidity (acidity units)                   | ----       | 10    | mole H+ / t | 16                | 14                | 135               | 120               | 17                |      |
| Liming Rate                                   | ----       | 1     | kg CaCO3/t  | 1                 | 1                 | 10                | 9                 | 1                 |      |
| Net Acidity excluding ANC (sulfur units)      | ----       | 0.02  | % S         | 0.02              | 0.02              | 0.22              | 0.19              | 0.03              |      |
| Net Acidity excluding ANC (acidity units)     | ----       | 10    | mole H+ / t | 16                | 14                | 135               | 120               | 17                |      |
| Liming Rate excluding ANC                     | ----       | 1     | kg CaCO3/t  | 1                 | 1                 | 10                | 9                 | 1                 |      |



## Analytical Results

| Sub-Matrix: SOIL<br>(Matrix: SOIL)            |            | Client sample ID  |             |               | MW3C  | ----  | ----  | ----  | ----  |
|---|------------|-------------------|-------------|---------------|-------|-------|-------|-------|-------|
| Client sampling date / time                   |            | 12-Feb-2018 00:00 |             |               | ----  | ----  | ----  | ----  | ----  |
| Compound                                      | CAS Number | LOR               | Unit        | ES1805085-021 | ----- | ----- | ----- | ----- | ----- |
|   |            |                   |             | Result        | ----  | ----  | ----  | ----  | ----  |
| <b>EA033-A: Actual Acidity</b>                |            |                   |             |               |       |       |       |       |       |
| pH KCl (23A)                                  | ----       | 0.1               | pH Unit     | 5.2           | ----  | ----  | ----  | ----  | ----  |
| Titrateable Actual Acidity (23F)              | ----       | 2                 | mole H+ / t | 5             | ----  | ----  | ----  | ----  | ----  |
| sulfidic - Titrateable Actual Acidity (s-23F) | ----       | 0.02              | % pyrite S  | <0.02         | ----  | ----  | ----  | ----  | ----  |
| <b>EA033-B: Potential Acidity</b>             |            |                   |             |               |       |       |       |       |       |
| Chromium Reducible Sulfur (22B)               | ----       | 0.005             | % S         | 0.053         | ----  | ----  | ----  | ----  | ----  |
| acidity - Chromium Reducible Sulfur (a-22B)   | ----       | 10                | mole H+ / t | 33            | ----  | ----  | ----  | ----  | ----  |
| <b>EA033-E: Acid Base Accounting</b>          |            |                   |             |               |       |       |       |       |       |
| ANC Fineness Factor                           | ----       | 0.5               | -           | 1.5           | ----  | ----  | ----  | ----  | ----  |
| Net Acidity (sulfur units)                    | ----       | 0.02              | % S         | 0.06          | ----  | ----  | ----  | ----  | ----  |
| Net Acidity (acidity units)                   | ----       | 10                | mole H+ / t | 38            | ----  | ----  | ----  | ----  | ----  |
| Liming Rate                                   | ----       | 1                 | kg CaCO3/t  | 3             | ----  | ----  | ----  | ----  | ----  |
| Net Acidity excluding ANC (sulfur units)      | ----       | 0.02              | % S         | 0.06          | ----  | ----  | ----  | ----  | ----  |
| Net Acidity excluding ANC (acidity units)     | ----       | 10                | mole H+ / t | 38            | ----  | ----  | ----  | ----  | ----  |
| Liming Rate excluding ANC                     | ----       | 1                 | kg CaCO3/t  | 3             | ----  | ----  | ----  | ----  | ----  |



## Analytical Results

| Sub-Matrix: WATER<br>(Matrix: WATER)          |                      |        |      | Client sample ID  | TRIP SPIKE (18NEOII) | TRIP BLANK        | MW1               | MW2               | MW3 |
|---|----------------------|--------|------|-------------------|----------------------|-------------------|-------------------|-------------------|-----|
| Client sampling date / time                   |                      |        |      | 15-Feb-2018 00:00 | 15-Feb-2018 00:00    | 16-Feb-2018 00:00 | 16-Feb-2018 00:00 | 16-Feb-2018 00:00 |     |
| Compound                                      | CAS Number           | LOR    | Unit | ES1805085-011     | ES1805085-012        | ES1805085-013     | ES1805085-014     | ES1805085-015     |     |
|   |                      |        |      | Result            | Result               | Result            | Result            | Result            |     |
| <b>EG020F: Dissolved Metals by ICP-MS</b>     |                      |        |      |                   |                      |                   |                   |                   |     |
| Arsenic                                       | 7440-38-2            | 0.001  | mg/L | ----              | ----                 | 0.003             | 0.001             | 0.004             |     |
| Cadmium                                       | 7440-43-9            | 0.0001 | mg/L | ----              | ----                 | <0.0001           | 0.0005            | <0.0001           |     |
| Chromium                                      | 7440-47-3            | 0.001  | mg/L | ----              | ----                 | 0.002             | <0.001            | 0.001             |     |
| Copper  | 7440-50-8            | 0.001  | mg/L | ----              | ----                 | <0.001            | 0.035             | <0.001            |     |
| Lead  | 7439-92-1            | 0.001  | mg/L | ----              | ----                 | <0.001            | 0.001             | <0.001            |     |
| Nickel  | 7440-02-0            | 0.001  | mg/L | ----              | ----                 | <0.001            | 0.040             | <0.001            |     |
| Zinc  | 7440-66-6            | 0.005  | mg/L | ----              | ----                 | 0.011             | 0.209             | 0.007             |     |
| <b>EG035F: Dissolved Mercury by FIMS</b>      |                      |        |      |                   |                      |                   |                   |                   |     |
| Mercury                                       | 7439-97-6            | 0.0001 | mg/L | ----              | ----                 | <0.0001           | <0.0001           | <0.0001           |     |
| <b>EP068A: Organochlorine Pesticides (OC)</b> |                      |        |      |                   |                      |                   |                   |                   |     |
| alpha-BHC                                     | 319-84-6             | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| Hexachlorobenzene (HCB)                       | 118-74-1             | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| beta-BHC                                      | 319-85-7             | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| gamma-BHC                                     | 58-89-9              | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| delta-BHC                                     | 319-86-8             | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| Heptachlor                                    | 76-44-8              | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| Aldrin  | 309-00-2             | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| Heptachlor epoxide                            | 1024-57-3            | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| trans-Chlordane                               | 5103-74-2            | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| alpha-Endosulfan                              | 959-98-8             | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| cis-Chlordane                                 | 5103-71-9            | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| Dieldrin                                      | 60-57-1              | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| 4,4'-DDE                                      | 72-55-9              | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| Endrin  | 72-20-8              | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| beta-Endosulfan                               | 33213-65-9           | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| 4,4'-DDD                                      | 72-54-8              | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| Endrin aldehyde                               | 7421-93-4            | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| Endosulfan sulfate                            | 1031-07-8            | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| 4,4'-DDT                                      | 50-29-3              | 2.0    | µg/L | ----              | ----                 | <2.0              | <2.0              | <2.0              |     |
| Endrin ketone                                 | 53494-70-5           | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| Methoxychlor                                  | 72-43-5              | 2.0    | µg/L | ----              | ----                 | <2.0              | <2.0              | <2.0              |     |
| ^ Total Chlordane (sum)                       | ----                 | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| ^ Sum of DDD + DDE + DDT                      | 72-54-8/72-55-9/50-2 | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| ^ Sum of Aldrin + Dieldrin                    | 309-00-2/60-57-1     | 0.5    | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |



## Analytical Results

| Sub-Matrix: WATER<br>(Matrix: WATER)                      |            |          |      | Client sample ID | TRIP SPIKE (18NEOII) | TRIP BLANK        | MW1               | MW2               | MW3               |
|---|------------|----------|------|------------------|----------------------|-------------------|-------------------|-------------------|-------------------|
| Client sampling date / time                               |            |          |      |                  | 15-Feb-2018 00:00    | 15-Feb-2018 00:00 | 16-Feb-2018 00:00 | 16-Feb-2018 00:00 | 16-Feb-2018 00:00 |
| Compound  | CAS Number | LOR      | Unit | ES1805085-011    | ES1805085-012        | ES1805085-013     | ES1805085-014     | ES1805085-015     |                   |
|   |            |          |      | Result           | Result               | Result            | Result            | Result            |                   |
| <b>EP068A: Organochlorine Pesticides (OC) - Continued</b> |            |          |      |                  |                      |                   |                   |                   |                   |
| <b>EP068B: Organophosphorus Pesticides (OP)</b>           |            |          |      |                  |                      |                   |                   |                   |                   |
| Dichlorvos  | 62-73-7    | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |
| Demeton-S-methyl  | 919-86-8   | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |
| Monocrotophos   | 6923-22-4  | 2.0      | µg/L | ----             | ----                 | <2.0              | <2.0              | <2.0              |                   |
| Dimethoate  | 60-51-5    | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |
| Diazinon  | 333-41-5   | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |
| Chlorpyrifos-methyl                                       | 5598-13-0  | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |
| Parathion-methyl  | 298-00-0   | 2.0      | µg/L | ----             | ----                 | <2.0              | <2.0              | <2.0              |                   |
| Malathion   | 121-75-5   | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |
| Fenthion  | 55-38-9    | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |
| Chlorpyrifos  | 2921-88-2  | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |
| Parathion   | 56-38-2    | 2.0      | µg/L | ----             | ----                 | <2.0              | <2.0              | <2.0              |                   |
| Pirimphos-ethyl   | 23505-41-1 | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |
| Chlorfenvinphos   | 470-90-6   | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |
| Bromophos-ethyl   | 4824-78-6  | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |
| Fenamiphos  | 22224-92-6 | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |
| Prothiofos  | 34643-46-4 | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |
| Ethion  | 563-12-2   | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |
| Carbophenothion   | 786-19-6   | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |
| Azinphos Methyl   | 86-50-0    | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>     |            |          |      |                  |                      |                   |                   |                   |                   |
| Naphthalene   | 91-20-3    | 1.0      | µg/L | ----             | ----                 | <1.0              | <1.0              | <1.0              |                   |
| Acenaphthylene  | 208-96-8   | 1.0      | µg/L | ----             | ----                 | <1.0              | <1.0              | <1.0              |                   |
| Acenaphthene  | 83-32-9    | 1.0      | µg/L | ----             | ----                 | <1.0              | <1.0              | <1.0              |                   |
| Fluorene  | 86-73-7    | 1.0      | µg/L | ----             | ----                 | <1.0              | <1.0              | <1.0              |                   |
| Phenanthrene  | 85-01-8    | 1.0      | µg/L | ----             | ----                 | <1.0              | <1.0              | <1.0              |                   |
| Anthracene  | 120-12-7   | 1.0      | µg/L | ----             | ----                 | <1.0              | <1.0              | <1.0              |                   |
| Fluoranthene  | 206-44-0   | 1.0      | µg/L | ----             | ----                 | <1.0              | <1.0              | <1.0              |                   |
| Pyrene  | 129-00-0   | 1.0      | µg/L | ----             | ----                 | <1.0              | <1.0              | <1.0              |                   |
| Benz(a)anthracene   | 56-55-3    | 1.0      | µg/L | ----             | ----                 | <1.0              | <1.0              | <1.0              |                   |
| Chrysene  | 218-01-9   | 1.0      | µg/L | ----             | ----                 | <1.0              | <1.0              | <1.0              |                   |
| Benzo(b+j)fluoranthene                                    | 205-99-2   | 205-82-3 | 1.0  | µg/L             | ----                 | <1.0              | <1.0              | <1.0              |                   |
| Benzo(k)fluoranthene                                      | 207-08-9   | 1.0      | µg/L | ----             | ----                 | <1.0              | <1.0              | <1.0              |                   |
| Benzo(a)pyrene  | 50-32-8    | 0.5      | µg/L | ----             | ----                 | <0.5              | <0.5              | <0.5              |                   |



## Analytical Results

| Sub-Matrix: WATER<br>(Matrix: WATER)                                   |                   |      |      | Client sample ID  | TRIP SPIKE (18NEOII) | TRIP BLANK        | MW1               | MW2               | MW3 |
|--|-------------------|------|------|-------------------|----------------------|-------------------|-------------------|-------------------|-----|
| Client sampling date / time  |                   |      |      | 15-Feb-2018 00:00 | 15-Feb-2018 00:00    | 16-Feb-2018 00:00 | 16-Feb-2018 00:00 | 16-Feb-2018 00:00 |     |
| Compound   | CAS Number        | LOR  | Unit | ES1805085-011     | ES1805085-012        | ES1805085-013     | ES1805085-014     | ES1805085-015     |     |
|  |                   |      |      | Result            | Result               | Result            | Result            | Result            |     |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>      |                   |      |      |                   |                      |                   |                   |                   |     |
| Indeno(1.2.3.cd)pyrene   | 193-39-5          | 1.0  | µg/L | ----              | ----                 | <1.0              | <1.0              | <1.0              |     |
| Dibenz(a.h)anthracene  | 53-70-3           | 1.0  | µg/L | ----              | ----                 | <1.0              | <1.0              | <1.0              |     |
| Benzo(g,h,i)perylene   | 191-24-2          | 1.0  | µg/L | ----              | ----                 | <1.0              | <1.0              | <1.0              |     |
| ^ Sum of polycyclic aromatic hydrocarbons                              | ----              | 0.5  | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| ^ Benzo(a)pyrene TEQ (zero)  | ----              | 0.5  | µg/L | ----              | ----                 | <0.5              | <0.5              | <0.5              |     |
| <b>EP080/071: Total Petroleum Hydrocarbons</b>                         |                   |      |      |                   |                      |                   |                   |                   |     |
| C6 - C9 Fraction   | ----              | 20   | µg/L | ----              | <20                  | <20               | <20               | <20               |     |
| C10 - C14 Fraction   | ----              | 50   | µg/L | ----              | ----                 | <50               | <50               | <50               |     |
| C15 - C28 Fraction   | ----              | 100  | µg/L | ----              | ----                 | <100              | <100              | <100              |     |
| C29 - C36 Fraction   | ----              | 50   | µg/L | ----              | ----                 | <50               | <50               | <50               |     |
| ^ C10 - C36 Fraction (sum)   | ----              | 50   | µg/L | ----              | ----                 | <50               | <50               | <50               |     |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b> |                   |      |      |                   |                      |                   |                   |                   |     |
| C6 - C10 Fraction  | C6_C10            | 20   | µg/L | ----              | <20                  | <20               | <20               | <20               |     |
| ^ C6 - C10 Fraction minus BTEX (F1)                                    | C6_C10-BTEX       | 20   | µg/L | ----              | <20                  | <20               | <20               | <20               |     |
| >C10 - C16 Fraction  | ----              | 100  | µg/L | ----              | ----                 | <100              | <100              | <100              |     |
| >C16 - C34 Fraction  | ----              | 100  | µg/L | ----              | ----                 | <100              | <100              | <100              |     |
| >C34 - C40 Fraction  | ----              | 100  | µg/L | ----              | ----                 | <100              | <100              | <100              |     |
| ^ >C10 - C40 Fraction (sum)  | ----              | 100  | µg/L | ----              | ----                 | <100              | <100              | <100              |     |
| ^ >C10 - C16 Fraction minus Naphthalene (F2)                           | ----              | 100  | µg/L | ----              | ----                 | <100              | <100              | <100              |     |
| <b>EP080: BTEXN</b>  |                   |      |      |                   |                      |                   |                   |                   |     |
| Benzene  | 71-43-2           | 1    | µg/L | 19                | <1                   | <1                | <1                | <1                |     |
| Toluene  | 108-88-3          | 2    | µg/L | 18                | <2                   | <2                | <2                | <2                |     |
| Ethylbenzene   | 100-41-4          | 2    | µg/L | 17                | <2                   | <2                | <2                | <2                |     |
| meta- & para-Xylene  | 108-38-3 106-42-3 | 2    | µg/L | 18                | <2                   | <2                | <2                | <2                |     |
| ortho-Xylene   | 95-47-6           | 2    | µg/L | 18                | <2                   | <2                | <2                | <2                |     |
| ^ Total Xylenes  | ----              | 2    | µg/L | 36                | <2                   | <2                | <2                | <2                |     |
| ^ Sum of BTEX  | ----              | 1    | µg/L | 90                | <1                   | <1                | <1                | <1                |     |
| Naphthalene  | 91-20-3           | 5    | µg/L | 20                | <5                   | <5                | <5                | <5                |     |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>                   |                   |      |      |                   |                      |                   |                   |                   |     |
| 4-Chlorophenoxy acetic acid  | 122-88-3          | 0.01 | µg/L | ----              | ----                 | <0.01             | <0.01             | <0.01             |     |
| 2,4-DB   | 94-82-6           | 0.01 | µg/L | ----              | ----                 | <0.01             | <0.01             | <0.01             |     |
| Dicamba  | 1918-00-9         | 0.01 | µg/L | ----              | ----                 | <0.01             | <0.01             | <0.01             |     |



## Analytical Results

| Sub-Matrix: WATER<br>(Matrix: WATER)                             |             |      |      | Client sample ID  | TRIP SPIKE (18NEOII) | TRIP BLANK        | MW1               | MW2               | MW3 |
|--|-------------|------|------|-------------------|----------------------|-------------------|-------------------|-------------------|-----|
| Client sampling date / time                                      |             |      |      | 15-Feb-2018 00:00 | 15-Feb-2018 00:00    | 16-Feb-2018 00:00 | 16-Feb-2018 00:00 | 16-Feb-2018 00:00 |     |
| Compound   | CAS Number  | LOR  | Unit | ES1805085-011     | ES1805085-012        | ES1805085-013     | ES1805085-014     | ES1805085-015     |     |
|  |             |      |      | Result            | Result               | Result            | Result            | Result            |     |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS - Continued</b> |             |      |      |                   |                      |                   |                   |                   |     |
| Mecoprop   | 93-65-2     | 0.01 | µg/L | ----              | ----                 | <0.01             | <0.01             | <0.01             |     |
| MCPA   | 94-74-6     | 0.01 | µg/L | ----              | ----                 | <0.01             | <0.01             | <0.01             |     |
| 2,4-DP   | 120-36-5    | 0.01 | µg/L | ----              | ----                 | <0.01             | <0.01             | <0.01             |     |
| 2,4-D  | 94-75-7     | 0.01 | µg/L | ----              | ----                 | <0.01             | <0.01             | <0.01             |     |
| Triclopyr  | 55335-06-3  | 0.01 | µg/L | ----              | ----                 | <0.01             | <0.01             | <0.01             |     |
| Silvex (2,4,5-TP/Fenoprop)                                       | 93-72-1     | 0.01 | µg/L | ----              | ----                 | <0.01             | <0.01             | <0.01             |     |
| 2,4,5-T  | 93-76-5     | 0.01 | µg/L | ----              | ----                 | <0.01             | <0.01             | <0.01             |     |
| MCPB   | 94-81-5     | 0.01 | µg/L | ----              | ----                 | <0.01             | <0.01             | <0.01             |     |
| Picloram   | 1918-02-1   | 0.05 | µg/L | ----              | ----                 | <0.05             | <0.05             | <0.05             |     |
| Clopyralid   | 1702-17-6   | 0.05 | µg/L | ----              | ----                 | <0.05             | <0.05             | <0.05             |     |
| Fluroxypyr   | 69377-81-7  | 0.05 | µg/L | ----              | ----                 | <0.05             | <0.05             | <0.05             |     |
| 2,6-D  | 575-90-6    | 0.1  | µg/L | ----              | ----                 | <0.1              | <0.1              | <0.1              |     |
| 2,4,6-T  | 575-89-3    | 0.1  | µg/L | ----              | ----                 | <0.1              | <0.1              | <0.1              |     |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>                     |             |      |      |                   |                      |                   |                   |                   |     |
| Perfluorobutane sulfonic acid (PFBS)                             | 375-73-5    | 0.02 | µg/L | ----              | ----                 | <0.02             | <0.05             | <0.02             |     |
| Perfluorohexane sulfonic acid (PFHxS)                            | 355-46-4    | 0.02 | µg/L | ----              | ----                 | <0.02             | <0.05             | <0.02             |     |
| Perfluorooctane sulfonic acid (PFOS)                             | 1763-23-1   | 0.01 | µg/L | ----              | ----                 | <0.01             | <0.05             | <0.01             |     |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b>                   |             |      |      |                   |                      |                   |                   |                   |     |
| Perfluorobutanoic acid (PFBA)                                    | 375-22-4    | 0.1  | µg/L | ----              | ----                 | <0.1              | <0.2              | <0.1              |     |
| Perfluoropentanoic acid (PFPeA)                                  | 2706-90-3   | 0.02 | µg/L | ----              | ----                 | <0.02             | <0.05             | <0.02             |     |
| Perfluorohexanoic acid (PFHxA)                                   | 307-24-4    | 0.02 | µg/L | ----              | ----                 | <0.02             | <0.05             | <0.02             |     |
| Perfluoroheptanoic acid (PFHpA)                                  | 375-85-9    | 0.02 | µg/L | ----              | ----                 | <0.02             | <0.05             | <0.02             |     |
| Perfluorooctanoic acid (PFOA)                                    | 335-67-1    | 0.01 | µg/L | ----              | ----                 | <0.01             | <0.05             | <0.01             |     |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>                |             |      |      |                   |                      |                   |                   |                   |     |
| 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                        | 757124-72-4 | 0.05 | µg/L | ----              | ----                 | <0.05             | <0.05             | <0.05             |     |
| 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                        | 27619-97-2  | 0.05 | µg/L | ----              | ----                 | <0.05             | <0.05             | <0.05             |     |
| 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                        | 39108-34-4  | 0.05 | µg/L | ----              | ----                 | <0.05             | <0.05             | <0.05             |     |
| 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                      | 120226-60-0 | 0.05 | µg/L | ----              | ----                 | <0.05             | <0.05             | <0.05             |     |



## Analytical Results

| Sub-Matrix: WATER<br>(Matrix: WATER)                  |                    |      |      | Client sample ID  | TRIP SPIKE (18NEOII) | TRIP BLANK        | MW1               | MW2               | MW3 |
|---|--------------------|------|------|-------------------|----------------------|-------------------|-------------------|-------------------|-----|
| Client sampling date / time                           |                    |      |      | 15-Feb-2018 00:00 | 15-Feb-2018 00:00    | 16-Feb-2018 00:00 | 16-Feb-2018 00:00 | 16-Feb-2018 00:00 |     |
| Compound  | CAS Number         | LOR  | Unit | ES1805085-011     | ES1805085-012        | ES1805085-013     | ES1805085-014     | ES1805085-015     |     |
|   |                    |      |      | Result            | Result               | Result            | Result            | Result            |     |
| <b>EP231P: PFAS Sums</b>                              |                    |      |      |                   |                      |                   |                   |                   |     |
| Sum of PFHxS and PFOS                                 | 355-46-4/1763-23-1 | 0.01 | µg/L | ----              | ----                 | <0.01             | <0.05             | <0.01             |     |
| Sum of PFAS (WA DER List)                             | ----               | 0.01 | µg/L | ----              | ----                 | <0.01             | <0.05             | <0.01             |     |
| <b>EP068S: Organochlorine Pesticide Surrogate</b>     |                    |      |      |                   |                      |                   |                   |                   |     |
| Dibromo-DDE   | 21655-73-2         | 0.5  | %    | ----              | ----                 | 104               | 115               | 92.7              |     |
| <b>EP068T: Organophosphorus Pesticide Surrogate</b>   |                    |      |      |                   |                      |                   |                   |                   |     |
| DEF   | 78-48-8            | 0.5  | %    | ----              | ----                 | 95.8              | 114               | 98.5              |     |
| <b>EP075(SIM)S: Phenolic Compound Surrogates</b>      |                    |      |      |                   |                      |                   |                   |                   |     |
| Phenol-d6   | 13127-88-3         | 1.0  | %    | ----              | ----                 | 28.3              | 34.9              | 33.8              |     |
| 2-Chlorophenol-D4                                     | 93951-73-6         | 1.0  | %    | ----              | ----                 | 62.4              | 75.7              | 69.8              |     |
| 2,4,6-Tribromophenol                                  | 118-79-6           | 1.0  | %    | ----              | ----                 | 64.6              | 85.7              | 82.0              |     |
| <b>EP075(SIM)T: PAH Surrogates</b>                    |                    |      |      |                   |                      |                   |                   |                   |     |
| 2-Fluorobiphenyl                                      | 321-60-8           | 1.0  | %    | ----              | ----                 | 56.6              | 68.6              | 71.4              |     |
| Anthracene-d10  | 1719-06-8          | 1.0  | %    | ----              | ----                 | 95.9              | 104               | 101               |     |
| 4-Terphenyl-d14                                       | 1718-51-0          | 1.0  | %    | ----              | ----                 | 91.5              | 91.7              | 89.3              |     |
| <b>EP080S: TPH(V)/BTEX Surrogates</b>                 |                    |      |      |                   |                      |                   |                   |                   |     |
| 1,2-Dichloroethane-D4                                 | 17060-07-0         | 2    | %    | 101               | 112                  | 97.0              | 108               | 107               |     |
| Toluene-D8  | 2037-26-5          | 2    | %    | 123               | 110                  | 93.0              | 104               | 98.8              |     |
| 4-Bromofluorobenzene                                  | 460-00-4           | 2    | %    | 119               | 104                  | 88.4              | 98.6              | 95.7              |     |
| <b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b> |                    |      |      |                   |                      |                   |                   |                   |     |
| 2,4-Dichlorophenyl Acetic Acid                        | 19719-28-9         | 0.01 | %    | ----              | ----                 | 92.4              | 64.6              | 75.8              |     |
| <b>EP231S: PFAS Surrogate</b>                         |                    |      |      |                   |                      |                   |                   |                   |     |
| 13C4-PFOS   | ----               | 0.02 | %    | ----              | ----                 | 61.7              | 110               | 118               |     |
| 13C8-PFOA   | ----               | 0.02 | %    | ----              | ----                 | 67.2              | 107               | 110               |     |



## Surrogate Control Limits

| Sub-Matrix: SOIL                                      |            | Recovery Limits (%) |      |
|---|------------|---------------------|------|
| Compound  | CAS Number | Low                 | High |
| <b>EP068S: Organochlorine Pesticide Surrogate</b>     |            |                     |      |
| Dibromo-DDE   | 21655-73-2 | 49                  | 147  |
| <b>EP068T: Organophosphorus Pesticide Surrogate</b>   |            |                     |      |
| DEF   | 78-48-8    | 35                  | 143  |
| <b>EP075(SIM)S: Phenolic Compound Surrogates</b>      |            |                     |      |
| Phenol-d6   | 13127-88-3 | 63                  | 123  |
| 2-Chlorophenol-D4                                     | 93951-73-6 | 66                  | 122  |
| 2,4,6-Tribromophenol                                  | 118-79-6   | 40                  | 138  |
| <b>EP075(SIM)T: PAH Surrogates</b>                    |            |                     |      |
| 2-Fluorobiphenyl                                      | 321-60-8   | 70                  | 122  |
| Anthracene-d10  | 1719-06-8  | 66                  | 128  |
| 4-Terphenyl-d14                                       | 1718-51-0  | 65                  | 129  |
| <b>EP080S: TPH(V)/BTEX Surrogates</b>                 |            |                     |      |
| 1,2-Dichloroethane-D4                                 | 17060-07-0 | 73                  | 133  |
| Toluene-D8  | 2037-26-5  | 74                  | 132  |
| 4-Bromofluorobenzene                                  | 460-00-4   | 72                  | 130  |
| <b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b> |            |                     |      |
| 2,4-Dichlorophenyl Acetic Acid                        | 19719-28-9 | 45                  | 139  |
| <b>EP231S: PFAS Surrogate</b>                         |            |                     |      |
| 13C4-PFOS   | ----       | 60                  | 130  |
| 13C8-PFOA   | ----       | 60                  | 130  |

| Sub-Matrix: WATER                                   |            | Recovery Limits (%) |      |
|---|------------|---------------------|------|
| Compound  | CAS Number | Low                 | High |
| <b>EP068S: Organochlorine Pesticide Surrogate</b>   |            |                     |      |
| Dibromo-DDE   | 21655-73-2 | 67                  | 111  |
| <b>EP068T: Organophosphorus Pesticide Surrogate</b> |            |                     |      |
| DEF   | 78-48-8    | 67                  | 111  |
| <b>EP075(SIM)S: Phenolic Compound Surrogates</b>    |            |                     |      |
| Phenol-d6   | 13127-88-3 | 10                  | 44   |
| 2-Chlorophenol-D4                                   | 93951-73-6 | 14                  | 94   |
| 2,4,6-Tribromophenol                                | 118-79-6   | 17                  | 125  |
| <b>EP075(SIM)T: PAH Surrogates</b>                  |            |                     |      |
| 2-Fluorobiphenyl                                    | 321-60-8   | 20                  | 104  |
| Anthracene-d10                                      | 1719-06-8  | 27                  | 113  |
| 4-Terphenyl-d14                                     | 1718-51-0  | 32                  | 112  |
| <b>EP080S: TPH(V)/BTEX Surrogates</b>               |            |                     |      |
| 1,2-Dichloroethane-D4                               | 17060-07-0 | 71                  | 137  |
| Toluene-D8  | 2037-26-5  | 79                  | 131  |



| Sub-Matrix: WATER                                     |            | Recovery Limits (%) |      |
|---|------------|---------------------|------|
| Compound  | CAS Number | Low                 | High |
| <b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>     |            |                     |      |
| 4-Bromofluorobenzene                                  | 460-00-4   | 70                  | 128  |
| <b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b> |            |                     |      |
| 2,4-Dichlorophenyl Acetic Acid                        | 19719-28-9 | 52                  | 140  |
| <b>EP231S: PFAS Surrogate</b>                         |            |                     |      |
| 13C4-PFOS   | ----       | 60                  | 130  |
| 13C8-PFOA   | ----       | 60                  | 130  |

## QUALITY CONTROL REPORT

|                                |   |                                |   |
|--------------------------------|---|--------------------------------|---|
| <b>Work Order</b>              | <b>: ES1805085</b>                        | <b>Page</b>                    | : 1 of 26   |
| <b>Client</b>                  | <b>: ROBERT CARR &amp; ASSOCIATES P/L</b> | <b>Laboratory</b>              | : Environmental Division Sydney                       |
| <b>Contact</b>                 | <b>: MS FIONA BROOKER</b>                 | <b>Contact</b>                 | : Customer Services ES                                |
| <b>Address</b>                 | <b>: P O BOX 175</b>                      | <b>Address</b>                 | : 277-289 Woodpark Road Smithfield NSW Australia 2164 |
|                                | <b>CARRINGTON NSW, AUSTRALIA 2294</b>     |                                |   |
| <b>Telephone</b>               | <b>: +61 02 4902 9200</b>                 | <b>Telephone</b>               | : +61-2-8784 8555                                     |
| <b>Project</b>                 | <b>: 13156</b>                            | <b>Date Samples Received</b>   | : 16-Feb-2018   |
| <b>Order number</b>            | <b>: ----</b>                             | <b>Date Analysis Commenced</b> | : 19-Feb-2018   |
| <b>C-O-C number</b>            | <b>: ----</b>                             | <b>Issue Date</b>              | : 07-Mar-2018   |
| <b>Sampler</b>                 | <b>: KATY SHAW</b>                        |                                |   |
| <b>Site</b>                    | <b>: ----</b>                             |                                |   |
| <b>Quote number</b>            | <b>: SYBQ/400/17</b>                      |                                |   |
| <b>No. of samples received</b> | <b>: 21</b>                               |                                |   |
| <b>No. of samples analysed</b> | <b>: 21</b>                               |                                |   |



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>               |
|---------------------|-------------------------------|---|
| Alex Rossi          | Organic Chemist               | Sydney Organics, Smithfield, NSW            |
| Ankit Joshi         | Inorganic Chemist             | Sydney Inorganics, Smithfield, NSW          |
| Celine Conceicao    | Senior Spectroscopist         | Sydney Inorganics, Smithfield, NSW          |
| Edwandy Fadjar      | Organic Coordinator           | Sydney Inorganics, Smithfield, NSW          |
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| Franco Lentini      |                               | Sydney Organics, Smithfield, NSW            |
| Ivan Taylor         | Analyst                       | Sydney Inorganics, Smithfield, NSW          |
| Sanjeshni Jyoti     | Senior Chemist Volatiles      | Sydney Organics, Smithfield, NSW            |
| Satishkumar Trivedi | Acid Sulfate Soils Supervisor | Brisbane Acid Sulphate Soils, Stafford, QLD |



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key :  
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot  
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 RPD = Relative Percentage Difference  
 # = Indicates failed QC

## Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

|  |                  |   |            | Laboratory Duplicate (DUP) Report |             |                 |                  |         |                     |
|--|------------------|---|------------|-----------------------------------|-------------|-----------------|------------------|---------|---------------------|
| Laboratory sample ID   | Client sample ID | Method: Compound                                    | CAS Number | LOR                               | Unit        | Original Result | Duplicate Result | RPD (%) | Recovery Limits (%) |
| <b>EA010: Conductivity (QC Lot: 1441527)</b>                         |                  |   |            |                                   |             |                 |                  |         |                     |
| ES1804838-017  | Anonymous        | EA010: Electrical Conductivity @ 25°C               | ----       | 1                                 | µS/cm       | 52              | 56               | 7.76    | 0% - 20%            |
| ES1804838-027  | Anonymous        | EA010: Electrical Conductivity @ 25°C               | ----       | 1                                 | µS/cm       | 126             | 120              | 4.31    | 0% - 20%            |
| <b>EA010: Conductivity (QC Lot: 1441528)</b>                         |                  |   |            |                                   |             |                 |                  |         |                     |
| ES1805085-009  | BH18C            | EA010: Electrical Conductivity @ 25°C               | ----       | 1                                 | µS/cm       | 113             | 110              | 2.78    | 0% - 20%            |
| <b>EA010: Conductivity (QC Lot: 1447321)</b>                         |                  |   |            |                                   |             |                 |                  |         |                     |
| ES1805388-002  | Anonymous        | EA010: Electrical Conductivity @ 25°C               | ----       | 1                                 | µS/cm       | 451             | 372              | 19.2    | 0% - 20%            |
| ES1805045-045  | Anonymous        | EA010: Electrical Conductivity @ 25°C               | ----       | 1                                 | µS/cm       | 329             | 324              | 1.53    | 0% - 20%            |
| <b>EA033-A: Actual Acidity (QC Lot: 1450183)</b>                     |                  |   |            |                                   |             |                 |                  |         |                     |
| EB1804496-014  | Anonymous        | EA033: sulfidic - Titratable Actual Acidity (s-23F) | ----       | 0.02                              | % pyrite S  | <0.02           | <0.02            | 0.00    | No Limit            |
|  |                  | EA033: Titratable Actual Acidity (23F)              | ----       | 2                                 | mole H+ / t | <2              | <2               | 0.00    | No Limit            |
|  |                  | EA033: pH KCl (23A)                                 | ----       | 0.1                               | pH Unit     | 5.5             | 5.5              | 0.00    | 0% - 20%            |
| EB1804710-001  | Anonymous        | EA033: sulfidic - Titratable Actual Acidity (s-23F) | ----       | 0.02                              | % pyrite S  | <0.02           | <0.02            | 0.00    | No Limit            |
|  |                  | EA033: Titratable Actual Acidity (23F)              | ----       | 2                                 | mole H+ / t | <2              | <2               | 0.00    | No Limit            |
|  |                  | EA033: pH KCl (23A)                                 | ----       | 0.1                               | pH Unit     | 6.2             | 6.3              | 1.60    | 0% - 20%            |
| <b>EA033-B: Potential Acidity (QC Lot: 1450183)</b>                  |                  |   |            |                                   |             |                 |                  |         |                     |
| EB1804496-014  | Anonymous        | EA033: Chromium Reducible Sulfur (22B)              | ----       | 0.005                             | % S         | 0.035           | 0.034            | 0.00    | No Limit            |
|  |                  | EA033: acidity - Chromium Reducible Sulfur (a-22B)  | ----       | 10                                | mole H+ / t | 22              | 21               | 0.00    | No Limit            |
| EB1804710-001  | Anonymous        | EA033: Chromium Reducible Sulfur (22B)              | ----       | 0.005                             | % S         | 0.008           | 0.008            | 0.00    | No Limit            |
|  |                  | EA033: acidity - Chromium Reducible Sulfur (a-22B)  | ----       | 10                                | mole H+ / t | <10             | <10              | 0.00    | No Limit            |
| <b>EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1444344)</b> |                  |   |            |                                   |             |                 |                  |         |                     |
| EM1803088-005  | Anonymous        | EA055: Moisture Content                             | ----       | 1                                 | %           | 9.6             | 9.2              | 3.52    | No Limit            |
| EM1803218-002  | Anonymous        | EA055: Moisture Content                             | ----       | 1                                 | %           | 17.4            | 17.2             | 1.31    | 0% - 50%            |



| 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 (%) |
| <b>EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1444345)</b> |                  |                         |            |                                   |       |                 |                  |         |                     |
| ES1805085-005  | BH17B            | EA055: Moisture Content | ----       | 1                                 | %     | 15.0            | 16.0             | 6.14    | 0% - 50%            |
| ES1805086-006  | Anonymous        | EA055: Moisture Content | ----       | 1                                 | %     | 8.7             | 8.3              | 4.96    | No Limit            |
| <b>EG005T: Total Metals by ICP-AES (QC Lot: 1449402)</b>             |                  |                         |            |                                   |       |                 |                  |         |                     |
| ES1805045-045  | Anonymous        | EG005T: Cadmium         | 7440-43-9  | 1                                 | mg/kg | <0.4            | <0.4             | 0.00    | No Limit            |
|  |                  | EG005T: Chromium        | 7440-47-3  | 2                                 | mg/kg | 16              | 16               | 0.00    | No Limit            |
|  |                  | EG005T: Nickel          | 7440-02-0  | 2                                 | mg/kg | 20              | 19               | 0.00    | No Limit            |
|  |                  | EG005T: Arsenic         | 7440-38-2  | 5                                 | mg/kg | 6               | <5               | 0.00    | No Limit            |
|  |                  | EG005T: Copper          | 7440-50-8  | 5                                 | mg/kg | 39              | 39               | 0.00    | No Limit            |
|  |                  | EG005T: Lead            | 7439-92-1  | 5                                 | mg/kg | 18              | 17               | 0.00    | No Limit            |
|  |                  | EG005T: Zinc            | 7440-66-6  | 5                                 | mg/kg | 74              | 75               | 0.00    | 0% - 50%            |
| ES1805122-001  | Anonymous        | EG005T: Cadmium         | 7440-43-9  | 1                                 | mg/kg | <1              | <1               | 0.00    | No Limit            |
|  |                  | EG005T: Chromium        | 7440-47-3  | 2                                 | mg/kg | <2              | <2               | 0.00    | No Limit            |
|  |                  | EG005T: Nickel          | 7440-02-0  | 2                                 | mg/kg | <2              | <2               | 0.00    | No Limit            |
|  |                  | EG005T: Arsenic         | 7440-38-2  | 5                                 | mg/kg | 9               | 12               | 33.9    | No Limit            |
|  |                  | EG005T: Copper          | 7440-50-8  | 5                                 | mg/kg | 10              | 10               | 0.00    | No Limit            |
|  |                  | EG005T: Lead            | 7439-92-1  | 5                                 | mg/kg | 24              | 13               | 61.1    | No Limit            |
|  |                  | EG005T: Zinc            | 7440-66-6  | 5                                 | mg/kg | 30              | 30               | 0.00    | No Limit            |
| <b>EG005T: Total Metals by ICP-AES (QC Lot: 1458780)</b>             |                  |                         |            |                                   |       |                 |                  |         |                     |
| ES1805085-005  | BH17B            | EG005T: Cadmium         | 7440-43-9  | 1                                 | mg/kg | <1              | <1               | 0.00    | No Limit            |
|  |                  | EG005T: Chromium        | 7440-47-3  | 2                                 | mg/kg | 23              | 28               | 22.2    | 0% - 50%            |
|  |                  | EG005T: Nickel          | 7440-02-0  | 2                                 | mg/kg | 6               | 7                | 0.00    | No Limit            |
|  |                  | EG005T: Arsenic         | 7440-38-2  | 5                                 | mg/kg | <5              | <5               | 0.00    | No Limit            |
|  |                  | EG005T: Copper          | 7440-50-8  | 5                                 | mg/kg | 6               | 6                | 0.00    | No Limit            |
|  |                  | EG005T: Lead            | 7439-92-1  | 5                                 | mg/kg | 14              | 13               | 8.14    | No Limit            |
|  |                  | EG005T: Zinc            | 7440-66-6  | 5                                 | mg/kg | 13              | 16               | 17.0    | No Limit            |
| EW1800753-004  | Anonymous        | EG005T: Cadmium         | 7440-43-9  | 1                                 | mg/kg | <1              | <1               | 0.00    | No Limit            |
|  |                  | EG005T: Chromium        | 7440-47-3  | 2                                 | mg/kg | 14              | 14               | 0.00    | No Limit            |
|  |                  | EG005T: Nickel          | 7440-02-0  | 2                                 | mg/kg | 10              | 13               | 27.3    | No Limit            |
|  |                  | EG005T: Arsenic         | 7440-38-2  | 5                                 | mg/kg | 6               | 10               | 50.0    | No Limit            |
|  |                  | EG005T: Copper          | 7440-50-8  | 5                                 | mg/kg | 17              | 22               | 28.8    | No Limit            |
|  |                  | EG005T: Lead            | 7439-92-1  | 5                                 | mg/kg | 18              | 18               | 0.00    | No Limit            |
|  |                  | EG005T: Zinc            | 7440-66-6  | 5                                 | mg/kg | 52              | 62               | 18.2    | 0% - 50%            |
| <b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1449403)</b>   |                  |                         |            |                                   |       |                 |                  |         |                     |
| ES1805045-045  | Anonymous        | EG035T: Mercury         | 7439-97-6  | 0.1                               | mg/kg | <0.1            | <0.1             | 0.00    | No Limit            |
| ES1805122-001  | Anonymous        | EG035T: Mercury         | 7439-97-6  | 0.1                               | mg/kg | <0.1            | <0.1             | 0.00    | No Limit            |
| <b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1458779)</b>   |                  |                         |            |                                   |       |                 |                  |         |                     |
| ES1805085-005  | BH17B            | EG035T: Mercury         | 7439-97-6  | 0.1                               | mg/kg | <0.1            | <0.1             | 0.00    | No Limit            |
| EW1800753-004  | Anonymous        | EG035T: Mercury         | 7439-97-6  | 0.1                               | mg/kg | <0.1            | <0.1             | 0.00    | No Limit            |
| <b>EP068A: Organochlorine Pesticides (OC) (QC Lot: 1440626)</b>      |                  |                         |            |                                   |       |                 |                  |         |                     |



| 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 (%) |
| <b>EP068A: Organochlorine Pesticides (OC) (QC Lot: 1440626) - continued</b> |                  |                                |            |                                   |       |                 |                  |         |                     |
| ES1805120-001   | Anonymous        | 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         |         |                     |
| ES1805196-003   | Anonymous        | 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            |



| 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 (%) |
| <b>EP068A: Organochlorine Pesticides (OC) (QC Lot: 1440626) - continued</b> |                  |                            |            |                                   |       |                 |                  |         |                     |
| ES1805196-003   | Anonymous        | 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            |
| <b>EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1440626)</b>           |                  |                            |            |                                   |       |                 |                  |         |                     |
| ES1805120-001   | Anonymous        | 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            |
| EP068: Parathion  | 56-38-2          | 0.2                        | mg/kg      | <0.2                              | <0.2  | 0.00            | No Limit         |         |                     |
| ES1805196-003   | Anonymous        | 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            |



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 (%) |  |
| <b>EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1440626) - continued</b> |                  |   |            |                                   |       |                 |                  |         |                     |  |
| ES1805196-003   | Anonymous        | EP068: Parathion  | 56-38-2    | 0.2                               | mg/kg | <0.2            | <0.2             | 0.00    | No Limit            |  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1440639)</b>       |                  |   |            |                                   |       |                 |                  |         |                     |  |
| ES1805085-005   | BH17B            | EP075(SIM): Naphthalene   | 91-20-3    | 0.5                               | mg/kg | 1.2             | 1.3              | 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 | 1.9             | 2.1              | 13.1    | No Limit            |  |
|   |                  | EP075(SIM): Fluorene  | 86-73-7    | 0.5                               | mg/kg | 2.4             | 3.0              | 19.2    | No Limit            |  |
|   |                  | EP075(SIM): Phenanthrene  | 85-01-8    | 0.5                               | mg/kg | 27.4            | 32.5             | 16.9    | 0% - 20%            |  |
|   |                  | EP075(SIM): Anthracene  | 120-12-7   | 0.5                               | mg/kg | 5.6             | 6.4              | 13.6    | 0% - 50%            |  |
|   |                  | EP075(SIM): Fluoranthene  | 206-44-0   | 0.5                               | mg/kg | 32.1            | 36.1             | 11.6    | 0% - 20%            |  |
|   |                  | EP075(SIM): Pyrene  | 129-00-0   | 0.5                               | mg/kg | 27.8            | 30.4             | 8.59    | 0% - 20%            |  |
|   |                  | EP075(SIM): Benz(a)anthracene   | 56-55-3    | 0.5                               | mg/kg | 9.5             | 10.4             | 9.27    | 0% - 20%            |  |
|   |                  | EP075(SIM): Chrysene  | 218-01-9   | 0.5                               | mg/kg | 8.9             | 9.7              | 8.28    | 0% - 50%            |  |
|   |                  | EP075(SIM): Benzo(b+j)fluoranthene                                      | 205-99-2   | 0.5                               | mg/kg | 9.5             | 10.8             | 12.4    | 0% - 20%            |  |
|   |                  |   | 205-82-3   |                                   |       |                 |                  |         |                     |  |
|   |                  | EP075(SIM): Benzo(k)fluoranthene  | 207-08-9   | 0.5                               | mg/kg | 4.1             | 4.4              | 7.55    | No Limit            |  |
|   |                  | EP075(SIM): Benzo(a)pyrene  | 50-32-8    | 0.5                               | mg/kg | 10.0            | 10.5             | 4.48    | 0% - 20%            |  |
|   |                  | EP075(SIM): Indeno(1.2.3.cd)pyrene                                      | 193-39-5   | 0.5                               | mg/kg | 3.9             | 4.0              | 3.78    | No Limit            |  |
|   |                  | EP075(SIM): Dibenz(a.h)anthracene                                       | 53-70-3    | 0.5                               | mg/kg | 0.8             | 0.9              | 0.00    | No Limit            |  |
|   |                  | EP075(SIM): Benzo(g.h.i)perylene  | 191-24-2   | 0.5                               | mg/kg | 4.2             | 4.4              | 5.88    | No Limit            |  |
|   |                  | EP075(SIM): Sum of polycyclic aromatic hydrocarbons                     | ----       | 0.5                               | mg/kg | 149             | 167              | 11.4    | 0% - 20%            |  |
|   |                  | EP075(SIM): Benzo(a)pyrene TEQ (zero)                                   | ----       | 0.5                               | mg/kg | 13.6            | 14.5             | 6.18    | 0% - 20%            |  |
|   |                  | <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1458653)</b> |            |                                   |       |                 |                  |         |                     |  |
| ES1805085-007   | BH17D            | 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 | 0.8             | 0.8              | 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 | 1.7             | 1.4              | 16.2    | No Limit            |  |
|   |                  | EP075(SIM): Pyrene  | 129-00-0   | 0.5                               | mg/kg | 1.4             | 1.2              | 10.5    | No Limit            |  |
|   |                  | EP075(SIM): Benz(a)anthracene   | 56-55-3    | 0.5                               | mg/kg | <0.5            | <0.5             | 0.00    | No Limit            |  |
|   |                  | EP075(SIM): Chrysene  | 218-01-9   | 0.5                               | mg/kg | <0.5            | <0.5             | 0.00    | No Limit            |  |
|   |                  | EP075(SIM): Benzo(b+j)fluoranthene                                      | 205-99-2   | 0.5                               | mg/kg | <0.5            | <0.5             | 0.00    | No Limit            |  |
|   |                  |   | 205-82-3   |                                   |       |                 |                  |         |                     |  |
|   |                  | EP075(SIM): Benzo(k)fluoranthene  | 207-08-9   | 0.5                               | mg/kg | <0.5            | <0.5             | 0.00    | No Limit            |  |
|   |                  | EP075(SIM): Benzo(a)pyrene  | 50-32-8    | 0.5                               | mg/kg | <0.5            | <0.5             | 0.00    | No Limit            |  |
|   |                  | EP075(SIM): Indeno(1.2.3.cd)pyrene                                      | 193-39-5   | 0.5                               | mg/kg | <0.5            | <0.5             | 0.00    | No Limit            |  |
|   |                  | EP075(SIM): Dibenz(a.h)anthracene                                       | 53-70-3    | 0.5                               | mg/kg | <0.5            | <0.5             | 0.00    | No Limit            |  |
| EP075(SIM): Benzo(g.h.i)perylene  | 191-24-2         | 0.5   | mg/kg      | <0.5                              | <0.5  | 0.00            | No Limit         |         |                     |  |



Sub-Matrix: SOIL

|  |                  |   |                      | Laboratory Duplicate (DUP) Report |       |                 |                  |         |                     |
|--|------------------|---|----------------------|-----------------------------------|-------|-----------------|------------------|---------|---------------------|
| Laboratory sample ID   | Client sample ID | Method: Compound                                    | CAS Number           | LOR                               | Unit  | Original Result | Duplicate Result | RPD (%) | Recovery Limits (%) |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1458653) - continued</b>      |                  |   |                      |                                   |       |                 |                  |         |                     |
| ES1805085-007  | BH17D            | EP075(SIM): Sum of polycyclic aromatic hydrocarbons | ----                 | 0.5                               | mg/kg | 3.9             | 3.4              | 13.7    | No Limit            |
|  |                  | EP075(SIM): Benzo(a)pyrene TEQ (zero)               | ----                 | 0.5                               | mg/kg | <0.5            | <0.5             | 0.00    | No Limit            |
| <b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1440640)</b>                         |                  |   |                      |                                   |       |                 |                  |         |                     |
| ES1805085-005  | BH17B            | EP071: C15 - C28 Fraction                           | ----                 | 100                               | mg/kg | 290             | 310              | 4.56    | No Limit            |
|  |                  | EP071: C29 - C36 Fraction                           | ----                 | 100                               | mg/kg | 270             | 260              | 5.33    | No Limit            |
|  |                  | EP071: C10 - C14 Fraction                           | ----                 | 50                                | mg/kg | <50             | <50              | 0.00    | No Limit            |
| <b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1440664)</b>                         |                  |   |                      |                                   |       |                 |                  |         |                     |
| ES1805085-005  | BH17B            | EP080: C6 - C9 Fraction                             | ----                 | 10                                | mg/kg | <10             | <10              | 0.00    | No Limit            |
| ES1805120-001  | Anonymous        | EP080: C6 - C9 Fraction                             | ----                 | 10                                | mg/kg | <10             | <10              | 0.00    | No Limit            |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1440640)</b> |                  |   |                      |                                   |       |                 |                  |         |                     |
| ES1805085-005  | BH17B            | EP071: >C16 - C34 Fraction                          | ----                 | 100                               | mg/kg | 460             | 480              | 4.18    | No Limit            |
|  |                  | EP071: >C34 - C40 Fraction                          | ----                 | 100                               | mg/kg | 330             | 320              | 0.00    | No Limit            |
|  |                  | EP071: >C10 - C16 Fraction                          | ----                 | 50                                | mg/kg | <50             | <50              | 0.00    | No Limit            |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1440664)</b> |                  |   |                      |                                   |       |                 |                  |         |                     |
| ES1805085-005  | BH17B            | EP080: C6 - C10 Fraction                            | C6_C10               | 10                                | mg/kg | <10             | <10              | 0.00    | No Limit            |
| ES1805120-001  | Anonymous        | EP080: C6 - C10 Fraction                            | C6_C10               | 10                                | mg/kg | <10             | <10              | 0.00    | No Limit            |
| <b>EP080: BTEXN (QC Lot: 1440664)</b>  |                  |   |                      |                                   |       |                 |                  |         |                     |
| ES1805085-005  | BH17B            | 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<br>106-42-3 | 0.5                               | mg/kg | <0.5            | <0.5             | 0.00    | No Limit            |
|  |                  | 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 | 2               | 1                | 0.00    | No Limit            |
| ES1805120-001  | 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<br>106-42-3 | 0.5                               | mg/kg | <0.5            | <0.5             | 0.00    | No Limit            |
|  |                  | 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            |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 1452329)</b>                   |                  |   |                      |                                   |       |                 |                  |         |                     |
| EB1804671-001  | Anonymous        | EP202: 4-Chlorophenoxy acetic acid                  | 122-88-3             | 0.02                              | mg/kg | <0.10           | <0.10            | 0.00    | No Limit            |
|  |                  | EP202: 2,4-DB                                       | 94-82-6              | 0.02                              | mg/kg | <0.10           | <0.10            | 0.00    | No Limit            |
|  |                  | EP202: Dicamba                                      | 1918-00-9            | 0.02                              | mg/kg | <0.10           | <0.10            | 0.00    | No Limit            |
|  |                  | EP202: Mecoprop                                     | 93-65-2              | 0.02                              | mg/kg | <0.10           | <0.10            | 0.00    | No Limit            |
|  |                  | EP202: MCPA   | 94-74-6              | 0.02                              | mg/kg | <0.10           | <0.10            | 0.00    | No Limit            |
|  |                  | EP202: 2,4-DP                                       | 120-36-5             | 0.02                              | mg/kg | <0.10           | <0.10            | 0.00    | No Limit            |



Sub-Matrix: SOIL

|  |                  |   |             | Laboratory Duplicate (DUP) Report |       |                 |                  |         |                     |
|--|------------------|---|-------------|-----------------------------------|-------|-----------------|------------------|---------|---------------------|
| Laboratory sample ID   | Client sample ID | Method: Compound                                    | CAS Number  | LOR                               | Unit  | Original Result | Duplicate Result | RPD (%) | Recovery Limits (%) |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 1452329) - continued</b> |                  |   |             |                                   |       |                 |                  |         |                     |
| EB1804671-001  | Anonymous        | EP202: 2,4-D  | 94-75-7     | 0.02                              | mg/kg | <0.10           | <0.10            | 0.00    | No Limit            |
|  |                  | EP202: Triclopyr                                    | 55335-06-3  | 0.02                              | mg/kg | <0.10           | <0.10            | 0.00    | No Limit            |
|  |                  | EP202: 2,4,5-TP (Silvex)                            | 93-72-1     | 0.02                              | mg/kg | <0.10           | <0.10            | 0.00    | No Limit            |
|  |                  | EP202: 2,4,5-T                                      | 93-76-5     | 0.02                              | mg/kg | <0.10           | <0.10            | 0.00    | No Limit            |
|  |                  | EP202: MCPB   | 94-81-5     | 0.02                              | mg/kg | <0.10           | <0.10            | 0.00    | No Limit            |
|  |                  | EP202: Picloram                                     | 1918-02-1   | 0.02                              | mg/kg | <0.10           | <0.10            | 0.00    | No Limit            |
|  |                  | EP202: Clopyralid                                   | 1702-17-6   | 0.02                              | mg/kg | <0.10           | <0.10            | 0.00    | No Limit            |
|  |                  | EP202: Fluroxypyr                                   | 69377-81-7  | 0.02                              | mg/kg | <0.10           | <0.10            | 0.00    | No Limit            |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1449778)</b>                     |                  |   |             |                                   |       |                 |                  |         |                     |
| EM1803088-005  | Anonymous        | EP231X: Perfluorobutane sulfonic acid (PFBS)        | 375-73-5    | 0.0002                            | mg/kg | <0.0002         | <0.0002          | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorohexane sulfonic acid (PFHxS)       | 355-46-4    | 0.0002                            | mg/kg | 0.0013          | <0.0002          | 148     | No Limit            |
|  |                  | EP231X: Perfluorooctane sulfonic acid (PFOS)        | 1763-23-1   | 0.0002                            | mg/kg | 0.0251          | 0.0226           | 10.4    | 0% - 20%            |
| ES1804867-001  | Anonymous        | EP231X: Perfluorobutane sulfonic acid (PFBS)        | 375-73-5    | 0.0002                            | mg/kg | <0.0002         | <0.0002          | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorohexane sulfonic acid (PFHxS)       | 355-46-4    | 0.0002                            | mg/kg | <0.0002         | <0.0002          | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorooctane sulfonic acid (PFOS)        | 1763-23-1   | 0.0002                            | mg/kg | 0.0006          | 0.0017           | 89.0    | No Limit            |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1449778)</b>                   |                  |   |             |                                   |       |                 |                  |         |                     |
| EM1803088-005  | Anonymous        | EP231X: Perfluoropentanoic acid (PFPeA)             | 2706-90-3   | 0.0002                            | mg/kg | <0.0002         | <0.0002          | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorohexanoic acid (PFHxA)              | 307-24-4    | 0.0002                            | mg/kg | 0.0002          | <0.0002          | 0.00    | No Limit            |
|  |                  | EP231X: Perfluoroheptanoic acid (PFHpA)             | 375-85-9    | 0.0002                            | mg/kg | <0.0002         | <0.0002          | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorooctanoic acid (PFOA)               | 335-67-1    | 0.0002                            | mg/kg | 0.0008          | 0.0008           | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorobutanoic acid (PFBA)               | 375-22-4    | 0.001                             | mg/kg | <0.001          | <0.001           | 0.00    | No Limit            |
| ES1804867-001  | Anonymous        | EP231X: Perfluoropentanoic acid (PFPeA)             | 2706-90-3   | 0.0002                            | mg/kg | <0.0002         | <0.0002          | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorohexanoic acid (PFHxA)              | 307-24-4    | 0.0002                            | mg/kg | <0.0002         | <0.0002          | 0.00    | No Limit            |
|  |                  | EP231X: Perfluoroheptanoic acid (PFHpA)             | 375-85-9    | 0.0002                            | mg/kg | <0.0002         | <0.0002          | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorooctanoic acid (PFOA)               | 335-67-1    | 0.0002                            | mg/kg | <0.0002         | <0.0002          | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorobutanoic acid (PFBA)               | 375-22-4    | 0.001                             | mg/kg | <0.001          | <0.001           | 0.00    | No Limit            |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1449778)</b>                |                  |   |             |                                   |       |                 |                  |         |                     |
| EM1803088-005  | Anonymous        | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)   | 757124-72-4 | 0.0005                            | mg/kg | <0.0005         | <0.0005          | 0.00    | No Limit            |
|  |                  | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)   | 27619-97-2  | 0.0005                            | mg/kg | <0.0005         | <0.0005          | 0.00    | No Limit            |
|  |                  | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)   | 39108-34-4  | 0.0005                            | mg/kg | <0.0005         | <0.0005          | 0.00    | No Limit            |
|  |                  | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | 120226-60-0 | 0.0005                            | mg/kg | <0.0005         | <0.0005          | 0.00    | No Limit            |
| ES1804867-001  | Anonymous        | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)   | 757124-72-4 | 0.0005                            | mg/kg | <0.0005         | <0.0005          | 0.00    | No Limit            |
|  |                  | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)   | 27619-97-2  | 0.0005                            | mg/kg | <0.0005         | <0.0005          | 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 (%) |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1449778) - continued</b> |                  |   |             |                                   |       |                 |                  |         |                     |
| ES1804867-001   | Anonymous        | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)   | 39108-34-4  | 0.0005                            | mg/kg | <0.0005         | <0.0005          | 0.00    | No Limit            |
|   |                  | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | 120226-60-0 | 0.0005                            | mg/kg | <0.0005         | <0.0005          | 0.00    | No Limit            |

Sub-Matrix: **WATER**

|   |                  |                    |            | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                     |
|---|------------------|--------------------|------------|-----------------------------------|------|-----------------|------------------|---------|---------------------|
| Laboratory sample ID  | Client sample ID | Method: Compound   | CAS Number | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Recovery Limits (%) |
| <b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 1443505)</b> |                  |                    |            |                                   |      |                 |                  |         |                     |
| ES1805172-003   | Anonymous        | EG020A-F: Cadmium  | 7440-43-9  | 0.0001                            | mg/L | <0.0001         | <0.0001          | 0.00    | No Limit            |
|   |                  | EG020A-F: Arsenic  | 7440-38-2  | 0.001                             | mg/L | <0.001          | <0.001           | 0.00    | No Limit            |
|   |                  | EG020A-F: Chromium | 7440-47-3  | 0.001                             | mg/L | <0.001          | <0.001           | 0.00    | No Limit            |
|   |                  | EG020A-F: Copper   | 7440-50-8  | 0.001                             | mg/L | <0.001          | <0.001           | 0.00    | No Limit            |
|   |                  | EG020A-F: Lead     | 7439-92-1  | 0.001                             | mg/L | <0.001          | <0.001           | 0.00    | No Limit            |
|   |                  | EG020A-F: Nickel   | 7440-02-0  | 0.001                             | mg/L | 0.002           | 0.002            | 0.00    | No Limit            |
|   |                  | EG020A-F: Zinc     | 7440-66-6  | 0.005                             | mg/L | 0.008           | 0.008            | 0.00    | No Limit            |
| ES1805046-010   | Anonymous        | EG020A-F: Cadmium  | 7440-43-9  | 0.0001                            | mg/L | <0.0001         | <0.0001          | 0.00    | No Limit            |
|   |                  | EG020A-F: Arsenic  | 7440-38-2  | 0.001                             | mg/L | <0.001          | <0.001           | 0.00    | No Limit            |
|   |                  | EG020A-F: Chromium | 7440-47-3  | 0.001                             | mg/L | <0.001          | <0.001           | 0.00    | No Limit            |
|   |                  | EG020A-F: Copper   | 7440-50-8  | 0.001                             | mg/L | <0.001          | <0.001           | 0.00    | No Limit            |
|   |                  | EG020A-F: Lead     | 7439-92-1  | 0.001                             | mg/L | <0.001          | <0.001           | 0.00    | No Limit            |
|   |                  | EG020A-F: Nickel   | 7440-02-0  | 0.001                             | mg/L | <0.001          | <0.001           | 0.00    | No Limit            |
|   |                  | EG020A-F: Zinc     | 7440-66-6  | 0.005                             | mg/L | <0.005          | <0.005           | 0.00    | No Limit            |

**EG035F: Dissolved Mercury by FIMS (QC Lot: 1443502)**

|               |           |                 |           |        |      |         |         |      |          |
|---------------|-----------|-----------------|-----------|--------|------|---------|---------|------|----------|
| ES1805046-010 | Anonymous | EG035F: Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | 0.00 | No Limit |
|---------------|-----------|-----------------|-----------|--------|------|---------|---------|------|----------|

**EP068A: Organochlorine Pesticides (OC) (QC Lot: 1441319)**

|               |     |                                |            |     |      |      |      |      |          |
|---------------|-----|--------------------------------|------------|-----|------|------|------|------|----------|
| ES1805085-015 | MW3 | EP068: alpha-BHC               | 319-84-6   | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
|               |     | EP068: Hexachlorobenzene (HCB) | 118-74-1   | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
|               |     | EP068: beta-BHC                | 319-85-7   | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
|               |     | EP068: gamma-BHC               | 58-89-9    | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
|               |     | EP068: delta-BHC               | 319-86-8   | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
|               |     | EP068: Heptachlor              | 76-44-8    | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
|               |     | EP068: Aldrin                  | 309-00-2   | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
|               |     | EP068: Heptachlor epoxide      | 1024-57-3  | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
|               |     | EP068: trans-Chlordane         | 5103-74-2  | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
|               |     | EP068: alpha-Endosulfan        | 959-98-8   | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
|               |     | EP068: cis-Chlordane           | 5103-71-9  | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
|               |     | EP068: Dieldrin                | 60-57-1    | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
|               |     | EP068: 4,4'-DDE                | 72-55-9    | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
|               |     | EP068: Endrin                  | 72-20-8    | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
|               |     | EP068: beta-Endosulfan         | 33213-65-9 | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |
|               |     | EP068: 4,4'-DDD                | 72-54-8    | 0.5 | µg/L | <0.5 | <0.5 | 0.00 | No Limit |



| Sub-Matrix: WATER   |                  |                                    |            | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                     |
|---|------------------|------------------------------------|------------|-----------------------------------|------|-----------------|------------------|---------|---------------------|
| Laboratory sample ID  | Client sample ID | Method: Compound                   | CAS Number | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Recovery Limits (%) |
| <b>EP068A: Organochlorine Pesticides (OC) (QC Lot: 1441319) - continued</b> |                  |                                    |            |                                   |      |                 |                  |         |                     |
| ES1805085-015   | MW3              | EP068: Endrin aldehyde             | 7421-93-4  | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Endosulfan sulfate          | 1031-07-8  | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Endrin ketone               | 53494-70-5 | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: 4.4'-DDT                    | 50-29-3    | 2                                 | µg/L | <2.0            | <2.0             | 0.00    | No Limit            |
|   |                  | EP068: Methoxychlor                | 72-43-5    | 2                                 | µg/L | <2.0            | <2.0             | 0.00    | No Limit            |
| <b>EP068B: Organophosphorus Pesticides (OP) (QC Lot: 1441319)</b>           |                  |                                    |            |                                   |      |                 |                  |         |                     |
| ES1805085-015   | MW3              | EP068: Dichlorvos                  | 62-73-7    | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Demeton-S-methyl            | 919-86-8   | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Dimethoate                  | 60-51-5    | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Diazinon                    | 333-41-5   | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Chlorpyrifos-methyl         | 5598-13-0  | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Malathion                   | 121-75-5   | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Fenthion                    | 55-38-9    | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Chlorpyrifos                | 2921-88-2  | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Pirimphos-ethyl             | 23505-41-1 | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Chlorfenvinphos             | 470-90-6   | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Bromophos-ethyl             | 4824-78-6  | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Fenamiphos                  | 22224-92-6 | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Prothiofos                  | 34643-46-4 | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Ethion                      | 563-12-2   | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Carbophenothion             | 786-19-6   | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Azinphos Methyl             | 86-50-0    | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP068: Monocrotophos               | 6923-22-4  | 2                                 | µg/L | <2.0            | <2.0             | 0.00    | No Limit            |
| EP068: Parathion-methyl   | 298-00-0         | 2                                  | µg/L       | <2.0                              | <2.0 | 0.00            | No Limit         |         |                     |
| EP068: Parathion  | 56-38-2          | 2                                  | µg/L       | <2.0                              | <2.0 | 0.00            | No Limit         |         |                     |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1441317)</b>     |                  |                                    |            |                                   |      |                 |                  |         |                     |
| ES1805085-015   | MW3              | EP075(SIM): Benzo(a)pyrene         | 50-32-8    | 0.5                               | µg/L | <0.5            | <0.5             | 0.00    | No Limit            |
|   |                  | EP075(SIM): Naphthalene            | 91-20-3    | 1                                 | µg/L | <1.0            | <1.0             | 0.00    | No Limit            |
|   |                  | EP075(SIM): Acenaphthylene         | 208-96-8   | 1                                 | µg/L | <1.0            | <1.0             | 0.00    | No Limit            |
|   |                  | EP075(SIM): Acenaphthene           | 83-32-9    | 1                                 | µg/L | <1.0            | <1.0             | 0.00    | No Limit            |
|   |                  | EP075(SIM): Fluorene               | 86-73-7    | 1                                 | µg/L | <1.0            | <1.0             | 0.00    | No Limit            |
|   |                  | EP075(SIM): Phenanthrene           | 85-01-8    | 1                                 | µg/L | <1.0            | <1.0             | 0.00    | No Limit            |
|   |                  | EP075(SIM): Anthracene             | 120-12-7   | 1                                 | µg/L | <1.0            | <1.0             | 0.00    | No Limit            |
|   |                  | EP075(SIM): Fluoranthene           | 206-44-0   | 1                                 | µg/L | <1.0            | <1.0             | 0.00    | No Limit            |
|   |                  | EP075(SIM): Pyrene                 | 129-00-0   | 1                                 | µg/L | <1.0            | <1.0             | 0.00    | No Limit            |
|   |                  | EP075(SIM): Benz(a)anthracene      | 56-55-3    | 1                                 | µg/L | <1.0            | <1.0             | 0.00    | No Limit            |
|   |                  | EP075(SIM): Chrysene               | 218-01-9   | 1                                 | µg/L | <1.0            | <1.0             | 0.00    | No Limit            |
|   |                  | EP075(SIM): Benzo(b+j)fluoranthene | 205-99-2   | 1                                 | µg/L | <1.0            | <1.0             | 0.00    | No Limit            |
|   |                  | EP075(SIM): Benzo(k)fluoranthene   | 205-82-3   | 1                                 | µg/L | <1.0            | <1.0             | 0.00    | No Limit            |
|   |                  | EP075(SIM): Benzo(k)fluoranthene   | 207-08-9   | 1                                 | µg/L | <1.0            | <1.0             | 0.00    | No Limit            |



Sub-Matrix: **WATER**

|  |                  |                                       |                      | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                     |
|--|------------------|---------------------------------------|----------------------|-----------------------------------|------|-----------------|------------------|---------|---------------------|
| Laboratory sample ID   | Client sample ID | Method: Compound                      | CAS Number           | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Recovery Limits (%) |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1441317) - continued</b>      |                  |                                       |                      |                                   |      |                 |                  |         |                     |
| ES1805085-015  | MW3              | EP075(SIM): Indeno(1.2.3.cd)pyrene    | 193-39-5             | 1                                 | µg/L | <1.0            | <1.0             | 0.00    | No Limit            |
|  |                  | EP075(SIM): Dibenz(a.h)anthracene     | 53-70-3              | 1                                 | µg/L | <1.0            | <1.0             | 0.00    | No Limit            |
|  |                  | EP075(SIM): Benzo(g.h.i)perylene      | 191-24-2             | 1                                 | µg/L | <1.0            | <1.0             | 0.00    | No Limit            |
| <b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1441318)</b>                         |                  |                                       |                      |                                   |      |                 |                  |         |                     |
| ES1805085-015  | MW3              | EP071: C15 - C28 Fraction             | ----                 | 100                               | µg/L | <100            | <100             | 0.00    | No Limit            |
|  |                  | EP071: C10 - C14 Fraction             | ----                 | 50                                | µg/L | <50             | <50              | 0.00    | No Limit            |
|  |                  | EP071: C29 - C36 Fraction             | ----                 | 50                                | µg/L | <50             | <50              | 0.00    | No Limit            |
| <b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1444683)</b>                         |                  |                                       |                      |                                   |      |                 |                  |         |                     |
| ES1805085-015  | MW3              | EP080: C6 - C9 Fraction               | ----                 | 20                                | µg/L | <20             | <20              | 0.00    | No Limit            |
| ES1805261-005  | Anonymous        | EP080: C6 - C9 Fraction               | ----                 | 20                                | µg/L | <20             | <20              | 0.00    | No Limit            |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1441318)</b> |                  |                                       |                      |                                   |      |                 |                  |         |                     |
| ES1805085-015  | MW3              | EP071: >C10 - C16 Fraction            | ----                 | 100                               | µg/L | <100            | <100             | 0.00    | No Limit            |
|  |                  | EP071: >C16 - C34 Fraction            | ----                 | 100                               | µg/L | <100            | <100             | 0.00    | No Limit            |
|  |                  | EP071: >C34 - C40 Fraction            | ----                 | 100                               | µg/L | <100            | <100             | 0.00    | No Limit            |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1444683)</b> |                  |                                       |                      |                                   |      |                 |                  |         |                     |
| ES1805085-015  | MW3              | EP080: C6 - C10 Fraction              | C6_C10               | 20                                | µg/L | <20             | <20              | 0.00    | No Limit            |
| ES1805261-005  | Anonymous        | EP080: C6 - C10 Fraction              | C6_C10               | 20                                | µg/L | <20             | <20              | 0.00    | No Limit            |
| <b>EP080: BTEXN (QC Lot: 1444683)</b>  |                  |                                       |                      |                                   |      |                 |                  |         |                     |
| ES1805085-015  | MW3              | EP080: Benzene                        | 71-43-2              | 1                                 | µg/L | <1              | <1               | 0.00    | No Limit            |
|  |                  | EP080: Toluene                        | 108-88-3             | 2                                 | µg/L | <2              | <2               | 0.00    | No Limit            |
|  |                  | EP080: Ethylbenzene                   | 100-41-4             | 2                                 | µg/L | <2              | <2               | 0.00    | No Limit            |
|  |                  | EP080: meta- & para-Xylene            | 108-38-3<br>106-42-3 | 2                                 | µg/L | <2              | <2               | 0.00    | No Limit            |
|  |                  | EP080: ortho-Xylene                   | 95-47-6              | 2                                 | µg/L | <2              | <2               | 0.00    | No Limit            |
|  |                  | EP080: Naphthalene                    | 91-20-3              | 5                                 | µg/L | <5              | <5               | 0.00    | No Limit            |
| ES1805261-005  | Anonymous        | EP080: Benzene                        | 71-43-2              | 1                                 | µg/L | <1              | <1               | 0.00    | No Limit            |
|  |                  | EP080: Toluene                        | 108-88-3             | 2                                 | µg/L | <2              | <2               | 0.00    | No Limit            |
|  |                  | EP080: Ethylbenzene                   | 100-41-4             | 2                                 | µg/L | <2              | <2               | 0.00    | No Limit            |
|  |                  | EP080: meta- & para-Xylene            | 108-38-3<br>106-42-3 | 2                                 | µg/L | <2              | <2               | 0.00    | No Limit            |
|  |                  | EP080: ortho-Xylene                   | 95-47-6              | 2                                 | µg/L | <2              | <2               | 0.00    | No Limit            |
|  |                  | EP080: Naphthalene                    | 91-20-3              | 5                                 | µg/L | <5              | <5               | 0.00    | No Limit            |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 1441090)</b>                   |                  |                                       |                      |                                   |      |                 |                  |         |                     |
| ES1805168-001  | Anonymous        | EP202-LL: 4-Chlorophenoxy acetic acid | 122-88-3             | 0.01                              | µg/L | <0.01           | <0.01            | 0.00    | No Limit            |
|  |                  | EP202-LL: 2,4-DB                      | 94-82-6              | 0.01                              | µg/L | <0.01           | <0.01            | 0.00    | No Limit            |
|  |                  | EP202-LL: Dicamba                     | 1918-00-9            | 0.01                              | µg/L | <0.01           | <0.01            | 0.00    | No Limit            |
|  |                  | EP202-LL: Mecoprop                    | 93-65-2              | 0.01                              | µg/L | <0.01           | <0.01            | 0.00    | No Limit            |
|  |                  | EP202-LL: MCPA                        | 94-74-6              | 0.01                              | µg/L | <0.01           | <0.01            | 0.00    | No Limit            |
|  |                  | EP202-LL: 2,4-DP                      | 120-36-5             | 0.01                              | µg/L | <0.01           | <0.01            | 0.00    | No Limit            |



Sub-Matrix: **WATER**

|  |                  |   |             | Laboratory Duplicate (DUP) Report |      |                 |                  |         |                     |
|--|------------------|---|-------------|-----------------------------------|------|-----------------|------------------|---------|---------------------|
| Laboratory sample ID   | Client sample ID | Method: Compound                                    | CAS Number  | LOR                               | Unit | Original Result | Duplicate Result | RPD (%) | Recovery Limits (%) |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QC Lot: 1441090) - continued</b> |                  |   |             |                                   |      |                 |                  |         |                     |
| ES1805168-001  | Anonymous        | EP202-LL: 2.4-D                                     | 94-75-7     | 0.01                              | µg/L | <0.01           | <0.01            | 0.00    | No Limit            |
|  |                  | EP202-LL: Triclopyr                                 | 55335-06-3  | 0.01                              | µg/L | <0.01           | <0.01            | 0.00    | No Limit            |
|  |                  | EP202-LL: Silvex (2.4.5-TP/Fenoprop)                | 93-72-1     | 0.01                              | µg/L | <0.01           | <0.01            | 0.00    | No Limit            |
|  |                  | EP202-LL: 2.4.5-T                                   | 93-76-5     | 0.01                              | µg/L | <0.01           | <0.01            | 0.00    | No Limit            |
|  |                  | EP202-LL: MCPB                                      | 94-81-5     | 0.01                              | µg/L | <0.01           | <0.01            | 0.00    | No Limit            |
|  |                  | EP202-LL: Picloram                                  | 1918-02-1   | 0.05                              | µg/L | <0.05           | <0.05            | 0.00    | No Limit            |
|  |                  | EP202-LL: Clopyralid                                | 1702-17-6   | 0.05                              | µg/L | <0.05           | <0.05            | 0.00    | No Limit            |
|  |                  | EP202-LL: Fluroxypyr                                | 69377-81-7  | 0.05                              | µg/L | <0.05           | <0.05            | 0.00    | No Limit            |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 1440917)</b>                     |                  |   |             |                                   |      |                 |                  |         |                     |
| EB1804248-001  | Anonymous        | EP231X: Perfluorooctane sulfonic acid (PFOS)        | 1763-23-1   | 0.01                              | µg/L | 0.07            | 0.08             | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorobutane sulfonic acid (PFBS)        | 375-73-5    | 0.02                              | µg/L | <0.02           | <0.02            | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorohexane sulfonic acid (PFHxS)       | 355-46-4    | 0.02                              | µg/L | 0.06            | 0.08             | 23.1    | No Limit            |
| ES1805085-013  | MW1              | EP231X: Perfluorooctane sulfonic acid (PFOS)        | 1763-23-1   | 0.01                              | µg/L | <0.01           | <0.01            | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorobutane sulfonic acid (PFBS)        | 375-73-5    | 0.02                              | µg/L | <0.02           | <0.02            | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorohexane sulfonic acid (PFHxS)       | 355-46-4    | 0.02                              | µg/L | <0.02           | <0.02            | 0.00    | No Limit            |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 1440917)</b>                   |                  |   |             |                                   |      |                 |                  |         |                     |
| EB1804248-001  | Anonymous        | EP231X: Perfluorooctanoic acid (PFOA)               | 335-67-1    | 0.01                              | µg/L | <0.01           | <0.01            | 0.00    | No Limit            |
|  |                  | EP231X: Perfluoropentanoic acid (PFPeA)             | 2706-90-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorohexanoic acid (PFHxA)              | 307-24-4    | 0.02                              | µg/L | <0.02           | <0.02            | 0.00    | No Limit            |
|  |                  | EP231X: Perfluoroheptanoic acid (PFHpA)             | 375-85-9    | 0.02                              | µg/L | <0.02           | <0.02            | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorobutanoic acid (PFBA)               | 375-22-4    | 0.1                               | µg/L | <0.1            | <0.1             | 0.00    | No Limit            |
| ES1805085-013  | MW1              | EP231X: Perfluorooctanoic acid (PFOA)               | 335-67-1    | 0.01                              | µg/L | <0.01           | <0.01            | 0.00    | No Limit            |
|  |                  | EP231X: Perfluoropentanoic acid (PFPeA)             | 2706-90-3   | 0.02                              | µg/L | <0.02           | <0.02            | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorohexanoic acid (PFHxA)              | 307-24-4    | 0.02                              | µg/L | <0.02           | <0.02            | 0.00    | No Limit            |
|  |                  | EP231X: Perfluoroheptanoic acid (PFHpA)             | 375-85-9    | 0.02                              | µg/L | <0.02           | <0.02            | 0.00    | No Limit            |
|  |                  | EP231X: Perfluorobutanoic acid (PFBA)               | 375-22-4    | 0.1                               | µg/L | <0.1            | <0.1             | 0.00    | No Limit            |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1440917)</b>                |                  |   |             |                                   |      |                 |                  |         |                     |
| EB1804248-001  | Anonymous        | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)   | 757124-72-4 | 0.05                              | µg/L | <0.05           | <0.05            | 0.00    | No Limit            |
|  |                  | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)   | 27619-97-2  | 0.05                              | µg/L | <0.05           | <0.05            | 0.00    | No Limit            |
|  |                  | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)   | 39108-34-4  | 0.05                              | µg/L | <0.05           | <0.05            | 0.00    | No Limit            |
|  |                  | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | 120226-60-0 | 0.05                              | µg/L | <0.05           | <0.05            | 0.00    | No Limit            |
| ES1805085-013  | MW1              | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)   | 757124-72-4 | 0.05                              | µg/L | <0.05           | <0.05            | 0.00    | No Limit            |
|  |                  | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)   | 27619-97-2  | 0.05                              | µg/L | <0.05           | <0.05            | 0.00    | No Limit            |

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 Work Order : ES1805085  
 Client : ROBERT CARR & ASSOCIATES P/L  
 Project : 13156



Sub-Matrix: **WATER**

|   |                         |   |                   | <i>Laboratory Duplicate (DUP) Report</i> |             |                        |                         |                |                            |
|---|-------------------------|---|-------------------|--|-------------|------------------------|-------------------------|----------------|----------------------------|
| <i>Laboratory sample ID</i>   | <i>Client sample ID</i> | <i>Method: Compound</i>                             | <i>CAS Number</i> | <i>LOR</i>                               | <i>Unit</i> | <i>Original Result</i> | <i>Duplicate Result</i> | <i>RPD (%)</i> | <i>Recovery Limits (%)</i> |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 1440917) - continued</b> |                         |   |                   |  |             |                        |                         |                |                            |
| ES1805085-013   | MW1                     | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)   | 39108-34-4        | 0.05                                     | µg/L        | <0.05                  | <0.05                   | 0.00           | No Limit                   |
|   |                         | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | 120226-60-0       | 0.05                                     | µg/L        | <0.05                  | <0.05                   | 0.00           | No Limit                   |



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

| Method: Compound  | CAS Number | LOR   | Unit        | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report |                           |                                 |      |
|---|------------|-------|-------------|--------------------------|---------------------------------------|---------------------------|---------------------------------|------|
|   |            |       |             | Result                   | Spike Concentration                   | Spike Recovery (%)<br>LCS | Recovery Limits (%)<br>Low High |      |
| <b>EA010: Conductivity (QCLot: 1441527)</b>             |            |       |             |                          |                                       |                           |                                 |      |
| EA010: Electrical Conductivity @ 25°C                   | ----       | 1     | µS/cm       | <1                       | 1412 µS/cm                            | 97.0                      | 92                              | 108  |
| <b>EA010: Conductivity (QCLot: 1441528)</b>             |            |       |             |                          |                                       |                           |                                 |      |
| EA010: Electrical Conductivity @ 25°C                   | ----       | 1     | µS/cm       | <1                       | 1412 µS/cm                            | 96.7                      | 92                              | 108  |
| <b>EA010: Conductivity (QCLot: 1447321)</b>             |            |       |             |                          |                                       |                           |                                 |      |
| EA010: Electrical Conductivity @ 25°C                   | ----       | 1     | µS/cm       | <1                       | 1412 µS/cm                            | 96.6                      | 92                              | 108  |
| <b>EA033-A: Actual Acidity (QCLot: 1450183)</b>         |            |       |             |                          |                                       |                           |                                 |      |
| EA033: pH KCl (23A)                                     | ----       | ----  | pH Unit     | ----                     | 4.6 pH Unit                           | 100                       | 70                              | 130  |
| EA033: Titratable Actual Acidity (23F)                  | ----       | 2     | mole H+ / t | <2                       | 17.7 mole H+ / t                      | 89.6                      | 70                              | 130  |
| EA033: sulfidic - Titratable Actual Acidity (s-23F)     | ----       | 0.02  | % pyrite S  | <0.02                    | ----                                  | ----                      | ----                            | ---- |
| <b>EA033-B: Potential Acidity (QCLot: 1450183)</b>      |            |       |             |                          |                                       |                           |                                 |      |
| EA033: Chromium Reducible Sulfur (22B)                  | ----       | 0.005 | % S         | <0.005                   | 0.25483 % S                           | 87.4                      | 70                              | 130  |
| EA033: acidity - Chromium Reducible Sulfur (a-22B)      | ----       | 10    | mole H+ / t | <10                      | ----                                  | ----                      | ----                            | ---- |
| <b>EA033-D: Retained Acidity (QCLot: 1450183)</b>       |            |       |             |                          |                                       |                           |                                 |      |
| EA033: Net Acid Soluble Sulfur (20Je)                   | ----       | 0.02  | % S         | <0.02                    | ----                                  | ----                      | ----                            | ---- |
| EA033: acidity - Net Acid Soluble Sulfur (a-20J)        | ----       | 10    | mole H+ / t | <10                      | ----                                  | ----                      | ----                            | ---- |
| EA033: sulfidic - Net Acid Soluble Sulfur (s-20J)       | ----       | 0.02  | % pyrite S  | <0.02                    | ----                                  | ----                      | ----                            | ---- |
| EA033: KCl Extractable Sulfur (23Ce)                    | ----       | 0.02  | % S         | <0.02                    | 0.052 % S                             | 96.0                      | 70                              | 130  |
| EA033: HCl Extractable Sulfur (20Be)                    | ----       | 0.02  | % S         | <0.02                    | 0.027 % S                             | 111                       | 70                              | 130  |
| <b>EG005T: Total Metals by ICP-AES (QCLot: 1449402)</b> |            |       |             |                          |                                       |                           |                                 |      |
| EG005T: Arsenic   | 7440-38-2  | 5     | mg/kg       | <5                       | 21.7 mg/kg                            | 91.2                      | 86                              | 126  |
| EG005T: Cadmium   | 7440-43-9  | 1     | mg/kg       | <1                       | 4.64 mg/kg                            | 96.0                      | 83                              | 113  |
| EG005T: Chromium  | 7440-47-3  | 2     | mg/kg       | <2                       | 43.9 mg/kg                            | 89.7                      | 76                              | 128  |
| EG005T: Copper  | 7440-50-8  | 5     | mg/kg       | <5                       | 32 mg/kg                              | 96.9                      | 86                              | 120  |
| EG005T: Lead  | 7439-92-1  | 5     | mg/kg       | <5                       | 40 mg/kg                              | 96.5                      | 80                              | 114  |
| EG005T: Nickel  | 7440-02-0  | 2     | mg/kg       | <2                       | 55 mg/kg                              | 99.2                      | 87                              | 123  |
| EG005T: Zinc  | 7440-66-6  | 5     | mg/kg       | <5                       | 60.8 mg/kg                            | 104                       | 80                              | 122  |
| <b>EG005T: Total Metals by ICP-AES (QCLot: 1458780)</b> |            |       |             |                          |                                       |                           |                                 |      |
| EG005T: Arsenic   | 7440-38-2  | 5     | mg/kg       | <5                       | 21.7 mg/kg                            | 90.7                      | 86                              | 126  |
| EG005T: Cadmium   | 7440-43-9  | 1     | mg/kg       | <1                       | 4.64 mg/kg                            | 86.5                      | 83                              | 113  |
| EG005T: Chromium  | 7440-47-3  | 2     | mg/kg       | <2                       | 43.9 mg/kg                            | 78.2                      | 76                              | 128  |
| EG005T: Copper  | 7440-50-8  | 5     | mg/kg       | <5                       | 32 mg/kg                              | 87.2                      | 86                              | 120  |
| EG005T: Lead  | 7439-92-1  | 5     | mg/kg       | <5                       | 40 mg/kg                              | 81.0                      | 80                              | 114  |
| EG005T: Nickel  | 7440-02-0  | 2     | mg/kg       | <2                       | 55 mg/kg                              | 88.9                      | 87                              | 123  |



Sub-Matrix: SOIL

| Method: Compound  | CAS Number | LOR  | Unit  | Method Blank (MB) Report Result | Laboratory Control Spike (LCS) Report |                    |     |                     |      |
|---|------------|------|-------|---------------------------------|---------------------------------------|--------------------|-----|---------------------|------|
|   |            |      |       |                                 | Spike Concentration                   | Spike Recovery (%) |     | Recovery Limits (%) |      |
|   |            |      |       |                                 |                                       | LCS                | Low | High                | High |
| <b>EG005T: Total Metals by ICP-AES (QCLot: 1458780) - continued</b> |            |      |       |                                 |                                       |                    |     |                     |      |
| EG005T: Zinc  | 7440-66-6  | 5    | mg/kg | <5                              | 60.8 mg/kg                            | 86.0               | 80  | 122                 |      |
| <b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 1449403)</b>   |            |      |       |                                 |                                       |                    |     |                     |      |
| EG035T: Mercury   | 7439-97-6  | 0.1  | mg/kg | <0.1                            | 2.57 mg/kg                            | 75.2               | 70  | 105                 |      |
| <b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 1458779)</b>   |            |      |       |                                 |                                       |                    |     |                     |      |
| EG035T: Mercury   | 7439-97-6  | 0.1  | mg/kg | <0.1                            | 2.57 mg/kg                            | 79.1               | 70  | 105                 |      |
| <b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1440626)</b>      |            |      |       |                                 |                                       |                    |     |                     |      |
| EP068: alpha-BHC  | 319-84-6   | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 89.4               | 69  | 113                 |      |
| EP068: Hexachlorobenzene (HCB)                                      | 118-74-1   | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 90.9               | 65  | 117                 |      |
| EP068: beta-BHC   | 319-85-7   | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 93.2               | 67  | 119                 |      |
| EP068: gamma-BHC  | 58-89-9    | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 100                | 68  | 116                 |      |
| EP068: delta-BHC  | 319-86-8   | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 91.6               | 65  | 117                 |      |
| EP068: Heptachlor   | 76-44-8    | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 92.1               | 67  | 115                 |      |
| EP068: Aldrin   | 309-00-2   | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 97.2               | 69  | 115                 |      |
| EP068: Heptachlor epoxide   | 1024-57-3  | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 96.2               | 62  | 118                 |      |
| EP068: trans-Chlordane  | 5103-74-2  | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 94.6               | 63  | 117                 |      |
| EP068: alpha-Endosulfan   | 959-98-8   | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 91.0               | 66  | 116                 |      |
| EP068: cis-Chlordane  | 5103-71-9  | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 95.4               | 64  | 116                 |      |
| EP068: Dieldrin   | 60-57-1    | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 90.8               | 66  | 116                 |      |
| EP068: 4,4'-DDE   | 72-55-9    | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 90.7               | 67  | 115                 |      |
| EP068: Endrin   | 72-20-8    | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 86.7               | 67  | 123                 |      |
| EP068: beta-Endosulfan  | 33213-65-9 | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 94.0               | 69  | 115                 |      |
| EP068: 4,4'-DDD   | 72-54-8    | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 97.6               | 69  | 121                 |      |
| EP068: Endrin aldehyde  | 7421-93-4  | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 90.0               | 56  | 120                 |      |
| EP068: Endosulfan sulfate   | 1031-07-8  | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 96.0               | 62  | 124                 |      |
| EP068: 4,4'-DDT   | 50-29-3    | 0.2  | mg/kg | <0.2                            | 0.5 mg/kg                             | 97.5               | 66  | 120                 |      |
| EP068: Endrin ketone  | 53494-70-5 | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 92.8               | 64  | 122                 |      |
| EP068: Methoxychlor   | 72-43-5    | 0.2  | mg/kg | <0.2                            | 0.5 mg/kg                             | 87.9               | 54  | 130                 |      |
| <b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1440626)</b>    |            |      |       |                                 |                                       |                    |     |                     |      |
| EP068: Dichlorvos   | 62-73-7    | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 83.3               | 59  | 119                 |      |
| EP068: Demeton-S-methyl   | 919-86-8   | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 108                | 62  | 128                 |      |
| EP068: Monocrotophos  | 6923-22-4  | 0.2  | mg/kg | <0.2                            | 0.5 mg/kg                             | 80.5               | 54  | 126                 |      |
| EP068: Dimethoate   | 60-51-5    | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 83.8               | 67  | 119                 |      |
| EP068: Diazinon   | 333-41-5   | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 108                | 70  | 120                 |      |
| EP068: Chlorpyrifos-methyl  | 5598-13-0  | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 100                | 72  | 120                 |      |
| EP068: Parathion-methyl   | 298-00-0   | 0.2  | mg/kg | <0.2                            | 0.5 mg/kg                             | 84.6               | 68  | 120                 |      |
| EP068: Malathion  | 121-75-5   | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 87.2               | 68  | 122                 |      |
| EP068: Fenthion   | 55-38-9    | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 95.4               | 69  | 117                 |      |
| EP068: Chlorpyrifos   | 2921-88-2  | 0.05 | mg/kg | <0.05                           | 0.5 mg/kg                             | 100                | 76  | 118                 |      |



Sub-Matrix: SOIL

| Method: Compound   | CAS Number | LOR  | Unit  | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                    |     |                     |  |
|--|------------|------|-------|-----------------------------|---------------------------------------|--------------------|-----|---------------------|--|
|  |            |      |       | Result                      | Spike                                 | Spike Recovery (%) |     | Recovery Limits (%) |  |
|  |            |      |       |                             | Concentration                         | LCS                | Low | High                |  |
| <b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1440626) - continued</b> |            |      |       |                             |                                       |                    |     |                     |  |
| EP068: Parathion   | 56-38-2    | 0.2  | mg/kg | <0.2                        | 0.5 mg/kg                             | 83.1               | 64  | 122                 |  |
| EP068: Pirimphos-ethyl   | 23505-41-1 | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 94.2               | 70  | 116                 |  |
| EP068: Chlorfenvinphos   | 470-90-6   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 83.1               | 69  | 121                 |  |
| EP068: Bromophos-ethyl   | 4824-78-6  | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 93.3               | 66  | 118                 |  |
| EP068: Fenamiphos  | 22224-92-6 | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 81.6               | 68  | 124                 |  |
| EP068: Prothiofos  | 34643-46-4 | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 89.6               | 62  | 112                 |  |
| EP068: Ethion  | 563-12-2   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 87.7               | 68  | 120                 |  |
| EP068: Carbophenothion   | 786-19-6   | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 91.8               | 65  | 127                 |  |
| EP068: Azinphos Methyl   | 86-50-0    | 0.05 | mg/kg | <0.05                       | 0.5 mg/kg                             | 60.8               | 41  | 123                 |  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1440639)</b>       |            |      |       |                             |                                       |                    |     |                     |  |
| EP075(SIM): Naphthalene  | 91-20-3    | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 116                | 77  | 125                 |  |
| EP075(SIM): Acenaphthylene   | 208-96-8   | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 110                | 72  | 124                 |  |
| EP075(SIM): Acenaphthene   | 83-32-9    | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 116                | 73  | 127                 |  |
| EP075(SIM): Fluorene   | 86-73-7    | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 110                | 72  | 126                 |  |
| EP075(SIM): Phenanthrene   | 85-01-8    | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 119                | 75  | 127                 |  |
| EP075(SIM): Anthracene   | 120-12-7   | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 121                | 77  | 127                 |  |
| EP075(SIM): Fluoranthene   | 206-44-0   | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 121                | 73  | 127                 |  |
| EP075(SIM): Pyrene   | 129-00-0   | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 124                | 74  | 128                 |  |
| EP075(SIM): Benz(a)anthracene  | 56-55-3    | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 94.4               | 69  | 123                 |  |
| EP075(SIM): Chrysene   | 218-01-9   | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 109                | 75  | 127                 |  |
| EP075(SIM): Benzo(b+j)fluoranthene   | 205-99-2   | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 74.8               | 68  | 116                 |  |
| EP075(SIM): Benzo(k)fluoranthene   | 207-08-9   | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 87.9               | 74  | 126                 |  |
| EP075(SIM): Benzo(a)pyrene   | 50-32-8    | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 98.0               | 70  | 126                 |  |
| EP075(SIM): Indeno(1.2.3.cd)pyrene   | 193-39-5   | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 69.5               | 61  | 121                 |  |
| EP075(SIM): Dibenz(a,h)anthracene  | 53-70-3    | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 75.3               | 62  | 118                 |  |
| EP075(SIM): Benzo(g,h,i)perylene   | 191-24-2   | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 71.8               | 63  | 121                 |  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1458653)</b>       |            |      |       |                             |                                       |                    |     |                     |  |
| EP075(SIM): Naphthalene  | 91-20-3    | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 90.7               | 77  | 125                 |  |
| EP075(SIM): Acenaphthylene   | 208-96-8   | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 89.7               | 72  | 124                 |  |
| EP075(SIM): Acenaphthene   | 83-32-9    | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 90.6               | 73  | 127                 |  |
| EP075(SIM): Fluorene   | 86-73-7    | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 92.6               | 72  | 126                 |  |
| EP075(SIM): Phenanthrene   | 85-01-8    | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 93.5               | 75  | 127                 |  |
| EP075(SIM): Anthracene   | 120-12-7   | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 92.1               | 77  | 127                 |  |
| EP075(SIM): Fluoranthene   | 206-44-0   | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 92.1               | 73  | 127                 |  |
| EP075(SIM): Pyrene   | 129-00-0   | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 96.2               | 74  | 128                 |  |
| EP075(SIM): Benz(a)anthracene  | 56-55-3    | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 93.4               | 69  | 123                 |  |
| EP075(SIM): Chrysene   | 218-01-9   | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 96.0               | 75  | 127                 |  |



Sub-Matrix: SOIL

| Method: Compound  | CAS Number           | LOR  | Unit  | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                    |     |                     |  |
|---|----------------------|------|-------|-----------------------------|---------------------------------------|--------------------|-----|---------------------|--|
|   |                      |      |       | Result                      | Spike<br>Concentration                | Spike Recovery (%) |     | Recovery Limits (%) |  |
|   |                      |      |       |                             |                                       | LCS                | Low | High                |  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1458653) - continued</b>      |                      |      |       |                             |                                       |                    |     |                     |  |
| EP075(SIM): Benzo(b+j)fluoranthene  | 205-99-2<br>205-82-3 | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 89.1               | 68  | 116                 |  |
| EP075(SIM): Benzo(k)fluoranthene  | 207-08-9             | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 92.6               | 74  | 126                 |  |
| EP075(SIM): Benzo(a)pyrene  | 50-32-8              | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 90.6               | 70  | 126                 |  |
| EP075(SIM): Indeno(1.2.3.cd)pyrene  | 193-39-5             | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 81.2               | 61  | 121                 |  |
| EP075(SIM): Dibenz(a,h)anthracene   | 53-70-3              | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 80.5               | 62  | 118                 |  |
| EP075(SIM): Benzo(g,h,i)perylene  | 191-24-2             | 0.5  | mg/kg | <0.5                        | 6 mg/kg                               | 88.9               | 63  | 121                 |  |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1440640)</b>                         |                      |      |       |                             |                                       |                    |     |                     |  |
| EP071: C10 - C14 Fraction   | ----                 | 50   | mg/kg | <50                         | 200 mg/kg                             | 112                | 75  | 129                 |  |
| EP071: C15 - C28 Fraction   | ----                 | 100  | mg/kg | <100                        | 300 mg/kg                             | 119                | 77  | 131                 |  |
| EP071: C29 - C36 Fraction   | ----                 | 100  | mg/kg | <100                        | 200 mg/kg                             | 102                | 71  | 129                 |  |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1440664)</b>                         |                      |      |       |                             |                                       |                    |     |                     |  |
| EP080: C6 - C9 Fraction   | ----                 | 10   | mg/kg | <10                         | 26 mg/kg                              | 104                | 68  | 128                 |  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1440640)</b> |                      |      |       |                             |                                       |                    |     |                     |  |
| EP071: >C10 - C16 Fraction  | ----                 | 50   | mg/kg | <50                         | 250 mg/kg                             | 111                | 77  | 125                 |  |
| EP071: >C16 - C34 Fraction  | ----                 | 100  | mg/kg | <100                        | 350 mg/kg                             | 114                | 74  | 138                 |  |
| EP071: >C34 - C40 Fraction  | ----                 | 100  | mg/kg | <100                        | 150 mg/kg                             | 85.4               | 63  | 131                 |  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1440664)</b> |                      |      |       |                             |                                       |                    |     |                     |  |
| EP080: C6 - C10 Fraction  | C6_C10               | 10   | mg/kg | <10                         | 31 mg/kg                              | 102                | 68  | 128                 |  |
| <b>EP080: BTEXN (QCLot: 1440664)</b>  |                      |      |       |                             |                                       |                    |     |                     |  |
| EP080: Benzene  | 71-43-2              | 0.2  | mg/kg | <0.2                        | 1 mg/kg                               | 108                | 62  | 116                 |  |
| EP080: Toluene  | 108-88-3             | 0.5  | mg/kg | <0.5                        | 1 mg/kg                               | 107                | 67  | 121                 |  |
| EP080: Ethylbenzene   | 100-41-4             | 0.5  | mg/kg | <0.5                        | 1 mg/kg                               | 99.4               | 65  | 117                 |  |
| EP080: meta- & para-Xylene  | 108-38-3<br>106-42-3 | 0.5  | mg/kg | <0.5                        | 2 mg/kg                               | 97.8               | 66  | 118                 |  |
| EP080: ortho-Xylene   | 95-47-6              | 0.5  | mg/kg | <0.5                        | 1 mg/kg                               | 101                | 68  | 120                 |  |
| EP080: Naphthalene  | 91-20-3              | 1    | mg/kg | <1                          | 1 mg/kg                               | 107                | 63  | 119                 |  |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1452329)</b>                   |                      |      |       |                             |                                       |                    |     |                     |  |
| EP202: 4-Chlorophenoxy acetic acid  | 122-88-3             | 0.02 | mg/kg | <0.02                       | 0.1 mg/kg                             | 68.2               | 54  | 128                 |  |
| EP202: 2,4-DB   | 94-82-6              | 0.02 | mg/kg | <0.02                       | 0.1 mg/kg                             | 75.4               | 46  | 130                 |  |
| EP202: Dicamba  | 1918-00-9            | 0.02 | mg/kg | <0.02                       | 0.1 mg/kg                             | 65.7               | 52  | 135                 |  |
| EP202: Mecoprop   | 93-65-2              | 0.02 | mg/kg | <0.02                       | 0.1 mg/kg                             | 67.3               | 60  | 130                 |  |
| EP202: MCPA   | 94-74-6              | 0.02 | mg/kg | <0.02                       | 0.1 mg/kg                             | 67.1               | 57  | 131                 |  |
| EP202: 2,4-DP   | 120-36-5             | 0.02 | mg/kg | <0.02                       | 0.1 mg/kg                             | 67.6               | 50  | 141                 |  |
| EP202: 2,4-D  | 94-75-7              | 0.02 | mg/kg | <0.02                       | 0.1 mg/kg                             | 76.7               | 69  | 131                 |  |
| EP202: Triclopyr  | 55335-06-3           | 0.02 | mg/kg | <0.02                       | 0.1 mg/kg                             | 74.7               | 51  | 141                 |  |
| EP202: 2,4,5-TP (Silvex)  | 93-72-1              | 0.02 | mg/kg | <0.02                       | 0.1 mg/kg                             | 67.6               | 41  | 126                 |  |
| EP202: 2,4,5-T  | 93-76-5              | 0.02 | mg/kg | <0.02                       | 0.1 mg/kg                             | 83.4               | 57  | 139                 |  |



Sub-Matrix: **SOIL**

| Method: Compound  | CAS Number  | LOR    | Unit  | Method Blank (MB) Report<br>Result | Laboratory Control Spike (LCS) Report |                    |     |                     |  |
|---|-------------|--------|-------|------------------------------------|---------------------------------------|--------------------|-----|---------------------|--|
|   |             |        |       |                                    | Spike Concentration                   | Spike Recovery (%) |     | Recovery Limits (%) |  |
|   |             |        |       |                                    |                                       | LCS                | Low | High                |  |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1452329) - continued</b> |             |        |       |                                    |                                       |                    |     |                     |  |
| EP202: MCPB   | 94-81-5     | 0.02   | mg/kg | <0.02                              | 0.1 mg/kg                             | 66.9               | 39  | 137                 |  |
| EP202: Picloram   | 1918-02-1   | 0.02   | mg/kg | <0.02                              | 0.1 mg/kg                             | 118                | 49  | 129                 |  |
| EP202: Clopyralid   | 1702-17-6   | 0.02   | mg/kg | <0.02                              | 0.1 mg/kg                             | 74.9               | 49  | 106                 |  |
| EP202: Fluroxypyr   | 69377-81-7  | 0.02   | mg/kg | <0.02                              | 0.1 mg/kg                             | 69.4               | 53  | 128                 |  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1449778)</b>                     |             |        |       |                                    |                                       |                    |     |                     |  |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                                      | 375-73-5    | 0.0002 | mg/kg | <0.0002                            | 0.00125 mg/kg                         | 90.0               | 57  | 121                 |  |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                                     | 355-46-4    | 0.0002 | mg/kg | <0.0002                            | 0.00125 mg/kg                         | 75.2               | 52  | 126                 |  |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                                      | 1763-23-1   | 0.0002 | mg/kg | <0.0002                            | 0.00125 mg/kg                         | 78.0               | 55  | 127                 |  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1449778)</b>                   |             |        |       |                                    |                                       |                    |     |                     |  |
| EP231X: Perfluorobutanoic acid (PFBA)   | 375-22-4    | 0.001  | mg/kg | <0.001                             | 0.00625 mg/kg                         | 65.7               | 52  | 128                 |  |
| EP231X: Perfluoropentanoic acid (PFPeA)   | 2706-90-3   | 0.0002 | mg/kg | <0.0002                            | 0.00125 mg/kg                         | 111                | 54  | 129                 |  |
| EP231X: Perfluorohexanoic acid (PFHxA)  | 307-24-4    | 0.0002 | mg/kg | <0.0002                            | 0.00125 mg/kg                         | 81.2               | 58  | 127                 |  |
| EP231X: Perfluoroheptanoic acid (PFHpA)   | 375-85-9    | 0.0002 | mg/kg | <0.0002                            | 0.00125 mg/kg                         | 82.8               | 57  | 128                 |  |
| EP231X: Perfluorooctanoic acid (PFOA)   | 335-67-1    | 0.0002 | mg/kg | <0.0002                            | 0.00125 mg/kg                         | 74.8               | 60  | 134                 |  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1449778)</b>                |             |        |       |                                    |                                       |                    |     |                     |  |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                                 | 757124-72-4 | 0.0005 | mg/kg | <0.0005                            | 0.00125 mg/kg                         | 95.6               | 54  | 130                 |  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                                 | 27619-97-2  | 0.0005 | mg/kg | <0.0005                            | 0.00125 mg/kg                         | 78.0               | 61  | 130                 |  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                                 | 39108-34-4  | 0.0005 | mg/kg | <0.0005                            | 0.00125 mg/kg                         | 80.4               | 62  | 130                 |  |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                               | 120226-60-0 | 0.0005 | mg/kg | <0.0005                            | 0.00125 mg/kg                         | 91.6               | 60  | 130                 |  |

Sub-Matrix: **WATER**

| Method: Compound   | CAS Number | LOR    | Unit | Method Blank (MB) Report<br>Result | Laboratory Control Spike (LCS) Report |                    |     |                     |  |
|--|------------|--------|------|------------------------------------|---------------------------------------|--------------------|-----|---------------------|--|
|  |            |        |      |                                    | Spike Concentration                   | Spike Recovery (%) |     | Recovery Limits (%) |  |
|  |            |        |      |                                    |                                       | LCS                | Low | High                |  |
| <b>EG020F: Dissolved Metals by ICP-MS (QCLot: 1443505)</b>     |            |        |      |                                    |                                       |                    |     |                     |  |
| EG020A-F: Arsenic  | 7440-38-2  | 0.001  | mg/L | <0.001                             | 0.1 mg/L                              | 99.0               | 85  | 114                 |  |
| EG020A-F: Cadmium  | 7440-43-9  | 0.0001 | mg/L | <0.0001                            | 0.1 mg/L                              | 98.2               | 84  | 110                 |  |
| EG020A-F: Chromium   | 7440-47-3  | 0.001  | mg/L | <0.001                             | 0.1 mg/L                              | 97.5               | 85  | 111                 |  |
| EG020A-F: Copper   | 7440-50-8  | 0.001  | mg/L | <0.001                             | 0.1 mg/L                              | 97.3               | 81  | 111                 |  |
| EG020A-F: Lead   | 7439-92-1  | 0.001  | mg/L | <0.001                             | 0.1 mg/L                              | 96.0               | 83  | 111                 |  |
| EG020A-F: Nickel   | 7440-02-0  | 0.001  | mg/L | <0.001                             | 0.1 mg/L                              | 98.1               | 82  | 112                 |  |
| EG020A-F: Zinc   | 7440-66-6  | 0.005  | mg/L | <0.005                             | 0.1 mg/L                              | 96.4               | 81  | 117                 |  |
| <b>EG035F: Dissolved Mercury by FIMS (QCLot: 1443502)</b>      |            |        |      |                                    |                                       |                    |     |                     |  |
| EG035F: Mercury  | 7439-97-6  | 0.0001 | mg/L | <0.0001                            | 0.01 mg/L                             | 88.5               | 83  | 105                 |  |
| <b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1441319)</b> |            |        |      |                                    |                                       |                    |     |                     |  |
| EP068: alpha-BHC   | 319-84-6   | 0.5    | µg/L | <0.5                               | 5 µg/L                                | 92.4               | 65  | 107                 |  |
| EP068: Hexachlorobenzene (HCB)                                 | 118-74-1   | 0.5    | µg/L | <0.5                               | 5 µg/L                                | 81.0               | 58  | 111                 |  |
| EP068: beta-BHC  | 319-85-7   | 0.5    | µg/L | <0.5                               | 5 µg/L                                | 101                | 69  | 117                 |  |
| EP068: gamma-BHC   | 58-89-9    | 0.5    | µg/L | <0.5                               | 5 µg/L                                | 96.2               | 70  | 112                 |  |
| EP068: delta-BHC   | 319-86-8   | 0.5    | µg/L | <0.5                               | 5 µg/L                                | 97.9               | 69  | 110                 |  |



Sub-Matrix: WATER

| Method: Compound   | CAS Number | LOR | Unit | Method Blank (MB)<br>Report | Laboratory Control Spike (LCS) Report |                    |     |                     |  |
|--|------------|-----|------|-----------------------------|---------------------------------------|--------------------|-----|---------------------|--|
|  |            |     |      | Result                      | Spike                                 | Spike Recovery (%) |     | Recovery Limits (%) |  |
|  |            |     |      |                             | Concentration                         | LCS                | Low | High                |  |
| <b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1441319) - continued</b> |            |     |      |                             |                                       |                    |     |                     |  |
| EP068: Heptachlor  | 76-44-8    | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 91.8               | 65  | 108                 |  |
| EP068: Aldrin  | 309-00-2   | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 93.2               | 66  | 109                 |  |
| EP068: Heptachlor epoxide  | 1024-57-3  | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 93.7               | 67  | 107                 |  |
| EP068: trans-Chlordane   | 5103-74-2  | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 91.8               | 64  | 110                 |  |
| EP068: alpha-Endosulfan  | 959-98-8   | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 101                | 67  | 112                 |  |
| EP068: cis-Chlordane   | 5103-71-9  | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 93.3               | 63  | 111                 |  |
| EP068: Dieldrin  | 60-57-1    | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 100                | 65  | 113                 |  |
| EP068: 4.4'-DDE  | 72-55-9    | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 96.0               | 66  | 112                 |  |
| EP068: Endrin  | 72-20-8    | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 101                | 65  | 113                 |  |
| EP068: beta-Endosulfan   | 33213-65-9 | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 104                | 67  | 114                 |  |
| EP068: 4.4'-DDD  | 72-54-8    | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 99.0               | 72  | 122                 |  |
| EP068: Endrin aldehyde   | 7421-93-4  | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 96.9               | 67  | 109                 |  |
| EP068: Endosulfan sulfate  | 1031-07-8  | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 103                | 65  | 112                 |  |
| EP068: 4.4'-DDT  | 50-29-3    | 2   | µg/L | <2.0                        | 5 µg/L                                | 101                | 65  | 112                 |  |
| EP068: Endrin ketone   | 53494-70-5 | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 98.9               | 64  | 110                 |  |
| EP068: Methoxychlor  | 72-43-5    | 2   | µg/L | <2.0                        | 5 µg/L                                | 103                | 61  | 114                 |  |
| <b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1441319)</b>           |            |     |      |                             |                                       |                    |     |                     |  |
| EP068: Dichlorvos  | 62-73-7    | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 91.1               | 66  | 114                 |  |
| EP068: Demeton-S-methyl  | 919-86-8   | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 103                | 64  | 113                 |  |
| EP068: Monocrotophos   | 6923-22-4  | 2   | µg/L | <2.0                        | 5 µg/L                                | 24.7               | 20  | 48                  |  |
| EP068: Dimethoate  | 60-51-5    | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 100                | 70  | 110                 |  |
| EP068: Diazinon  | 333-41-5   | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 100                | 71  | 110                 |  |
| EP068: Chlorpyrifos-methyl   | 5598-13-0  | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 96.1               | 77  | 119                 |  |
| EP068: Parathion-methyl  | 298-00-0   | 2   | µg/L | <2.0                        | 5 µg/L                                | 94.4               | 70  | 124                 |  |
| EP068: Malathion   | 121-75-5   | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 103                | 68  | 116                 |  |
| EP068: Fenthion  | 55-38-9    | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 96.5               | 69  | 112                 |  |
| EP068: Chlorpyrifos  | 2921-88-2  | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 96.9               | 75  | 119                 |  |
| EP068: Parathion   | 56-38-2    | 2   | µg/L | <2.0                        | 5 µg/L                                | 90.8               | 67  | 121                 |  |
| EP068: Pirimphos-ethyl   | 23505-41-1 | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 89.2               | 69  | 121                 |  |
| EP068: Chlorfenvinphos   | 470-90-6   | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 105                | 72  | 110                 |  |
| EP068: Bromophos-ethyl   | 4824-78-6  | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 92.0               | 68  | 112                 |  |
| EP068: Fenamiphos  | 22224-92-6 | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 101                | 64  | 116                 |  |
| EP068: Prothiofos  | 34643-46-4 | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 96.3               | 68  | 114                 |  |
| EP068: Ethion  | 563-12-2   | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 100                | 74  | 120                 |  |
| EP068: Carbophenothion   | 786-19-6   | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 102                | 66  | 114                 |  |
| EP068: Azinphos Methyl   | 86-50-0    | 0.5 | µg/L | <0.5                        | 5 µg/L                                | 103                | 52  | 128                 |  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1441317)</b>     |            |     |      |                             |                                       |                    |     |                     |  |
| EP075(SIM): Naphthalene  | 91-20-3    | 1   | µg/L | <1.0                        | 5 µg/L                                | 69.4               | 50  | 94                  |  |
| EP075(SIM): Acenaphthylene   | 208-96-8   | 1   | µg/L | <1.0                        | 5 µg/L                                | 76.4               | 64  | 114                 |  |



Sub-Matrix: WATER

| Method: Compound  | CAS Number           | LOR  | Unit | Method Blank (MB) Report Result | Laboratory Control Spike (LCS) Report |                    |     |                     |  |
|---|----------------------|------|------|---------------------------------|---------------------------------------|--------------------|-----|---------------------|--|
|   |                      |      |      |                                 | Spike Concentration                   | Spike Recovery (%) |     | Recovery Limits (%) |  |
|   |                      |      |      |                                 |                                       | LCS                | Low | High                |  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1441317) - continued</b>      |                      |      |      |                                 |                                       |                    |     |                     |  |
| EP075(SIM): Acenaphthene  | 83-32-9              | 1    | µg/L | <1.0                            | 5 µg/L                                | 67.4               | 62  | 113                 |  |
| EP075(SIM): Fluorene  | 86-73-7              | 1    | µg/L | <1.0                            | 5 µg/L                                | 75.7               | 64  | 115                 |  |
| EP075(SIM): Phenanthrene  | 85-01-8              | 1    | µg/L | <1.0                            | 5 µg/L                                | 92.0               | 63  | 116                 |  |
| EP075(SIM): Anthracene  | 120-12-7             | 1    | µg/L | <1.0                            | 5 µg/L                                | 71.6               | 64  | 116                 |  |
| EP075(SIM): Fluoranthene  | 206-44-0             | 1    | µg/L | <1.0                            | 5 µg/L                                | 83.4               | 64  | 118                 |  |
| EP075(SIM): Pyrene  | 129-00-0             | 1    | µg/L | <1.0                            | 5 µg/L                                | 85.3               | 63  | 118                 |  |
| EP075(SIM): Benz(a)anthracene   | 56-55-3              | 1    | µg/L | <1.0                            | 5 µg/L                                | 71.6               | 64  | 117                 |  |
| EP075(SIM): Chrysene  | 218-01-9             | 1    | µg/L | <1.0                            | 5 µg/L                                | 70.5               | 63  | 116                 |  |
| EP075(SIM): Benzo(b+j)fluoranthene  | 205-99-2<br>205-82-3 | 1    | µg/L | <1.0                            | 5 µg/L                                | 87.0               | 62  | 119                 |  |
| EP075(SIM): Benzo(k)fluoranthene  | 207-08-9             | 1    | µg/L | <1.0                            | 5 µg/L                                | 79.9               | 63  | 115                 |  |
| EP075(SIM): Benzo(a)pyrene  | 50-32-8              | 0.5  | µg/L | <0.5                            | 5 µg/L                                | 88.2               | 63  | 117                 |  |
| EP075(SIM): Indeno(1.2.3.cd)pyrene  | 193-39-5             | 1    | µg/L | <1.0                            | 5 µg/L                                | 81.3               | 60  | 118                 |  |
| EP075(SIM): Dibenz(a,h)anthracene   | 53-70-3              | 1    | µg/L | <1.0                            | 5 µg/L                                | 81.6               | 61  | 117                 |  |
| EP075(SIM): Benzo(g,h,i)perylene  | 191-24-2             | 1    | µg/L | <1.0                            | 5 µg/L                                | 81.0               | 59  | 118                 |  |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1441318)</b>                         |                      |      |      |                                 |                                       |                    |     |                     |  |
| EP071: C10 - C14 Fraction   | ----                 | 50   | µg/L | <50                             | 2000 µg/L                             | 82.3               | 76  | 116                 |  |
| EP071: C15 - C28 Fraction   | ----                 | 100  | µg/L | <100                            | 3000 µg/L                             | 95.1               | 83  | 109                 |  |
| EP071: C29 - C36 Fraction   | ----                 | 50   | µg/L | <50                             | 2000 µg/L                             | 90.2               | 75  | 113                 |  |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1444683)</b>                         |                      |      |      |                                 |                                       |                    |     |                     |  |
| EP080: C6 - C9 Fraction   | ----                 | 20   | µg/L | <20                             | 260 µg/L                              | 77.1               | 75  | 127                 |  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1441318)</b> |                      |      |      |                                 |                                       |                    |     |                     |  |
| EP071: >C10 - C16 Fraction  | ----                 | 100  | µg/L | <100                            | 2500 µg/L                             | 94.6               | 76  | 114                 |  |
| EP071: >C16 - C34 Fraction  | ----                 | 100  | µg/L | <100                            | 3500 µg/L                             | 100                | 81  | 111                 |  |
| EP071: >C34 - C40 Fraction  | ----                 | 100  | µg/L | <100                            | 1500 µg/L                             | 107                | 77  | 119                 |  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1444683)</b> |                      |      |      |                                 |                                       |                    |     |                     |  |
| EP080: C6 - C10 Fraction  | C6_C10               | 20   | µg/L | <20                             | 310 µg/L                              | 78.8               | 75  | 127                 |  |
| <b>EP080: BTEXN (QCLot: 1444683)</b>  |                      |      |      |                                 |                                       |                    |     |                     |  |
| EP080: Benzene  | 71-43-2              | 1    | µg/L | <1                              | 10 µg/L                               | 89.1               | 70  | 122                 |  |
| EP080: Toluene  | 108-88-3             | 2    | µg/L | <2                              | 10 µg/L                               | 84.1               | 69  | 123                 |  |
| EP080: Ethylbenzene   | 100-41-4             | 2    | µg/L | <2                              | 10 µg/L                               | 84.3               | 70  | 120                 |  |
| EP080: meta- & para-Xylene  | 108-38-3<br>106-42-3 | 2    | µg/L | <2                              | 10 µg/L                               | 83.9               | 69  | 121                 |  |
| EP080: ortho-Xylene   | 95-47-6              | 2    | µg/L | <2                              | 10 µg/L                               | 83.9               | 72  | 122                 |  |
| EP080: Naphthalene  | 91-20-3              | 5    | µg/L | <5                              | 10 µg/L                               | 87.7               | 70  | 120                 |  |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1441090)</b>                   |                      |      |      |                                 |                                       |                    |     |                     |  |
| EP202-LL: 4-Chlorophenoxy acetic acid   | 122-88-3             | 0.01 | µg/L | <0.01                           | 0.1 µg/L                              | 81.6               | 48  | 124                 |  |
| EP202-LL: 2,4-DB  | 94-82-6              | 0.01 | µg/L | <0.01                           | 0.1 µg/L                              | 79.7               | 37  | 127                 |  |



Sub-Matrix: **WATER**

| Method: Compound  | CAS Number  | LOR  | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report |                    |     |                     |  |
|---|-------------|------|------|--------------------------|---------------------------------------|--------------------|-----|---------------------|--|
|   |             |      |      | Result                   | Spike                                 | Spike Recovery (%) |     | Recovery Limits (%) |  |
|   |             |      |      |                          | Concentration                         | LCS                | Low | High                |  |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1441090) - continued</b> |             |      |      |                          |                                       |                    |     |                     |  |
| EP202-LL: Dicamba   | 1918-00-9   | 0.01 | µg/L | <0.01                    | 0.1 µg/L                              | 78.4               | 45  | 131                 |  |
| EP202-LL: Mecoprop  | 93-65-2     | 0.01 | µg/L | <0.01                    | 0.1 µg/L                              | 88.1               | 41  | 127                 |  |
| EP202-LL: MCPA  | 94-74-6     | 0.01 | µg/L | <0.01                    | 0.1 µg/L                              | 87.6               | 45  | 129                 |  |
| EP202-LL: 2,4-DP  | 120-36-5    | 0.01 | µg/L | <0.01                    | 0.1 µg/L                              | 95.7               | 42  | 128                 |  |
| EP202-LL: 2,4-D   | 94-75-7     | 0.01 | µg/L | <0.01                    | 0.1 µg/L                              | 85.9               | 49  | 127                 |  |
| EP202-LL: Triclopyr   | 55335-06-3  | 0.01 | µg/L | <0.01                    | 0.1 µg/L                              | 66.2               | 45  | 133                 |  |
| EP202-LL: Silvex (2,4,5-TP/Fenoprop)  | 93-72-1     | 0.01 | µg/L | <0.01                    | 0.1 µg/L                              | 79.5               | 34  | 140                 |  |
| EP202-LL: 2,4,5-T   | 93-76-5     | 0.01 | µg/L | <0.01                    | 0.1 µg/L                              | 60.2               | 49  | 123                 |  |
| EP202-LL: MCPB  | 94-81-5     | 0.01 | µg/L | <0.01                    | 0.1 µg/L                              | 86.5               | 26  | 142                 |  |
| EP202-LL: Picloram  | 1918-02-1   | 0.05 | µg/L | <0.05                    | 0.1 µg/L                              | 60.6               | 38  | 128                 |  |
| EP202-LL: Clopyralid  | 1702-17-6   | 0.05 | µg/L | <0.05                    | 0.1 µg/L                              | 82.7               | 30  | 116                 |  |
| EP202-LL: Fluoroxypyr   | 69377-81-7  | 0.05 | µg/L | <0.05                    | 0.1 µg/L                              | 95.2               | 49  | 133                 |  |
| EP202-LL: 2,6-D   | 575-90-6    | ---- | µg/L | ----                     | 0.1 µg/L                              | 82.8               | 46  | 126                 |  |
| EP202-LL: 2,4,6-T   | 575-89-3    | ---- | µg/L | ----                     | 0.1 µg/L                              | 86.7               | 45  | 123                 |  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1440917)</b>                     |             |      |      |                          |                                       |                    |     |                     |  |
| EP231X: Perfluorobutane sulfonic acid (PFBS)                                      | 375-73-5    | 0.02 | µg/L | <0.02                    | 0.5 µg/L                              | 109                | 70  | 130                 |  |
| EP231X: Perfluorohexane sulfonic acid (PFHxS)                                     | 355-46-4    | 0.02 | µg/L | <0.02                    | 0.5 µg/L                              | 94.8               | 70  | 130                 |  |
| EP231X: Perfluorooctane sulfonic acid (PFOS)                                      | 1763-23-1   | 0.01 | µg/L | <0.01                    | 0.5 µg/L                              | 88.8               | 70  | 130                 |  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1440917)</b>                   |             |      |      |                          |                                       |                    |     |                     |  |
| EP231X: Perfluorobutanoic acid (PFBA)   | 375-22-4    | 0.1  | µg/L | <0.1                     | 2.5 µg/L                              | 107                | 70  | 130                 |  |
| EP231X: Perfluoropentanoic acid (PFPeA)   | 2706-90-3   | 0.02 | µg/L | <0.02                    | 0.5 µg/L                              | 122                | 70  | 130                 |  |
| EP231X: Perfluorohexanoic acid (PFHxA)  | 307-24-4    | 0.02 | µg/L | <0.02                    | 0.5 µg/L                              | 115                | 70  | 130                 |  |
| EP231X: Perfluoroheptanoic acid (PFHpA)   | 375-85-9    | 0.02 | µg/L | <0.02                    | 0.5 µg/L                              | 115                | 70  | 130                 |  |
| EP231X: Perfluorooctanoic acid (PFOA)   | 335-67-1    | 0.01 | µg/L | <0.01                    | 0.5 µg/L                              | 105                | 70  | 130                 |  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1440917)</b>                |             |      |      |                          |                                       |                    |     |                     |  |
| EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)                                 | 757124-72-4 | 0.05 | µg/L | <0.05                    | 0.5 µg/L                              | 90.6               | 70  | 130                 |  |
| EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)                                 | 27619-97-2  | 0.05 | µg/L | <0.05                    | 0.5 µg/L                              | 95.2               | 70  | 130                 |  |
| EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)                                 | 39108-34-4  | 0.05 | µg/L | <0.05                    | 0.5 µg/L                              | 111                | 70  | 130                 |  |
| EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)                               | 120226-60-0 | 0.05 | µg/L | <0.05                    | 0.5 µg/L                              | 73.4               | 70  | 130                 |  |

### Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

| Laboratory sample ID                                    | Client sample ID | Method: Compound | CAS Number | Matrix Spike (MS) Report |                  |                     |      |
|---|------------------|------------------|------------|--------------------------|------------------|---------------------|------|
|   |                  |                  |            | Spike                    | SpikeRecovery(%) | Recovery Limits (%) |      |
|   |                  |                  |            | Concentration            | MS               | Low                 | High |
| <b>EG005T: Total Metals by ICP-AES (QCLot: 1449402)</b> |                  |                  |            |                          |                  |                     |      |



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 |
| <b>EG005T: Total Metals by ICP-AES (QCLot: 1449402) - continued</b>    |                  |                            |            |                          |                  |                     |      |
| ES1805045-045  | Anonymous        | EG005T: Arsenic            | 7440-38-2  | 50 mg/kg                 | 90.9             | 70                  | 130  |
|  |                  | EG005T: Cadmium            | 7440-43-9  | 50 mg/kg                 | 95.1             | 70                  | 130  |
|  |                  | EG005T: Chromium           | 7440-47-3  | 50 mg/kg                 | 93.4             | 70                  | 130  |
|  |                  | EG005T: Copper             | 7440-50-8  | 250 mg/kg                | 94.9             | 70                  | 130  |
|  |                  | EG005T: Lead               | 7439-92-1  | 250 mg/kg                | 92.6             | 70                  | 130  |
|  |                  | EG005T: Nickel             | 7440-02-0  | 50 mg/kg                 | 93.5             | 70                  | 130  |
|  |                  | EG005T: Zinc               | 7440-66-6  | 250 mg/kg                | 92.9             | 70                  | 130  |
| <b>EG005T: Total Metals by ICP-AES (QCLot: 1458780)</b>                |                  |                            |            |                          |                  |                     |      |
| ES1805085-005  | BH17B            | EG005T: Arsenic            | 7440-38-2  | 50 mg/kg                 | 71.1             | 70                  | 130  |
|  |                  | EG005T: Cadmium            | 7440-43-9  | 50 mg/kg                 | 83.4             | 70                  | 130  |
|  |                  | EG005T: Chromium           | 7440-47-3  | 50 mg/kg                 | 82.9             | 70                  | 130  |
|  |                  | EG005T: Copper             | 7440-50-8  | 250 mg/kg                | 83.9             | 70                  | 130  |
|  |                  | EG005T: Lead               | 7439-92-1  | 250 mg/kg                | 77.3             | 70                  | 130  |
|  |                  | EG005T: Nickel             | 7440-02-0  | 50 mg/kg                 | 85.8             | 70                  | 130  |
|  |                  | EG005T: Zinc               | 7440-66-6  | 250 mg/kg                | 78.8             | 70                  | 130  |
| <b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 1449403)</b>      |                  |                            |            |                          |                  |                     |      |
| ES1805045-045  | Anonymous        | EG035T: Mercury            | 7439-97-6  | 5 mg/kg                  | 77.9             | 70                  | 130  |
| <b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 1458779)</b>      |                  |                            |            |                          |                  |                     |      |
| ES1805085-005  | BH17B            | EG035T: Mercury            | 7439-97-6  | 5 mg/kg                  | 94.2             | 70                  | 130  |
| <b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1440626)</b>         |                  |                            |            |                          |                  |                     |      |
| ES1805120-001  | Anonymous        | EP068: gamma-BHC           | 58-89-9    | 0.5 mg/kg                | 85.7             | 70                  | 130  |
|  |                  | EP068: Heptachlor          | 76-44-8    | 0.5 mg/kg                | 88.4             | 70                  | 130  |
|  |                  | EP068: Aldrin              | 309-00-2   | 0.5 mg/kg                | 83.6             | 70                  | 130  |
|  |                  | EP068: Dieldrin            | 60-57-1    | 0.5 mg/kg                | 87.2             | 70                  | 130  |
|  |                  | EP068: Endrin              | 72-20-8    | 2 mg/kg                  | 85.0             | 70                  | 130  |
|  |                  | EP068: 4,4'-DDT            | 50-29-3    | 2 mg/kg                  | 93.0             | 70                  | 130  |
| <b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1440626)</b>       |                  |                            |            |                          |                  |                     |      |
| ES1805120-001  | Anonymous        | EP068: Diazinon            | 333-41-5   | 0.5 mg/kg                | 94.8             | 70                  | 130  |
|  |                  | EP068: Chlorpyrifos-methyl | 5598-13-0  | 0.5 mg/kg                | 97.3             | 70                  | 130  |
|  |                  | EP068: Pirimphos-ethyl     | 23505-41-1 | 0.5 mg/kg                | 90.4             | 70                  | 130  |
|  |                  | EP068: Bromophos-ethyl     | 4824-78-6  | 0.5 mg/kg                | 74.6             | 70                  | 130  |
|  |                  | EP068: Prothiofos          | 34643-46-4 | 0.5 mg/kg                | 75.3             | 70                  | 130  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1440639)</b> |                  |                            |            |                          |                  |                     |      |
| ES1805085-005  | BH17B            | EP075(SIM): Acenaphthene   | 83-32-9    | 10 mg/kg                 | 105              | 70                  | 130  |
|  |                  | EP075(SIM): Pyrene         | 129-00-0   | 10 mg/kg                 | 96.2             | 70                  | 130  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1458653)</b> |                  |                            |            |                          |                  |                     |      |
| ES1805085-007  | BH17D            | EP075(SIM): Acenaphthene   | 83-32-9    | 10 mg/kg                 | 97.8             | 70                  | 130  |



Sub-Matrix: SOIL

|   |                    |   |            | Matrix Spike (MS) Report |                     |                     |      |  |
|---|--------------------|---|------------|--------------------------|---------------------|---------------------|------|--|
|   |                    |   |            | Spike Concentration      | SpikeRecovery(%) MS | Recovery Limits (%) |      |  |
| Laboratory sample ID  | Client sample ID   | Method: Compound                              | CAS Number | Concentration            | MS                  | Low                 | High |  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1458653) - continued</b>      |                    |   |            |                          |                     |                     |      |  |
| ES1805085-007   | BH17D              | EP075(SIM): Pyrene                            | 129-00-0   | 10 mg/kg                 | 89.2                | 70                  | 130  |  |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1440640)</b>                         |                    |   |            |                          |                     |                     |      |  |
| ES1805085-005   | BH17B              | EP071: C10 - C14 Fraction                     | ----       | 523 mg/kg                | 93.3                | 73                  | 137  |  |
|   |                    | EP071: C15 - C28 Fraction                     | ----       | 2319 mg/kg               | 95.3                | 53                  | 131  |  |
|   |                    | EP071: C29 - C36 Fraction                     | ----       | 1714 mg/kg               | 99.4                | 52                  | 132  |  |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1440664)</b>                         |                    |   |            |                          |                     |                     |      |  |
| ES1805085-005   | BH17B              | EP080: C6 - C9 Fraction                       | ----       | 32.5 mg/kg               | 96.9                | 70                  | 130  |  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1440640)</b> |                    |   |            |                          |                     |                     |      |  |
| ES1805085-005   | BH17B              | EP071: >C10 - C16 Fraction                    | ----       | 860 mg/kg                | 88.3                | 73                  | 137  |  |
|   |                    | EP071: >C16 - C34 Fraction                    | ----       | 3223 mg/kg               | 93.8                | 53                  | 131  |  |
|   |                    | EP071: >C34 - C40 Fraction                    | ----       | 1058 mg/kg               | 104                 | 52                  | 132  |  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1440664)</b> |                    |   |            |                          |                     |                     |      |  |
| ES1805085-005   | BH17B              | EP080: C6 - C10 Fraction                      | C6_C10     | 37.5 mg/kg               | 93.1                | 70                  | 130  |  |
| <b>EP080: BTEXN (QCLot: 1440664)</b>  |                    |   |            |                          |                     |                     |      |  |
| ES1805085-005   | BH17B              | EP080: Benzene                                | 71-43-2    | 2.5 mg/kg                | 102                 | 70                  | 130  |  |
|   |                    | EP080: Toluene                                | 108-88-3   | 2.5 mg/kg                | 101                 | 70                  | 130  |  |
|   |                    | EP080: Ethylbenzene                           | 100-41-4   | 2.5 mg/kg                | 99.2                | 70                  | 130  |  |
|   |                    | EP080: meta- & para-Xylene                    | 108-38-3   | 2.5 mg/kg                | 97.7                | 70                  | 130  |  |
|   |                    |   | 106-42-3   |                          |                     |                     |      |  |
|   |                    | EP080: ortho-Xylene                           | 95-47-6    | 2.5 mg/kg                | 96.8                | 70                  | 130  |  |
|   | EP080: Naphthalene | 91-20-3                                       | 2.5 mg/kg  | 96.8                     | 70                  | 130                 |      |  |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1452329)</b>                   |                    |   |            |                          |                     |                     |      |  |
| EB1804671-001   | Anonymous          | EP202: Mecoprop                               | 93-65-2    | 0.1 mg/kg                | 60.3                | 60                  | 140  |  |
|   |                    | EP202: MCPA                                   | 94-74-6    | 0.1 mg/kg                | 63.9                | 57                  | 143  |  |
|   |                    | EP202: 2,4-D                                  | 94-75-7    | 0.1 mg/kg                | 72.1                | 68                  | 139  |  |
|   |                    | EP202: Triclopyr                              | 55335-06-3 | 0.1 mg/kg                | 64.3                | 51                  | 145  |  |
|   |                    | EP202: 2,4,5-T                                | 93-76-5    | 0.1 mg/kg                | 67.6                | 57                  | 142  |  |
|   |                    | EP202: Picloram                               | 1918-02-1  | 0.1 mg/kg                | 80.0                | 49                  | 138  |  |
|   |                    | EP202: Clopyralid                             | 1702-17-6  | 0.1 mg/kg                | 70.1                | 49                  | 149  |  |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1449778)</b>                           |                    |   |            |                          |                     |                     |      |  |
| EM1803088-006   | Anonymous          | EP231X: Perfluorobutane sulfonic acid (PFBS)  | 375-73-5   | 0.00125 mg/kg            | 66.8                | 50                  | 130  |  |
|   |                    | EP231X: Perfluorohexane sulfonic acid (PFHxS) | 355-46-4   | 0.00125 mg/kg            | 60.4                | 50                  | 130  |  |
|   |                    | EP231X: Perfluorooctane sulfonic acid (PFOS)  | 1763-23-1  | 0.00125 mg/kg            | # Not Determined    | 50                  | 130  |  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1449778)</b>                         |                    |   |            |                          |                     |                     |      |  |
| EM1803088-006   | Anonymous          | EP231X: Perfluorobutanoic acid (PFBA)         | 375-22-4   | 0.00625 mg/kg            | 72.2                | 30                  | 130  |  |



Sub-Matrix: **SOIL**

|   |                  |   |             | Matrix Spike (MS) Report |                     |                     |      |
|---|------------------|---|-------------|--------------------------|---------------------|---------------------|------|
|   |                  |   |             | Spike Concentration      | SpikeRecovery(%) MS | Recovery Limits (%) |      |
| Laboratory sample ID  | Client sample ID | Method: Compound                                    | CAS Number  | Concentration            | MS                  | Low                 | High |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1449778) - continued</b> |                  |   |             |                          |                     |                     |      |
| EM1803088-006   | Anonymous        | EP231X: Perfluoropentanoic acid (PFPeA)             | 2706-90-3   | 0.00125 mg/kg            | 109                 | 50                  | 130  |
|   |                  | EP231X: Perfluorohexanoic acid (PFHxA)              | 307-24-4    | 0.00125 mg/kg            | 79.6                | 50                  | 130  |
|   |                  | EP231X: Perfluoroheptanoic acid (PFHpA)             | 375-85-9    | 0.00125 mg/kg            | 75.6                | 50                  | 130  |
|   |                  | EP231X: Perfluorooctanoic acid (PFOA)               | 335-67-1    | 0.00125 mg/kg            | 81.2                | 50                  | 130  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1449778)</b>          |                  |   |             |                          |                     |                     |      |
| EM1803088-006   | Anonymous        | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)   | 757124-72-4 | 0.00125 mg/kg            | 116                 | 50                  | 130  |
|   |                  | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)   | 27619-97-2  | 0.00125 mg/kg            | 77.2                | 50                  | 130  |
|   |                  | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)   | 39108-34-4  | 0.00125 mg/kg            | 84.4                | 50                  | 130  |
|   |                  | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | 120226-60-0 | 0.00125 mg/kg            | 89.6                | 50                  | 130  |

Sub-Matrix: **WATER**

|  |                  |                            |            | Matrix Spike (MS) Report |                     |                     |      |
|--|------------------|----------------------------|------------|--------------------------|---------------------|---------------------|------|
|  |                  |                            |            | Spike Concentration      | SpikeRecovery(%) MS | Recovery Limits (%) |      |
| Laboratory sample ID   | Client sample ID | Method: Compound           | CAS Number | Concentration            | MS                  | Low                 | High |
| <b>EG020F: Dissolved Metals by ICP-MS (QCLot: 1443505)</b>             |                  |                            |            |                          |                     |                     |      |
| ES1805067-001  | Anonymous        | EG020A-F: Arsenic          | 7440-38-2  | 1 mg/L                   | 101                 | 70                  | 130  |
|  |                  | EG020A-F: Cadmium          | 7440-43-9  | 0.25 mg/L                | 96.5                | 70                  | 130  |
|  |                  | EG020A-F: Chromium         | 7440-47-3  | 1 mg/L                   | 94.5                | 70                  | 130  |
|  |                  | EG020A-F: Copper           | 7440-50-8  | 1 mg/L                   | 97.8                | 70                  | 130  |
|  |                  | EG020A-F: Lead             | 7439-92-1  | 1 mg/L                   | 92.8                | 70                  | 130  |
|  |                  | EG020A-F: Nickel           | 7440-02-0  | 1 mg/L                   | 97.1                | 70                  | 130  |
|  |                  | EG020A-F: Zinc             | 7440-66-6  | 1 mg/L                   | 98.7                | 70                  | 130  |
| <b>EG035F: Dissolved Mercury by FIMS (QCLot: 1443502)</b>              |                  |                            |            |                          |                     |                     |      |
| ES1804947-001  | Anonymous        | EG035F: Mercury            | 7439-97-6  | 0.01 mg/L                | 83.9                | 70                  | 130  |
| <b>EP068A: Organochlorine Pesticides (OC) (QCLot: 1441319)</b>         |                  |                            |            |                          |                     |                     |      |
| ES1805174-001  | Anonymous        | EP068: gamma-BHC           | 58-89-9    | 5 µg/L                   | 83.6                | 70                  | 130  |
|  |                  | EP068: Heptachlor          | 76-44-8    | 5 µg/L                   | 85.6                | 70                  | 130  |
|  |                  | EP068: Aldrin              | 309-00-2   | 5 µg/L                   | 84.0                | 70                  | 130  |
|  |                  | EP068: Dieldrin            | 60-57-1    | 5 µg/L                   | 81.7                | 70                  | 130  |
|  |                  | EP068: Endrin              | 72-20-8    | 20 µg/L                  | 100                 | 70                  | 130  |
|  |                  | EP068: 4,4'-DDT            | 50-29-3    | 20 µg/L                  | 87.0                | 70                  | 130  |
| <b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 1441319)</b>       |                  |                            |            |                          |                     |                     |      |
| ES1805174-001  | Anonymous        | EP068: Diazinon            | 333-41-5   | 5 µg/L                   | 77.0                | 70                  | 130  |
|  |                  | EP068: Chlorpyrifos-methyl | 5598-13-0  | 5 µg/L                   | 75.7                | 70                  | 130  |
|  |                  | EP068: Pirimphos-ethyl     | 23505-41-1 | 5 µg/L                   | 103                 | 70                  | 130  |
|  |                  | EP068: Bromophos-ethyl     | 4824-78-6  | 5 µg/L                   | 95.6                | 70                  | 130  |
|  |                  | EP068: Prothiofos          | 34643-46-4 | 5 µg/L                   | 88.9                | 70                  | 130  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1441317)</b> |                  |                            |            |                          |                     |                     |      |
| ES1805174-001  | Anonymous        | EP075(SIM): Acenaphthene   | 83-32-9    | 10 µg/L                  | 92.4                | 70                  | 130  |



Sub-Matrix: WATER

|   |                    |   |            | Matrix Spike (MS) Report |                  |                     |      |  |
|---|--------------------|---|------------|--------------------------|------------------|---------------------|------|--|
|   |                    |   |            | Spike                    | SpikeRecovery(%) | Recovery Limits (%) |      |  |
| Laboratory sample ID  | Client sample ID   | Method: Compound  | CAS Number | Concentration            | MS               | Low                 | High |  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1441317) - continued</b>      |                    |   |            |                          |                  |                     |      |  |
| ES1805174-001   | Anonymous          | EP075(SIM): Pyrene  | 129-00-0   | 10 µg/L                  | 106              | 70                  | 130  |  |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1441318)</b>                         |                    |   |            |                          |                  |                     |      |  |
| ES1805174-001   | Anonymous          | EP071: C10 - C14 Fraction                                     | ----       | 200 µg/L                 | 83.3             | 74                  | 150  |  |
|   |                    | EP071: C15 - C28 Fraction                                     | ----       | 300 µg/L                 | 83.9             | 77                  | 153  |  |
|   |                    | EP071: C29 - C36 Fraction                                     | ----       | 200 µg/L                 | 112              | 67                  | 153  |  |
| <b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 1444683)</b>                         |                    |   |            |                          |                  |                     |      |  |
| ES1805085-015   | MW3                | EP080: C6 - C9 Fraction                                       | ----       | 325 µg/L                 | 79.2             | 70                  | 130  |  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1441318)</b> |                    |   |            |                          |                  |                     |      |  |
| ES1805174-001   | Anonymous          | EP071: >C10 - C16 Fraction                                    | ----       | 250 µg/L                 | 89.9             | 74                  | 150  |  |
|   |                    | EP071: >C16 - C34 Fraction                                    | ----       | 350 µg/L                 | 80.1             | 77                  | 153  |  |
|   |                    | EP071: >C34 - C40 Fraction                                    | ----       | 150 µg/L                 | 79.1             | 67                  | 153  |  |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1444683)</b> |                    |   |            |                          |                  |                     |      |  |
| ES1805085-015   | MW3                | EP080: C6 - C10 Fraction                                      | C6_C10     | 375 µg/L                 | 81.8             | 70                  | 130  |  |
| <b>EP080: BTEXN (QCLot: 1444683)</b>  |                    |   |            |                          |                  |                     |      |  |
| ES1805085-015   | MW3                | EP080: Benzene  | 71-43-2    | 25 µg/L                  | 87.6             | 70                  | 130  |  |
|   |                    | EP080: Toluene  | 108-88-3   | 25 µg/L                  | 85.0             | 70                  | 130  |  |
|   |                    | EP080: Ethylbenzene   | 100-41-4   | 25 µg/L                  | 87.7             | 70                  | 130  |  |
|   |                    | EP080: meta- & para-Xylene                                    | 108-38-3   | 25 µg/L                  | 88.0             | 70                  | 130  |  |
|   |                    |   | 106-42-3   |                          |                  |                     |      |  |
|   |                    | EP080: ortho-Xylene   | 95-47-6    | 25 µg/L                  | 89.7             | 70                  | 130  |  |
|   | EP080: Naphthalene | 91-20-3   | 25 µg/L    | 101                      | 70               | 130                 |      |  |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot: 1441090)</b>                   |                    |   |            |                          |                  |                     |      |  |
| ES1805168-002   | Anonymous          | EP202-LL: 4-Chlorophenoxy acetic acid                         | 122-88-3   | 0.1 µg/L                 | 79.9             | 34                  | 106  |  |
|   |                    | EP202-LL: 2,4-DB  | 94-82-6    | 0.1 µg/L                 | 74.1             | 23                  | 142  |  |
|   |                    | EP202-LL: Dicamba   | 1918-00-9  | 0.1 µg/L                 | 73.6             | 20                  | 138  |  |
|   |                    | EP202-LL: Mecoprop  | 93-65-2    | 0.1 µg/L                 | 77.9             | 45                  | 137  |  |
|   |                    | EP202-LL: MCPA  | 94-74-6    | 0.1 µg/L                 | 75.9             | 36                  | 142  |  |
|   |                    | EP202-LL: 2,4-DP  | 120-36-5   | 0.1 µg/L                 | 80.3             | 39                  | 146  |  |
|   |                    | EP202-LL: 2,4-D   | 94-75-7    | 0.1 µg/L                 | 76.4             | 42                  | 138  |  |
|   |                    | EP202-LL: Triclopyr   | 55335-06-3 | 0.1 µg/L                 | 54.5             | 41                  | 139  |  |
|   |                    | EP202-LL: Silvex (2,4,5-TP/Fenoprop)                          | 93-72-1    | 0.1 µg/L                 | 70.6             | 37                  | 126  |  |
|   |                    | EP202-LL: 2,4,5-T   | 93-76-5    | 0.1 µg/L                 | 60.2             | 31                  | 135  |  |
|   |                    | EP202-LL: MCPB  | 94-81-5    | 0.1 µg/L                 | 58.7             | 23                  | 136  |  |
|   |                    | EP202-LL: Picloram  | 1918-02-1  | 0.1 µg/L                 | 100              | 31                  | 119  |  |
|   |                    | EP202-LL: Clopyralid  | 1702-17-6  | 0.1 µg/L                 | 66.0             | 21                  | 111  |  |
|   |                    | EP202-LL: Fluroxypyr  | 69377-81-7 | 0.1 µg/L                 | 61.9             | 37                  | 115  |  |
|   |                    | <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1440917)</b> |            |                          |                  |                     |      |  |



Sub-Matrix: WATER

|   |                  |   |             | Matrix Spike (MS) Report |                   |                     |      |
|---|------------------|---|-------------|--------------------------|-------------------|---------------------|------|
|   |                  |   |             | Spike                    | Spike Recovery(%) | Recovery Limits (%) |      |
| Laboratory sample ID  | Client sample ID | Method: Compound                                    | CAS Number  | Concentration            | MS                | Low                 | High |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 1440917) - continued</b> |                  |   |             |                          |                   |                     |      |
| EB1804248-001   | Anonymous        | EP231X: Perfluorobutane sulfonic acid (PFBS)        | 375-73-5    | 0.5 µg/L                 | 95.4              | 50                  | 130  |
|   |                  | EP231X: Perfluorohexane sulfonic acid (PFHxS)       | 355-46-4    | 0.5 µg/L                 | 99.2              | 50                  | 130  |
|   |                  | EP231X: Perfluorooctane sulfonic acid (PFOS)        | 1763-23-1   | 0.5 µg/L                 | 96.8              | 50                  | 130  |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 1440917)</b>           |                  |   |             |                          |                   |                     |      |
| EB1804248-001   | Anonymous        | EP231X: Perfluorobutanoic acid (PFBA)               | 375-22-4    | 2.5 µg/L                 | 54.4              | 50                  | 130  |
|   |                  | EP231X: Perfluoropentanoic acid (PFPeA)             | 2706-90-3   | 0.5 µg/L                 | 72.6              | 50                  | 130  |
|   |                  | EP231X: Perfluorohexanoic acid (PFHxA)              | 307-24-4    | 0.5 µg/L                 | 89.0              | 50                  | 130  |
|   |                  | EP231X: Perfluoroheptanoic acid (PFHpA)             | 375-85-9    | 0.5 µg/L                 | 91.6              | 50                  | 130  |
|   |                  | EP231X: Perfluorooctanoic acid (PFOA)               | 335-67-1    | 0.5 µg/L                 | 83.4              | 50                  | 130  |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 1440917)</b>        |                  |   |             |                          |                   |                     |      |
| EB1804248-001   | Anonymous        | EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)   | 757124-72-4 | 0.5 µg/L                 | 117               | 50                  | 130  |
|   |                  | EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)   | 27619-97-2  | 0.5 µg/L                 | 123               | 50                  | 130  |
|   |                  | EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)   | 39108-34-4  | 0.5 µg/L                 | 120               | 50                  | 130  |
|   |                  | EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS) | 120226-60-0 | 0.5 µg/L                 | 91.2              | 50                  | 130  |



## QA/QC Compliance Assessment to assist with Quality Review

|              |                                |                         |                                 |
|--------------|--------------------------------|-------------------------|---------------------------------|
| Work Order   | : ES1805085                    | Page                    | : 1 of 13                       |
| Client       | : ROBERT CARR & ASSOCIATES P/L | Laboratory              | : Environmental Division Sydney |
| Contact      | : MS FIONA BROOKER             | Telephone               | : +61-2-8784 8555               |
| Project      | : 13156                        | Date Samples Received   | : 16-Feb-2018                   |
| Site         | : ----                         | Issue Date              | : 07-Mar-2018                   |
| Sampler      | : KATY SHAW                    | No. of samples received | : 21                            |
| Order number | : ----                         | No. of samples analysed | : 21                            |

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

### Summary of Outliers

#### Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- Matrix Spike outliers exist - please see following pages for full details.
- Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.

#### Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

#### Outliers : Frequency of Quality Control Samples

- **NO** Quality Control Sample Frequency Outliers exist.



### 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   |
|---------------------------------------|----------------------|------------------|--------------------------------------|------------|----------------|--------|---|
| <b>Matrix Spike (MS) Recoveries</b>   |                      |                  |                                      |            |                |        |   |
| EP231A: Perfluoroalkyl Sulfonic Acids | EM1803088--006       | Anonymous        | Perfluorooctane sulfonic acid (PFOS) | 1763-23-1  | Not Determined | ----   | MS recovery not determined, background level greater than or equal to 4x spike level. |

### Regular Sample Surrogates

Sub-Matrix: **WATER**

| Compound Group Name                          | Laboratory Sample ID | Client Sample ID | Analyte     | CAS Number | Data  | Limits   | Comment  |
|--|----------------------|------------------|-------------|------------|-------|----------|--|
| <b>Samples Submitted</b>                     |                      |                  |             |            |       |          |  |
| EP068S: Organochlorine Pesticide Surrogate   | ES1805085-014        | MW2              | Dibromo-DDE | 21655-73-2 | 115 % | 67-111 % | Recovery greater than upper data quality objective |
| EP068T: Organophosphorus Pesticide Surrogate | ES1805085-014        | MW2              | DEF         | 78-48-8    | 114 % | 67-111 % | Recovery greater than upper data quality objective |

### Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

| Method  | Extraction / Preparation        |                |                    | Analysis     |               |                  |              |
|---|---------------------------------|----------------|--------------------|--------------|---------------|------------------|--------------|
|   | Container / Client Sample ID(s) | Date extracted | Due for extraction | Days overdue | Date analysed | Due for analysis | Days overdue |
| <b>EA010: Conductivity</b>                            |                                 |                |                    |              |               |                  |              |
| Soil Glass Jar - Unpreserved<br>QA1                   |                                 | 21-Feb-2018    | 16-Feb-2018        | 5            | ----          | ----             | ----         |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b> |                                 |                |                    |              |               |                  |              |
| Soil Glass Jar - Unpreserved<br>BH17D                 |                                 | 27-Feb-2018    | 26-Feb-2018        | 1            | ----          | ----             | ----         |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>  |                                 |                |                    |              |               |                  |              |
| Soil Glass Jar - Unpreserved<br>QA1                   |                                 | 05-Mar-2018    | 23-Feb-2018        | 10           | ----          | ----             | ----         |
| Soil Glass Jar - Unpreserved<br>BH17D,<br>BH19B       | BH18C,                          | 05-Mar-2018    | 26-Feb-2018        | 7            | ----          | ----             | ----         |

### 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.



Matrix: SOIL

Evaluation: ✘ = Holding time breach ; ✔ = Within holding time.

| Method<br>Container / Client Sample ID(s)  | Sample Date | Extraction / Preparation |                    |            | Analysis      |                  |            |
|--|-------------|--------------------------|--------------------|------------|---------------|------------------|------------|
|  |             | Date extracted           | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| <b>EA010: Conductivity</b>   |             |                          |                    |            |               |                  |            |
| Soil Glass Jar - Unpreserved (EA010)<br>QA1                                      | 09-Feb-2018 | 21-Feb-2018              | 16-Feb-2018        | ✘          | 21-Feb-2018   | 21-Mar-2018      | ✔          |
| Soil Glass Jar - Unpreserved (EA010)<br>BH17B, BH17D, BH18C, BH17C, BH18B, BH19B | 12-Feb-2018 | 19-Feb-2018              | 19-Feb-2018        | ✔          | 19-Feb-2018   | 19-Mar-2018      | ✔          |
| <b>EA033-A: Actual Acidity</b>   |             |                          |                    |            |               |                  |            |
| Snap Lock Bag - frozen (EA033)<br>MW1C, MW2A, MW1D, MW2D                         | 09-Feb-2018 | 23-Feb-2018              | 09-Feb-2019        | ✔          | 23-Feb-2018   | 24-May-2018      | ✔          |
| Snap Lock Bag - frozen (EA033)<br>MW3A, MW3C                                     | 12-Feb-2018 | 23-Feb-2018              | 12-Feb-2019        | ✔          | 23-Feb-2018   | 24-May-2018      | ✔          |
| <b>EA033-B: Potential Acidity</b>  |             |                          |                    |            |               |                  |            |
| Snap Lock Bag - frozen (EA033)<br>MW1C, MW2A, MW1D, MW2D                         | 09-Feb-2018 | 23-Feb-2018              | 09-Feb-2019        | ✔          | 23-Feb-2018   | 24-May-2018      | ✔          |
| Snap Lock Bag - frozen (EA033)<br>MW3A, MW3C                                     | 12-Feb-2018 | 23-Feb-2018              | 12-Feb-2019        | ✔          | 23-Feb-2018   | 24-May-2018      | ✔          |
| <b>EA033-C: Acid Neutralising Capacity</b>                                       |             |                          |                    |            |               |                  |            |
| Snap Lock Bag - frozen (EA033)<br>MW1C, MW2A, MW1D, MW2D                         | 09-Feb-2018 | 23-Feb-2018              | 09-Feb-2019        | ✔          | 23-Feb-2018   | 24-May-2018      | ✔          |
| Snap Lock Bag - frozen (EA033)<br>MW3A, MW3C                                     | 12-Feb-2018 | 23-Feb-2018              | 12-Feb-2019        | ✔          | 23-Feb-2018   | 24-May-2018      | ✔          |
| <b>EA033-D: Retained Acidity</b>   |             |                          |                    |            |               |                  |            |
| Snap Lock Bag - frozen (EA033)<br>MW1C, MW2A, MW1D, MW2D                         | 09-Feb-2018 | 23-Feb-2018              | 09-Feb-2019        | ✔          | 23-Feb-2018   | 24-May-2018      | ✔          |
| Snap Lock Bag - frozen (EA033)<br>MW3A, MW3C                                     | 12-Feb-2018 | 23-Feb-2018              | 12-Feb-2019        | ✔          | 23-Feb-2018   | 24-May-2018      | ✔          |
| <b>EA033-E: Acid Base Accounting</b>   |             |                          |                    |            |               |                  |            |
| Snap Lock Bag - frozen (EA033)<br>MW1C, MW2A, MW1D, MW2D                         | 09-Feb-2018 | 23-Feb-2018              | 09-Feb-2019        | ✔          | 23-Feb-2018   | 24-May-2018      | ✔          |
| Snap Lock Bag - frozen (EA033)<br>MW3A, MW3C                                     | 12-Feb-2018 | 23-Feb-2018              | 12-Feb-2019        | ✔          | 23-Feb-2018   | 24-May-2018      | ✔          |



Matrix: SOIL

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

| Method<br>Container / Client Sample ID(s)                           | Sample Date         | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|---|---------------------|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|   |                     | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EA055: Moisture Content (Dried @ 105-110°C)</b>                  |                     |                          |                    |             |               |                  |             |   |
| <b>HDPE Soil Jar (EA055)</b><br>BH2A, BH4A                          | BH3A,               | 09-Feb-2018              | ----               | ----        | ----          | 20-Feb-2018      | 23-Feb-2018 | ✔ |
| <b>Soil Glass Jar - Unpreserved (EA055)</b><br>QA1                  |                     | 09-Feb-2018              | ----               | ----        | ----          | 20-Feb-2018      | 23-Feb-2018 | ✔ |
| <b>Soil Glass Jar - Unpreserved (EA055)</b><br>BH17B, BH17D, BH18C, | BH17C, BH18B, BH19B | 12-Feb-2018              | ----               | ----        | ----          | 20-Feb-2018      | 26-Feb-2018 | ✔ |
| <b>EG005T: Total Metals by ICP-AES</b>                              |                     |                          |                    |             |               |                  |             |   |
| <b>Soil Glass Jar - Unpreserved (EG005T)</b><br>QA1                 |                     | 09-Feb-2018              | 22-Feb-2018        | 08-Aug-2018 | ✔             | 22-Feb-2018      | 08-Aug-2018 | ✔ |
| <b>Soil Glass Jar - Unpreserved (EG005T)</b><br>BH17D, BH19B        | BH18C,              | 12-Feb-2018              | 22-Feb-2018        | 11-Aug-2018 | ✔             | 22-Feb-2018      | 11-Aug-2018 | ✔ |
| <b>Soil Glass Jar - Unpreserved (EG005T)</b><br>BH17B, BH18B        | BH17C,              | 12-Feb-2018              | 27-Feb-2018        | 11-Aug-2018 | ✔             | 27-Feb-2018      | 11-Aug-2018 | ✔ |
| <b>EG035T: Total Recoverable Mercury by FIMS</b>                    |                     |                          |                    |             |               |                  |             |   |
| <b>Soil Glass Jar - Unpreserved (EG035T)</b><br>QA1                 |                     | 09-Feb-2018              | 22-Feb-2018        | 09-Mar-2018 | ✔             | 22-Feb-2018      | 09-Mar-2018 | ✔ |
| <b>Soil Glass Jar - Unpreserved (EG035T)</b><br>BH17D, BH19B        | BH18C,              | 12-Feb-2018              | 22-Feb-2018        | 12-Mar-2018 | ✔             | 22-Feb-2018      | 12-Mar-2018 | ✔ |
| <b>Soil Glass Jar - Unpreserved (EG035T)</b><br>BH17B, BH18B        | BH17C,              | 12-Feb-2018              | 27-Feb-2018        | 12-Mar-2018 | ✔             | 27-Feb-2018      | 12-Mar-2018 | ✔ |
| <b>EP068A: Organochlorine Pesticides (OC)</b>                       |                     |                          |                    |             |               |                  |             |   |
| <b>Soil Glass Jar - Unpreserved (EP068)</b><br>QA1                  |                     | 09-Feb-2018              | 20-Feb-2018        | 23-Feb-2018 | ✔             | 20-Feb-2018      | 01-Apr-2018 | ✔ |
| <b>Soil Glass Jar - Unpreserved (EP068)</b><br>BH17D, BH19B         | BH18C,              | 12-Feb-2018              | 20-Feb-2018        | 26-Feb-2018 | ✔             | 20-Feb-2018      | 01-Apr-2018 | ✔ |
| <b>EP068B: Organophosphorus Pesticides (OP)</b>                     |                     |                          |                    |             |               |                  |             |   |
| <b>Soil Glass Jar - Unpreserved (EP068)</b><br>QA1                  |                     | 09-Feb-2018              | 20-Feb-2018        | 23-Feb-2018 | ✔             | 20-Feb-2018      | 01-Apr-2018 | ✔ |
| <b>Soil Glass Jar - Unpreserved (EP068)</b><br>BH17D, BH19B         | BH18C,              | 12-Feb-2018              | 20-Feb-2018        | 26-Feb-2018 | ✔             | 20-Feb-2018      | 01-Apr-2018 | ✔ |



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)                              | Sample Date      | Extraction / Preparation |                    |             | Analysis      |                  |             |   |
|--|------------------|--------------------------|--------------------|-------------|---------------|------------------|-------------|---|
|  |                  | Date extracted           | Due for extraction | Evaluation  | Date analysed | Due for analysis | Evaluation  |   |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>                  |                  |                          |                    |             |               |                  |             |   |
| Soil Glass Jar - Unpreserved (EP075(SIM))<br>BH17B,<br>BH18B           | BH17C,<br>BH17C, | 12-Feb-2018              | 19-Feb-2018        | 26-Feb-2018 | ✓             | 20-Feb-2018      | 31-Mar-2018 | ✓ |
| Soil Glass Jar - Unpreserved (EP075(SIM))<br>BH17D                     |                  | 12-Feb-2018              | 27-Feb-2018        | 26-Feb-2018 | *             | 27-Feb-2018      | 08-Apr-2018 | ✓ |
| <b>EP080/071: Total Petroleum Hydrocarbons</b>                         |                  |                          |                    |             |               |                  |             |   |
| Soil Glass Jar - Unpreserved (EP080)<br>BH17B,<br>BH18B                | BH17C,<br>BH17C, | 12-Feb-2018              | 19-Feb-2018        | 26-Feb-2018 | ✓             | 21-Feb-2018      | 26-Feb-2018 | ✓ |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b> |                  |                          |                    |             |               |                  |             |   |
| Soil Glass Jar - Unpreserved (EP080)<br>BH17B,<br>BH18B                | BH17C,<br>BH17C, | 12-Feb-2018              | 19-Feb-2018        | 26-Feb-2018 | ✓             | 21-Feb-2018      | 26-Feb-2018 | ✓ |
| <b>EP080: BTEXN</b>  |                  |                          |                    |             |               |                  |             |   |
| Soil Glass Jar - Unpreserved (EP080)<br>BH17B,<br>BH18B                | BH17C,<br>BH17C, | 12-Feb-2018              | 19-Feb-2018        | 26-Feb-2018 | ✓             | 21-Feb-2018      | 26-Feb-2018 | ✓ |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>                   |                  |                          |                    |             |               |                  |             |   |
| Soil Glass Jar - Unpreserved (EP202)<br>QA1                            |                  | 09-Feb-2018              | 05-Mar-2018        | 23-Feb-2018 | *             | 05-Mar-2018      | 14-Apr-2018 | ✓ |
| Soil Glass Jar - Unpreserved (EP202)<br>BH17D,<br>BH19B                | BH18C,<br>BH18C, | 12-Feb-2018              | 05-Mar-2018        | 26-Feb-2018 | *             | 05-Mar-2018      | 14-Apr-2018 | ✓ |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>                           |                  |                          |                    |             |               |                  |             |   |
| HDPE Soil Jar (EP231X)<br>BH2A,<br>BH4A                                | BH3A,<br>BH3A,   | 09-Feb-2018              | 23-Feb-2018        | 08-Aug-2018 | ✓             | 23-Feb-2018      | 04-Apr-2018 | ✓ |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b>                         |                  |                          |                    |             |               |                  |             |   |
| HDPE Soil Jar (EP231X)<br>BH2A,<br>BH4A                                | BH3A,<br>BH3A,   | 09-Feb-2018              | 23-Feb-2018        | 08-Aug-2018 | ✓             | 23-Feb-2018      | 04-Apr-2018 | ✓ |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>                      |                  |                          |                    |             |               |                  |             |   |
| HDPE Soil Jar (EP231X)<br>BH2A,<br>BH4A                                | BH3A,<br>BH3A,   | 09-Feb-2018              | 23-Feb-2018        | 08-Aug-2018 | ✓             | 23-Feb-2018      | 04-Apr-2018 | ✓ |
| <b>EP231P: PFAS Sums</b>   |                  |                          |                    |             |               |                  |             |   |
| HDPE Soil Jar (EP231X)<br>BH2A,<br>BH4A                                | BH3A,<br>BH3A,   | 09-Feb-2018              | 23-Feb-2018        | 08-Aug-2018 | ✓             | 23-Feb-2018      | 04-Apr-2018 | ✓ |

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.



Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)                              | Sample Date         | Extraction / Preparation |                    |            | Analysis      |                  |            |
|--|---------------------|--------------------------|--------------------|------------|---------------|------------------|------------|
|  |                     | Date extracted           | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| <b>EG020F: Dissolved Metals by ICP-MS</b>                              |                     |                          |                    |            |               |                  |            |
| Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)<br>MW1, MW3    | MW2,<br>16-Feb-2018 | ----                     | ----               | ----       | 20-Feb-2018   | 15-Aug-2018      | ✓          |
| <b>EG035F: Dissolved Mercury by FIMS</b>                               |                     |                          |                    |            |               |                  |            |
| Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)<br>MW1, MW3      | MW2,<br>16-Feb-2018 | ----                     | ----               | ----       | 20-Feb-2018   | 16-Mar-2018      | ✓          |
| <b>EP068A: Organochlorine Pesticides (OC)</b>                          |                     |                          |                    |            |               |                  |            |
| Amber Glass Bottle - Unpreserved (EP068)<br>MW1, MW3                   | MW2,<br>16-Feb-2018 | 19-Feb-2018              | 23-Feb-2018        | ✓          | 20-Feb-2018   | 31-Mar-2018      | ✓          |
| <b>EP068B: Organophosphorus Pesticides (OP)</b>                        |                     |                          |                    |            |               |                  |            |
| Amber Glass Bottle - Unpreserved (EP068)<br>MW1, MW3                   | MW2,<br>16-Feb-2018 | 19-Feb-2018              | 23-Feb-2018        | ✓          | 20-Feb-2018   | 31-Mar-2018      | ✓          |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>                  |                     |                          |                    |            |               |                  |            |
| Amber Glass Bottle - Unpreserved (EP075(SIM))<br>MW1, MW3              | MW2,<br>16-Feb-2018 | 19-Feb-2018              | 23-Feb-2018        | ✓          | 20-Feb-2018   | 31-Mar-2018      | ✓          |
| <b>EP080/071: Total Petroleum Hydrocarbons</b>                         |                     |                          |                    |            |               |                  |            |
| Amber Glass Bottle - Unpreserved (EP071)<br>MW1, MW3                   | MW2,<br>16-Feb-2018 | 19-Feb-2018              | 23-Feb-2018        | ✓          | 19-Feb-2018   | 31-Mar-2018      | ✓          |
| Amber VOC Vial - Sulfuric Acid (EP080)<br>TRIP BLANK                   | 15-Feb-2018         | 21-Feb-2018              | 01-Mar-2018        | ✓          | 21-Feb-2018   | 01-Mar-2018      | ✓          |
| Amber VOC Vial - Sulfuric Acid (EP080)<br>MW1, MW3                     | MW2,<br>16-Feb-2018 | 21-Feb-2018              | 02-Mar-2018        | ✓          | 21-Feb-2018   | 02-Mar-2018      | ✓          |
| <b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b> |                     |                          |                    |            |               |                  |            |
| Amber Glass Bottle - Unpreserved (EP071)<br>MW1, MW3                   | MW2,<br>16-Feb-2018 | 19-Feb-2018              | 23-Feb-2018        | ✓          | 19-Feb-2018   | 31-Mar-2018      | ✓          |
| Amber VOC Vial - Sulfuric Acid (EP080)<br>TRIP BLANK                   | 15-Feb-2018         | 21-Feb-2018              | 01-Mar-2018        | ✓          | 21-Feb-2018   | 01-Mar-2018      | ✓          |
| Amber VOC Vial - Sulfuric Acid (EP080)<br>MW1, MW3                     | MW2,<br>16-Feb-2018 | 21-Feb-2018              | 02-Mar-2018        | ✓          | 21-Feb-2018   | 02-Mar-2018      | ✓          |



Matrix: **WATER** Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)                                     | Sample Date | Extraction / Preparation |                    |            | Analysis      |                  |            |
|---|-------------|--------------------------|--------------------|------------|---------------|------------------|------------|
|   |             | Date extracted           | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| <b>EP080: BTEXN</b>   |             |                          |                    |            |               |                  |            |
| Amber VOC Vial - Sulfuric Acid (EP080)<br>TRIP SPIKE (18NEOII),<br>TRIP BLANK | 15-Feb-2018 | 21-Feb-2018              | 01-Mar-2018        | ✓          | 21-Feb-2018   | 01-Mar-2018      | ✓          |
| Amber VOC Vial - Sulfuric Acid (EP080)<br>MW1,<br>MW3                         | 16-Feb-2018 | 21-Feb-2018              | 02-Mar-2018        | ✓          | 21-Feb-2018   | 02-Mar-2018      | ✓          |
| <b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>                          |             |                          |                    |            |               |                  |            |
| Amber Glass Bottle - Unpreserved (EP202-LL)<br>MW1,<br>MW3                    | 16-Feb-2018 | ----                     | ----               | ----       | 19-Feb-2018   | 23-Feb-2018      | ✓          |
| <b>EP231A: Perfluoroalkyl Sulfonic Acids</b>                                  |             |                          |                    |            |               |                  |            |
| HDPE (no PTFE) (EP231X)<br>MW1,<br>MW3  | 16-Feb-2018 | ----                     | ----               | ----       | 22-Feb-2018   | 15-Aug-2018      | ✓          |
| <b>EP231B: Perfluoroalkyl Carboxylic Acids</b>                                |             |                          |                    |            |               |                  |            |
| HDPE (no PTFE) (EP231X)<br>MW1,<br>MW3  | 16-Feb-2018 | ----                     | ----               | ----       | 22-Feb-2018   | 15-Aug-2018      | ✓          |
| <b>EP231D: (n:2) Fluorotelomer Sulfonic Acids</b>                             |             |                          |                    |            |               |                  |            |
| HDPE (no PTFE) (EP231X)<br>MW1,<br>MW3  | 16-Feb-2018 | ----                     | ----               | ----       | 22-Feb-2018   | 15-Aug-2018      | ✓          |
| <b>EP231P: PFAS Sums</b>  |             |                          |                    |            |               |                  |            |
| HDPE (no PTFE) (EP231X)<br>MW1,<br>MW3  | 16-Feb-2018 | ----                     | ----               | ----       | 22-Feb-2018   | 15-Aug-2018      | ✓          |



## 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                          | Method     | Count |         | Rate (%) |          |            | Quality Control Specification  |
|--|------------|-------|---------|----------|----------|------------|--------------------------------|
|  |            | QC    | Reaular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                            |            |       |         |          |          |            |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |            |       |         |          |          |            |                                |
| Chromium Suite for Acid Sulphate Soils               | EA033      | 2     | 19      | 10.53    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Electrical Conductivity (1:5)                        | EA010      | 5     | 35      | 14.29    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Moisture Content                                     | EA055      | 4     | 39      | 10.26    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM)                                    | EP075(SIM) | 2     | 4       | 50.00    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X     | 2     | 15      | 13.33    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Pesticides by GCMS                                   | EP068      | 2     | 17      | 11.76    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Phenoxyacetic Acid Herbicides (LCMS - Standard DL)   | EP202      | 1     | 10      | 10.00    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS                                | EG035T     | 4     | 28      | 14.29    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES                              | EG005T     | 4     | 39      | 10.26    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction                          | EP071      | 1     | 5       | 20.00    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX                                   | EP080      | 2     | 17      | 11.76    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| <b>Laboratory Control Samples (LCS)</b>              |            |       |         |          |          |            |                                |
| Chromium Suite for Acid Sulphate Soils               | EA033      | 1     | 19      | 5.26     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Electrical Conductivity (1:5)                        | EA010      | 3     | 35      | 8.57     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM)                                    | EP075(SIM) | 2     | 4       | 50.00    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X     | 1     | 15      | 6.67     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Pesticides by GCMS                                   | EP068      | 1     | 17      | 5.88     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Phenoxyacetic Acid Herbicides (LCMS - Standard DL)   | EP202      | 1     | 10      | 10.00    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS                                | EG035T     | 2     | 28      | 7.14     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES                              | EG005T     | 2     | 39      | 5.13     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction                          | EP071      | 1     | 5       | 20.00    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX                                   | EP080      | 1     | 17      | 5.88     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| <b>Method Blanks (MB)</b>                            |            |       |         |          |          |            |                                |
| Chromium Suite for Acid Sulphate Soils               | EA033      | 1     | 19      | 5.26     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Electrical Conductivity (1:5)                        | EA010      | 3     | 35      | 8.57     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (SIM)                                    | EP075(SIM) | 2     | 4       | 50.00    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X     | 1     | 15      | 6.67     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Pesticides by GCMS                                   | EP068      | 1     | 17      | 5.88     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Phenoxyacetic Acid Herbicides (LCMS - Standard DL)   | EP202      | 1     | 10      | 10.00    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS                                | EG035T     | 2     | 28      | 7.14     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES                              | EG005T     | 2     | 39      | 5.13     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction                          | EP071      | 1     | 5       | 20.00    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX                                   | EP080      | 1     | 17      | 5.88     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                            |            |       |         |          |          |            |                                |
| PAH/Phenols (SIM)                                    | EP075(SIM) | 2     | 4       | 50.00    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X     | 1     | 15      | 6.67     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |



Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

| Quality Control Sample Type                        | Method | Count |        | Rate (%) |          |            | Quality Control Specification  |
|--|--------|-------|--------|----------|----------|------------|--------------------------------|
|  |        | QC    | Reular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                          |        |       |        |          |          |            |                                |
| <b>Matrix Spikes (MS) - Continued</b>              |        |       |        |          |          |            |                                |
| Pesticides by GCMS                                 | EP068  | 1     | 17     | 5.88     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Phenoxyacetic Acid Herbicides (LCMS - Standard DL) | EP202  | 1     | 10     | 10.00    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Total Mercury by FIMS                              | EG035T | 2     | 28     | 7.14     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Total Metals by ICP-AES                            | EG005T | 2     | 39     | 5.13     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction                        | EP071  | 1     | 5      | 20.00    | 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: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

| Quality Control Sample Type                          | Method     | Count |        | Rate (%) |          |            | Quality Control Specification  |
|--|------------|-------|--------|----------|----------|------------|--------------------------------|
|  |            | QC    | Reular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                            |            |       |        |          |          |            |                                |
| <b>Laboratory Duplicates (DUP)</b>                   |            |       |        |          |          |            |                                |
| Dissolved Mercury by FIMS                            | EG035F     | 1     | 7      | 14.29    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals by ICP-MS - Suite A                 | EG020A-F   | 2     | 11     | 18.18    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (GC/MS - SIM)                            | EP075(SIM) | 1     | 8      | 12.50    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X     | 2     | 14     | 14.29    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Pesticides by GCMS                                   | EP068      | 1     | 8      | 12.50    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Phenoxyacetic Acid Herbicides (LCMS - Low DL)        | EP202-LL   | 1     | 5      | 20.00    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction                          | EP071      | 1     | 10     | 10.00    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX                                   | EP080      | 2     | 20     | 10.00    | 10.00    | ✓          | NEPM 2013 B3 & ALS QC Standard |
| <b>Laboratory Control Samples (LCS)</b>              |            |       |        |          |          |            |                                |
| Dissolved Mercury by FIMS                            | EG035F     | 1     | 7      | 14.29    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals by ICP-MS - Suite A                 | EG020A-F   | 1     | 11     | 9.09     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (GC/MS - SIM)                            | EP075(SIM) | 1     | 8      | 12.50    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X     | 1     | 14     | 7.14     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Pesticides by GCMS                                   | EP068      | 1     | 8      | 12.50    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Phenoxyacetic Acid Herbicides (LCMS - Low DL)        | EP202-LL   | 1     | 5      | 20.00    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction                          | EP071      | 1     | 10     | 10.00    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX                                   | EP080      | 1     | 20     | 5.00     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| <b>Method Blanks (MB)</b>                            |            |       |        |          |          |            |                                |
| Dissolved Mercury by FIMS                            | EG035F     | 1     | 7      | 14.29    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals by ICP-MS - Suite A                 | EG020A-F   | 1     | 11     | 9.09     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| PAH/Phenols (GC/MS - SIM)                            | EP075(SIM) | 1     | 8      | 12.50    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X     | 1     | 14     | 7.14     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Pesticides by GCMS                                   | EP068      | 1     | 8      | 12.50    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Phenoxyacetic Acid Herbicides (LCMS - Low DL)        | EP202-LL   | 1     | 5      | 20.00    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction                          | EP071      | 1     | 10     | 10.00    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX                                   | EP080      | 1     | 20     | 5.00     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>                            |            |       |        |          |          |            |                                |
| Dissolved Mercury by FIMS                            | EG035F     | 1     | 7      | 14.29    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Dissolved Metals by ICP-MS - Suite A                 | EG020A-F   | 1     | 11     | 9.09     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |



Matrix: **WATER**

Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

| Quality Control Sample Type                          | Method     | Count |         | Rate (%) |          |            | Quality Control Specification  |
|--|------------|-------|---------|----------|----------|------------|--------------------------------|
|  |            | QC    | Regular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>                            |            |       |         |          |          |            |                                |
| <b>Matrix Spikes (MS) - Continued</b>                |            |       |         |          |          |            |                                |
| PAH/Phenols (GC/MS - SIM)                            | EP075(SIM) | 1     | 8       | 12.50    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X     | 1     | 14      | 7.14     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Pesticides by GCMS                                   | EP068      | 1     | 8       | 12.50    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| Phenoxyacetic Acid Herbicides (LCMS - Low DL)        | EP202-LL   | 1     | 5       | 20.00    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| TRH - Semivolatile Fraction                          | EP071      | 1     | 10      | 10.00    | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |
| TRH Volatiles/BTEX                                   | EP080      | 1     | 20      | 5.00     | 5.00     | ✓          | NEPM 2013 B3 & ALS QC Standard |



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

| Analytical Methods                                 | Method     | Matrix | Method Descriptions  |
|--|------------|--------|--|
| Electrical Conductivity (1:5)                      | EA010      | SOIL   | In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM (2013) Schedule B(3)  |
| Chromium Suite for Acid Sulphate Soils             | EA033      | SOIL   | In house: Referenced to Ahern et al 2004. This method covers the determination of Chromium Reducible Sulfur (SCR); pHKCl; titratable actual acidity (TAA); acid neutralising capacity by back titration (ANC); and net acid soluble sulfur (SNAS) which incorporates peroxide sulfur. It applies to soils and sediments (including sands) derived from coastal regions. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.  |
| 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 <sub>2</sub> ) (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 <sub>2</sub> 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) |
| 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.  |
| Phenoxyacetic Acid Herbicides (LCMS - Standard DL) | EP202      | SOIL   | In house: LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.   |



| Analytical Methods                                   | Method     | Matrix | Method Descriptions   |
|--|------------|--------|---|
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X     | SOIL   | In-House. A portion of soil is extracted with MTBE. The extract is taken to dryness, made up in mobile phase. Analysis is by LC/MSMS, ESI Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers.    |
| Dissolved Metals by ICP-MS - Suite A                 | EG020A-F   | WATER  | In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.   |
| Dissolved Mercury by FIMS                            | EG035F     | WATER  | In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) Samples are 0.45µm filtered prior to analysis. FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the filtered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> 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) |
| Pesticides by GCMS                                   | EP068      | WATER  | In house: Referenced to USEPA SW 846 - 8270D Sample 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)  |
| TRH - Semivolatile Fraction                          | EP071      | WATER  | In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)  |
| PAH/Phenols (GC/MS - SIM)                            | EP075(SIM) | WATER  | In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)  |
| TRH Volatiles/BTEX                                   | EP080      | WATER  | In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)  |
| Phenoxyacetic Acid Herbicides (LCMS - Low DL)        | EP202-LL   | WATER  | In house: LCMS (Electrospray). Residues of acid herbicides in water samples are extracted with dichloromethane under acidic conditions. The organic phase is evaporated to dryness and made up the HPLC mobile phase for MS determination.  |
| Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS | EP231X     | WATER  | In house: Direct injection analysis of fresh waters after dilution (1:1) with methanol. Analysis by LC-Electrospray-MS-MS, Negative Mode using MRM. Where commercially available, isotopically labelled analogues of the target analytes are used as internal standards for quantification. Where a labelled analogue is not commercially available, the internal standard with similar chemistry and the closest retention time to the target is used for quantification. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers.                   |
| Preparation Methods                                  | Method     | Matrix | Method Descriptions   |
| Drying at 85 degrees, bagging and labelling (ASS)    | EN020PR    | SOIL   | In house  |



| Preparation Methods  | Method   | Matrix | Method Descriptions   |
|--|----------|--------|---|
| 1:5 solid / water leach for soluble analytes               | EN34     | SOIL   | 10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.   |
| Hot Block Digest for metals in soils sediments and sludges | EN69     | SOIL   | In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202) |
| Extraction for Phenoxy Acid Herbicides in Soils.           | EP202-PR | SOIL   | In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.   |
| Sample Extraction for PFAS                                 | EP231-PR | SOIL   | In house  |
| 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 <sub>2</sub> SO <sub>4</sub> 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.   |
| Separatory Funnel Extraction of Liquids                    | ORG14    | WATER  | In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container.                            |
| Volatiles Water Preparation                                | ORG16-W  | WATER  | A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for sparging.   |



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : ES1805085

|              |   |              |  |
|--------------|---|--------------|--|
| Client       | : ROBERT CARR & ASSOCIATES P/L                  | Laboratory   | : Environmental Division Sydney                          |
| Contact      | : MS FIONA BROOKER                              | Contact      | : Customer Services ES                                   |
| Address      | : P O BOX 175<br>CARRINGTON NSW, AUSTRALIA 2294 | Address      | : 277-289 Woodpark Road Smithfield<br>NSW Australia 2164 |
| E-mail       | : fionab@rca.com.au                             | E-mail       | : ALSEnviro.Sydney@alsglobal.com                         |
| Telephone    | : +61 02 4902 9200                              | Telephone    | : +61-2-8784 8555  |
| Facsimile    | : +61 02 4902 9299                              | Facsimile    | : +61-2-8784 8500  |
| Project      | : 13156   | Page         | : 1 of 3   |
| Order number | : ----  | Quote number | : ES2017ROBCAR0004 (SYBQ/400/17)                         |
| C-O-C number | : ----  | QC Level     | : NEPM 2013 B3 & ALS QC Standard                         |
| Site         | : ----  |              |  |
| Sampler      | : KATY SHAW                                     |              |  |

Dates

|                           |                     |                          |                      |
|---------------------------|---------------------|--------------------------|----------------------|
| Date Samples Received     | : 16-Feb-2018 13:41 | Issue Date               | : 16-Feb-2018        |
| Client Requested Due Date | : 23-Feb-2018       | Scheduled Reporting Date | : <b>23-Feb-2018</b> |

Delivery Details

|                      |             |                                    |                      |
|----------------------|-------------|------------------------------------|----------------------|
| Mode of Delivery     | : Undefined | Security Seal                      | : Not Available      |
| No. of coolers/boxes | : 1         | Temperature                        | : 16.4 - Ice present |
| Receipt Detail       | :           | No. of samples received / analysed | : 21 / 21            |

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).**
- **Acid Sulphate soil (Chromium Suite) analysis will be conducted by ALS Brisbane.**
- 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) from receipt of samples.
- **Due to insufficient sample volume has been supplied for metals bottle for sample MW3, lab will sub sample from natural green for metals analysis.**



## Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Any sample identifications that cannot be displayed entirely in the analysis summary table will be listed below.

ES1805085-011 : [ 15-Feb-2018 ] : TRIP SPIKE (18NEOII)

## 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 - EA010 (solids): Electrical Conductivity (1.5) | SOIL - EA055-103 Moisture Content | SOIL - EP202(solids) Phenoxycetic acids | SOIL - EP231 (solids) PFAS - Short Suite (12 analytes) | SOIL - S-02 8 Metals (incl. Digestion) | SOIL - S-07 TRH/BTEX/PAH (SIM) | SOIL - S-12 OC/OP Pesticides |
|----------------------|-----------------------------|------------------|--|-----------------------------------|---|--|--|--------------------------------|------------------------------|
| ES1805085-001        | 09-Feb-2018 00:00           | QA1              | ✓  | ✓                                 | ✓                                       |  | ✓                                      |                                | ✓                            |
| ES1805085-002        | 09-Feb-2018 00:00           | BH2A             |  | ✓                                 |   | ✓  |  |                                |                              |
| ES1805085-003        | 09-Feb-2018 00:00           | BH3A             |  | ✓                                 |   | ✓  |  |                                |                              |
| ES1805085-004        | 09-Feb-2018 00:00           | BH4A             |  | ✓                                 |   | ✓  |  |                                |                              |
| ES1805085-005        | 12-Feb-2018 00:00           | BH17B            | ✓  | ✓                                 |   |  |  | ✓                              |                              |
| ES1805085-006        | 12-Feb-2018 00:00           | BH17C            | ✓  | ✓                                 |   |  |  | ✓                              |                              |
| ES1805085-007        | 12-Feb-2018 00:00           | BH17D            | ✓  | ✓                                 | ✓                                       |  | ✓                                      |                                | ✓                            |
| ES1805085-008        | 12-Feb-2018 00:00           | BH18B            | ✓  | ✓                                 |   |  |  | ✓                              |                              |
| ES1805085-009        | 12-Feb-2018 00:00           | BH18C            | ✓  | ✓                                 | ✓                                       |  | ✓                                      |                                | ✓                            |
| ES1805085-010        | 12-Feb-2018 00:00           | BH19B            | ✓  | ✓                                 | ✓                                       |  | ✓                                      |                                | ✓                            |

Matrix: **SOIL**

| Laboratory sample ID | Client sampling date / time | Client sample ID | SOIL - EA033 Chromium Suite for Acid Sulphate Soils |
|----------------------|-----------------------------|------------------|---|
| ES1805085-016        | 09-Feb-2018 00:00           | MW1C             | ✓   |
| ES1805085-017        | 09-Feb-2018 00:00           | MW1D             | ✓   |
| ES1805085-018        | 09-Feb-2018 00:00           | MW2A             | ✓   |
| ES1805085-019        | 09-Feb-2018 00:00           | MW2D             | ✓   |
| ES1805085-020        | 12-Feb-2018 00:00           | MW3A             | ✓   |
| ES1805085-021        | 12-Feb-2018 00:00           | MW3C             | ✓   |



| Matrix: WATER        |                             |                      | WATER - EP080<br>BTEXN | WATER - EP202LL<br>Phenoxyacetic acids - low level | WATER - EP231<br>PFAS - Short Suite (12 analytes) | WATER - W-12<br>OC/OP Pesticides | WATER - W-18<br>TRH(C6 - C9)/BTEXN | WATER - W-26<br>TRH/BTEXN/PAH/8 Metals |
|----------------------|-----------------------------|----------------------|------------------------|--|---|----------------------------------|------------------------------------|--|
| Laboratory sample ID | Client sampling date / time | Client sample ID     |                        |  |   |                                  |                                    |  |
| ES1805085-011        | 15-Feb-2018 00:00           | TRIP SPIKE (18NEOII) | ✓                      |  |   |                                  |                                    |  |
| ES1805085-012        | 15-Feb-2018 00:00           | TRIP BLANK           |                        |  |   |                                  | ✓                                  |  |
| ES1805085-013        | 16-Feb-2018 00:00           | MW1                  |                        | ✓  | ✓   | ✓                                |                                    | ✓                                      |
| ES1805085-014        | 16-Feb-2018 00:00           | MW2                  |                        | ✓  | ✓   | ✓                                |                                    | ✓                                      |
| ES1805085-015        | 16-Feb-2018 00:00           | MW3                  |                        | ✓  | ✓   | ✓                                |                                    | ✓                                      |

### Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

### Requested Deliverables

#### ALL INVOICES

- \*AU Certificate of Analysis - NATA (COA) Email administrator@rca.com.au
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email administrator@rca.com.au
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email administrator@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email administrator@rca.com.au
- A4 - AU Tax Invoice (INV) Email administrator@rca.com.au
- Chain of Custody (CoC) (COC) Email administrator@rca.com.au
- EDI Format - ENMRG (ENMRG) Email administrator@rca.com.au
- EDI Format - ESDAT (ESDAT) Email administrator@rca.com.au

#### FIONA BROOKER

- \*AU Certificate of Analysis - NATA (COA) Email fionab@rca.com.au
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email fionab@rca.com.au
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email fionab@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email fionab@rca.com.au
- A4 - AU Tax Invoice (INV) Email fionab@rca.com.au
- Chain of Custody (CoC) (COC) Email fionab@rca.com.au
- EDI Format - ENMRG (ENMRG) Email fionab@rca.com.au
- EDI Format - ESDAT (ESDAT) Email fionab@rca.com.au

#### KATY SHAW

- \*AU Certificate of Analysis - NATA (COA) Email katys@rca.com.au
- \*AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email katys@rca.com.au
- \*AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email katys@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email katys@rca.com.au
- A4 - AU Tax Invoice (INV) Email katys@rca.com.au
- Chain of Custody (CoC) (COC) Email katys@rca.com.au
- EDI Format - ENMRG (ENMRG) Email katys@rca.com.au
- EDI Format - ESDAT (ESDAT) Email katys@rca.com.au



# CHAIN OF CUSTODY

ALS Laboratory: please tick →

□ Sydney: 277 Woodpark Rd, Smithfield NSW 2178  
Ph: 02 8784 8555 E:samples\_sydney@alsenviro.com

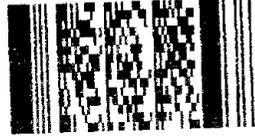
□ Brisbane: 32 Shand St, Stafford QLD 4053  
Ph: 07 3243 7222 E:samples\_brisbane@alsenviro.com

□ Melbourne: 2-4 Westgate Rd, Springvale VIC 3171  
Ph: 03 8549 8600 E: samples\_melbourne@alsenviro.com

□ Perth: 10 Hod Way, Mulgwa WA 6090  
Ph: 08 9209 7665 E: samples\_perth@alsenviro.com

□ Launceston: 27 Wellington St, Launceston TAS 7250  
Ph: 05 6331 2156 E: launceston@alsenviro.com

|   |  |   |  |  |  |
|---|--|---|--|--|--|
| CLIENT: RCA Australia   |  | TURNAROUND REQUIREMENTS: <input checked="" type="checkbox"/> Standard TAT (List due date): 23/2/18  |  | FOR LABORATORY USE ONLY (Circle)   |  |
| OFFICE: 92 Hill Street, Carrington  |  | (Standard TAT may be longer for some tests e.g., Ultra Trace Organics) <input type="checkbox"/> Non Standard or urgent TAT (List due date): |  | Custody Seal checked: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A                           |  |
| RCA Ref No: 13156   |  | ALS QUOTE NO.: SYBQ_400_17  |  | Free be frozen ice bricks present upon receipt? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |  |
| PROJECT MANAGER: Fiona Brooker  |  | CONTACT PH:   |  | Random Sample Temperature in Recept: 16.4 °C   |  |
| SAMPLER: Katy Shaw  |  | SAMPLER MOBILE: 0408 467 698  |  | Other comment:   |  |
| COC Emailed to ALS? ( YES / NO)   |  | EDD FORMAT (or default):  |  | RECEIVED BY: Vishal  |  |
| Email Reports to: administrator@rca.com.au + katys@rca.com.au + fionab@rca.com.au |  | RELINQUISHED BY: Zac Layburn  |  | DATE/TIME: 16/2/18 2:50pm  |  |
| Email Invoice to: as above  |  | DATE/TIME: 16/2/18  |  | DATE/TIME: 16-2-18 7:30pm  |  |
| COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:                                    |  |   |  |  |  |

| ALS USE ONLY | SAMPLE DETAILS |           |             | CONTAINER INFORMATION | ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) |  |               |                         |                        |  |   |                                   | Additional Information   |                                  |
|--------------|----------------|-----------|-------------|-----------------------|--|--|---------------|-------------------------|------------------------|--|---|-----------------------------------|--|----------------------------------|
|              | LAB ID         | SAMPLE ID | DATE / TIME |                       | MATRIX   | TYPE & PRESERVATIVE (refer to codes below) | TOTAL BOTTLES | Electrical Conductivity | S12 - OC/OP Pesticides | Phenoxy Acid Herbicides - standard level | S02 - 8 metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg) | S07 - TRH (C6-C36/40), BTEXN, PAH |  | PFAS - Short Suite (12 analytes) |
|              | 1              | QA1       | 09/02/2018  | Soil                  | Soil   | 1  | x             | x                       | x                      | x  |   |                                   | Environmental Division<br>Sydney<br>Work Order Reference<br><b>ES1805085</b><br><br>Telephone : + 61-2-8794 8555 |                                  |
|              | 2              | BH2a      | 09/02/2018  | Soil                  | ↓  | 1  |               |                         |                        |  |   | x                                 |  |                                  |
|              | 3              | BH3a      | 09/02/2018  | Soil                  |  | 1  |               |                         |                        |  |   |                                   |  | x                                |
|              | 4              | BH4a      | 09/02/2018  | Soil                  |  | 1  |               |                         |                        |  |   |                                   |  | x                                |
|              | 5              | BH17b     | 12/02/2018  | Soil                  |  | 1  | x             |                         |                        |  |   |                                   |  | x                                |
|              | 6              | BH17c     | 12/02/2018  | Soil                  |  | 1  | x             |                         |                        |  |   |                                   |  | x                                |
|              | 7              | BH17d     | 12/02/2018  | Soil                  |  | 1  | x             | x                       | x                      | x  | x   |                                   |  | x                                |
|              | 8              | BH18b     | 12/02/2018  | Soil                  |  | 1  | x             |                         |                        |  |   |                                   |  | x                                |
|              | 9              | BH18c     | 12/02/2018  | Soil                  |  | 1  | x             | x                       | x                      | x  | x   |                                   |  | x                                |
|              | 10             | BH19b     | 12/02/2018  | Soil                  |  | 1  | x             | x                       | x                      | x  | x   |                                   |  | x                                |
| TOTAL:       |                |           |             |                       |  |  |               |                         |                        |  |   |                                   |  |                                  |

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.



**CHAIN OF CUSTODY**

ALS Laboratory: please tick →

□ Sydney: 277 Woodpark Rd, Smithfield NSW 2176  
Ph: 02 9734 9555 E: samples.sydney@alsenviro.com  
□ Newcastle: 5 Rosegum Rd, Warabrook NSW 2304  
Ph: 02 4966 9433 E: samples.newcastle@alsenviro.com

□ Brisbane: 32 Strand St, Stafford QLD 4053  
Ph: 07 3243 7232 E: samples.brisbane@alsenviro.com  
□ Townsville: 14-15 Deama Ct, Bohle QLD 4818  
Ph: 07 4766 0600 E: townsville.environmental@alsenviro.com

□ Melbourne: 2-4 Wastla Rd, Springvale VIC 3171  
Ph: 03 8549 9600 E: samples.melbourne@alsenviro.com  
□ Adelaide: 2-1 Burma Rd, Pooraka SA 5095  
Ph: 08 8350 0800 E: adelaide@alsenviro.com

□ Perth: 10 Hod Way, Melega WA 6090  
Ph: 08 9209 7865 E: samples.perth@alsenviro.com  
□ Launceston: 27 Wellington St, Launceston TAS 7250  
Ph: 03 6331 2158 E: launceston@alsenviro.com

|  |  |   |  |
|--|--|---|--|
| <b>CLIENT:</b> RCA Australia   | <b>TURNAROUND REQUIREMENTS:</b> <input checked="" type="checkbox"/> Standard TAT (List due date): 23/2/18                                  | <b>FOR LABORATORY USE ONLY (Circle)</b>   |  |
| <b>OFFICE:</b> 92 Hill Street, Carrington  | (Standard TAT may be longer for some tests e.g. Ultra Trace Organics) <input type="checkbox"/> Non Standard or urgent TAT (List due date): | Checked Seal intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Free for frozen ice packs present upon receipt? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
| <b>RCA Ref No:</b> 13156   | <b>ALS QUOTE NO.:</b> SYBQ_400_17  | <b>COC SEQUENCE NUMBER (Circle)</b>   | Random Sample Temperature on Receipt: 16.4°C   |
|  |  | COC: 1 <u>2</u> 3 4 5 6 7   | Other comment:   |
|  |  | OP: 1 <u>2</u> 3 4 5 6 7  |  |
| <b>PROJECT MANAGER:</b> Fiona Brooker  | <b>CONTACT PH:</b>   | <b>RELINQUISHED BY:</b> Zachary W... <i>Zachary W...</i>  | <b>RECEIVED BY:</b> <i>RH</i>  |
| <b>SAMPLER:</b> Katy Shaw  | <b>SAMPLER MOBILE:</b> 0408 467 698  | <b>DATE/TIME:</b> 16/2/18   | <b>DATE/TIME:</b> 16/2/18 2:50pm   |
| <b>COC Emailed to ALS? (YES / NO)</b>  | <b>EDD FORMAT (or default):</b>  | <b>RELINQUISHED BY:</b>   | <b>RECEIVED BY:</b> Vishal   |
| <b>Email Reports to:</b> administrator@rca.com.au + katys@rca.com.au + fionab@rca.com.au |  | <b>DATE/TIME:</b>   | <b>DATE/TIME:</b> 16-2-18 7:30am   |
| <b>Email Invoice to:</b> as above.   | <b>COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:</b>  |   |  |

| ALS USE ONLY | SAMPLE DETAILS<br>MATRIX: Solid(S) Water(W) |            |             | CONTAINER INFORMATION | ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price)<br><small>Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).</small> |  |               |                          |                      |   |  | Additional Information |  |
|--------------|---|------------|-------------|-----------------------|---|--|---------------|--------------------------|----------------------|---|--|------------------------|--|
|              | LAB ID                                      | SAMPLE ID  | DATE / TIME |                       | MATRIX  | TYPE & PRESERVATIVE<br><small>(refer to codes below)</small> | TOTAL BOTTLES | W26-TRHIBTEX/PAH/ Metals | W12-OC/OP Pesticides | Phenoxo Acid Herbicides - ultra trace level | PFAS - Low level Short Suite (12 analytes) |                        | Acid sulphate soil - complete chromium suite |
| 11           | Trip spike (18NE011)                        | 15/2/18    | Water       |                       | 1   |  |               |                          |                      |   |  | x                      |  |
| 12           | Trip blank                                  | 15/2/18    | Water       |                       | 1   |  |               |                          |                      |   |  | x                      |  |
| 13           | MW1   | 16 02/2018 | Water       |                       | 6   | x  | x             | x                        | x                    |   |  |                        |  |
| 14           | MW2   | 16 02/2018 | Water       |                       | 6   | x  | x             | x                        | x                    |   |  |                        |  |
| 15           | MW3   | 16 02/2018 | Water       |                       | 12  | x  | x             | x                        | x                    |   |  |                        |  |
| 16           | MW1c  | 9/2/18     | Soil        | Bag (green)           | 1   |  |               |                          |                      |   |  | x                      |  |
| 17           | MW1d  | 9/2/18     | ↓           | ↓                     | 1   |  |               |                          |                      |   |  | x                      |  |
| 18           | MW2a  | 9/2/18     | ↓           | ↓                     | 1   |  |               |                          |                      |   |  | x                      |  |
| 19           | MW2d  | 9/2/18     | ↓           | ↓                     | 1   |  |               |                          |                      |   |  | x                      |  |
| 20           | MW3a  | 12/2/18    | ↓           | ↓                     | 1   |  |               |                          |                      |   |  | x                      |  |
| 21           | MW3c  | 12/2/18    | ↓           | ↓                     | 1   |  |               |                          |                      |   |  | x                      |  |
| <b>TOTAL</b> |   |            |             |                       |   |  |               |                          |                      |   |  |                        |  |

**E-MAIL**

**LAB OF ORIGIN  
NEWCASTLE**

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

## Julia Fracala

---

**From:** Katy Shaw <katys@rca.com.au>  
**Sent:** Tuesday, 27 February 2018 8:54 AM  
**To:** ALSEnviro Sydney  
**Cc:** Tamara Duker  
**Subject:** RE: Workorder : ES1805085 | Your Reference: 13156

Good morning Julia,

Yes please the same metals to be analysed as the rest within the work order. Will it be possible to get these still reported under the ES1805085 report?

Many thanks,

**Katy Shaw**

Environmental Scientist



PO Box175/92 Hill Street, Carrington NSW 2294  
Web: [www.rca.com.au](http://www.rca.com.au)  
Phone: 02 4902 9207  
Mobile: 0408 467 698  
E-mail: [katys@rca.com.au](mailto:katys@rca.com.au)

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---

**From:** ALSEnviro Sydney [mailto:ALSEnviro.Sydney@ALSGlobal.com]  
**Sent:** Tuesday, 27 February 2018 8:52 AM  
**To:** Katy Shaw; ALSEnviro Sydney  
**Cc:** Tamara Duker  
**Subject:** RE: Workorder : ES1805085 | Your Reference: 13156

Hi Katy,

I will get this arranged. Can you confirm if it's the standard 8 metals as per the other samples?

Kind Regards,

**Julia Fracala**

Client Services Officer, Environmental  
Sydney



**T** +61 2 8784 8555

**D** +61 2 8784 8503

**F** +61 2 8784 8500

[julia.fracala@alsglobal.com](mailto:julia.fracala@alsglobal.com)

277-289 Woodpark Road  
Smithfield, NSW, 2164

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---

**From:** Katy Shaw [<mailto:katys@rca.com.au>]

**Sent:** Monday, 26 February 2018 6:22 PM

**To:** Tamara Duker <[tamara.duker@ALSGlobal.com](mailto:tamara.duker@ALSGlobal.com)>; ALSEnviro Sydney <[ALSEnviro.Sydney@ALSGlobal.com](mailto:ALSEnviro.Sydney@ALSGlobal.com)>

**Subject:** FW: Workorder : ES1805085 | Your Reference: 13156

**Importance:** High

In addition to below also please include PAH (standard level) on BH17D.

Many thanks,

**Katy Shaw**

Environmental Scientist



PO Box175/92 Hill Street, Carrington NSW 2294

Web: [www.rca.com.au](http://www.rca.com.au)

Phone: 02 4902 9207

Mobile: 0408 467 698

E-mail: [katys@rca.com.au](mailto:katys@rca.com.au)

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---

**From:** Katy Shaw

**Sent:** Monday, 26 February 2018 6:16 PM

**To:** [tamara.duker@alsglobal.com](mailto:tamara.duker@alsglobal.com); ALSEnviro Sydney ([ALSEnviroSydney@alsglobal.com](mailto:ALSEnviroSydney@alsglobal.com))

**Subject:** Workorder : ES1805085 | Your Reference: 13156

**Importance:** High

Hi guys,

I've realised I've made an error and need metals to be undertaken on samples BH17b, BH17c and BH18b. Could I get it on 1 day TAT?

Thanks,

**Katy Shaw**

Environmental Scientist



PO Box175/92 Hill Street, Carrington NSW 2294

Web: [www.rca.com.au](http://www.rca.com.au)

Phone: 02 4902 9207

Mobile: 0408 467 698

E-mail: [katys@rca.com.au](mailto:katys@rca.com.au)

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**From:** [angel-no-reply@alsglobal.com](mailto:angel-no-reply@alsglobal.com) [<mailto:angel-no-reply@alsglobal.com>]

**Sent:** Friday, 23 February 2018 4:31 PM

**To:** Katy Shaw

**Subject:** RESULTS & EDD for ALS Workorder : ES1805085 | Your Reference: 13156



## Deliverables for ALS Workorder ES1805085

**Project: 13156**

Dear KATY SHAW,

Please find enclosed the following deliverables for **ES1805085**:

- ES1805085\_0\_COA (Preliminary Report - 2018-Feb-23--16-30-05 ) .pdf
- ES1805085\_0\_ENMRG.CSV
- 13156.ESDAT\_ES1805085\_0.Chemistry2e.CSV
- 13156.ESDAT\_ES1805085\_0.Header.XML
- 13156.ESDAT\_ES1805085\_0.Sample2e.CSV
- ES1805085\_0\_QC.pdf
- ES1805085\_0\_QCl.pdf
- ES1805085\_COC.pdf

## Report Recipients

- ALL INVOICES
  - ES1805085\_0\_COA (Preliminary Report - 2018-Feb-23--16-30-05 )  
.pdf (Email)
  - ES1805085\_0\_ENMRG.CSV (Email)
  - 13156.ESDAT\_ES1805085\_0.Chemistry2e.CSV (Email)
  - 13156.ESDAT\_ES1805085\_0.Header.XML (Email)
  - 13156.ESDAT\_ES1805085\_0.Sample2e.CSV (Email)
  - ES1805085\_0\_QC.pdf (Email)
  - ES1805085\_0\_QCI.pdf (Email)
  - ES1805085\_COC.pdf (Email)
- FIONA BROOKER
  - ES1805085\_0\_COA (Preliminary Report - 2018-Feb-23--16-30-05 )  
.pdf (Email)
  - ES1805085\_0\_ENMRG.CSV (Email)
  - 13156.ESDAT\_ES1805085\_0.Chemistry2e.CSV (Email)
  - 13156.ESDAT\_ES1805085\_0.Header.XML (Email)
  - 13156.ESDAT\_ES1805085\_0.Sample2e.CSV (Email)
  - ES1805085\_0\_QC.pdf (Email)
  - ES1805085\_0\_QCI.pdf (Email)
  - ES1805085\_COC.pdf (Email)
- KATY SHAW
  - ES1805085\_0\_COA (Preliminary Report - 2018-Feb-23--16-30-05 )  
.pdf (Email)
  - ES1805085\_0\_ENMRG.CSV (Email)
  - 13156.ESDAT\_ES1805085\_0.Chemistry2e.CSV (Email)
  - 13156.ESDAT\_ES1805085\_0.Header.XML (Email)
  - 13156.ESDAT\_ES1805085\_0.Sample2e.CSV (Email)
  - ES1805085\_0\_QC.pdf (Email)
  - ES1805085\_0\_QCI.pdf (Email)
  - ES1805085\_COC.pdf (Email)

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## CERTIFICATE OF ANALYSIS

**Work Order** : **ES1807425**  
**Client** : **ROBERT CARR & ASSOCIATES P/L**  
**Contact** : MS FIONA BROOKER  
**Address** : P O BOX 175  
                   CARRINGTON NSW, AUSTRALIA 2294  
**Telephone** : +61 02 4902 9200  
**Project** : 13156  
**Order number** : ----  
**C-O-C number** : ----  
**Sampler** : KATY SHAW  
**Site** : ----  
**Quote number** : SYBQ/400/17  
**No. of samples received** : 2  
**No. of samples analysed** : 2

**Page** : 1 of 5  
**Laboratory** : Environmental Division Sydney  
**Contact** : Customer Services ES  
**Address** : 277-289 Woodpark Road Smithfield NSW Australia 2164  
  
**Telephone** : +61-2-8784 8555  
**Date Samples Received** : 12-Mar-2018 11:40  
**Date Analysis Commenced** : 13-Mar-2018  
**Issue Date** : 16-Mar-2018 09:27



Accreditation No. 825  
 Accredited for compliance with  
 ISO/IEC 17025 - Testing

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.

| <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 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), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.



## Analytical Results

Sub-Matrix: DI WATER LEACHATE  
 (Matrix: WATER)

Client sample ID

|   |                   |     |      | BH17B             | BH17C             | ----  | ----  | ----  |
|---|-------------------|-----|------|-------------------|-------------------|-------|-------|-------|
| Client sampling date / time                           |                   |     |      | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 | ----  | ----  | ----  |
| Compound  | CAS Number        | LOR | Unit | ES1807425-001     | ES1807425-002     | ----- | ----- | ----- |
|   |                   |     |      | Result            | Result            | ----  | ----  | ----  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b> |                   |     |      |                   |                   |       |       |       |
| Naphthalene   | 91-20-3           | 1.0 | µg/L | 5.3               | <1.0              | ----  | ----  | ----  |
| Acenaphthylene  | 208-96-8          | 1.0 | µg/L | <1.0              | <1.0              | ----  | ----  | ----  |
| Acenaphthene  | 83-32-9           | 1.0 | µg/L | 4.1               | 1.0               | ----  | ----  | ----  |
| Fluorene  | 86-73-7           | 1.0 | µg/L | 3.0               | <1.0              | ----  | ----  | ----  |
| Phenanthrene  | 85-01-8           | 1.0 | µg/L | 8.4               | 3.9               | ----  | ----  | ----  |
| Anthracene  | 120-12-7          | 1.0 | µg/L | 1.3               | <1.0              | ----  | ----  | ----  |
| Fluoranthene  | 206-44-0          | 1.0 | µg/L | <1.0              | <1.0              | ----  | ----  | ----  |
| Pyrene  | 129-00-0          | 1.0 | µg/L | <1.0              | <1.0              | ----  | ----  | ----  |
| Benzo(a)anthracene                                    | 56-55-3           | 1.0 | µg/L | <1.0              | <1.0              | ----  | ----  | ----  |
| Chrysene  | 218-01-9          | 1.0 | µg/L | <1.0              | <1.0              | ----  | ----  | ----  |
| Benzo(b+j)fluoranthene                                | 205-99-2 205-82-3 | 1.0 | µg/L | <1.0              | <1.0              | ----  | ----  | ----  |
| Benzo(k)fluoranthene                                  | 207-08-9          | 1.0 | µg/L | <1.0              | <1.0              | ----  | ----  | ----  |
| Benzo(a)pyrene  | 50-32-8           | 0.5 | µg/L | <0.5              | <0.5              | ----  | ----  | ----  |
| Indeno(1.2.3.cd)pyrene                                | 193-39-5          | 1.0 | µg/L | <1.0              | <1.0              | ----  | ----  | ----  |
| Dibenz(a.h)anthracene                                 | 53-70-3           | 1.0 | µg/L | <1.0              | <1.0              | ----  | ----  | ----  |
| Benzo(g.h.i)perylene                                  | 191-24-2          | 1.0 | µg/L | <1.0              | <1.0              | ----  | ----  | ----  |
| ^ Sum of polycyclic aromatic hydrocarbons             | ----              | 0.5 | µg/L | 22.1              | 4.9               | ----  | ----  | ----  |
| ^ Benzo(a)pyrene TEQ (zero)                           | ----              | 0.5 | µg/L | <0.5              | <0.5              | ----  | ----  | ----  |
| <b>EP075(SIM)S: Phenolic Compound Surrogates</b>      |                   |     |      |                   |                   |       |       |       |
| Phenol-d6   | 13127-88-3        | 1.0 | %    | 19.6              | 22.2              | ----  | ----  | ----  |
| 2-Chlorophenol-D4                                     | 93951-73-6        | 1.0 | %    | 41.3              | 44.7              | ----  | ----  | ----  |
| 2.4.6-Tribromophenol                                  | 118-79-6          | 1.0 | %    | 43.8              | 50.6              | ----  | ----  | ----  |
| <b>EP075(SIM)T: PAH Surrogates</b>                    |                   |     |      |                   |                   |       |       |       |
| 2-Fluorobiphenyl                                      | 321-60-8          | 1.0 | %    | 61.9              | 65.2              | ----  | ----  | ----  |
| Anthracene-d10  | 1719-06-8         | 1.0 | %    | 67.0              | 85.1              | ----  | ----  | ----  |
| 4-Terphenyl-d14                                       | 1718-51-0         | 1.0 | %    | 70.0              | 79.5              | ----  | ----  | ----  |



**Analytical Results**

| Sub-Matrix: <b>SOIL</b><br>(Matrix: <b>SOIL</b> ) |            |     | Client sample ID  | BH17B             | BH17C         | ----  | ----  | ----  |
|---|------------|-----|-------------------|-------------------|---------------|-------|-------|-------|
| Client sampling date / time                       |            |     | 12-Feb-2018 00:00 | 12-Feb-2018 00:00 | ----          | ----  | ----  |       |
| Compound  | CAS Number | LOR | Unit              | ES1807425-001     | ES1807425-002 | ----- | ----- | ----- |
|   |            |     |                   | Result            | Result        | ----  | ----  | ----  |
| <b>EN60: Bottle Leaching Procedure</b>            |            |     |                   |                   |               |       |       |       |
| <b>Final pH</b>                                   | ----       | 0.1 | pH Unit           | <b>8.3</b>        | <b>7.7</b>    | ----  | ----  | ----  |



## Surrogate Control Limits

| Sub-Matrix: DI WATER LEACHATE                    |            | Recovery Limits (%) |      |
|--|------------|---------------------|------|
| Compound   | CAS Number | Low                 | High |
| <b>EP075(SIM)S: Phenolic Compound Surrogates</b> |            |                     |      |
| Phenol-d6  | 13127-88-3 | 10                  | 44   |
| 2-Chlorophenol-D4                                | 93951-73-6 | 14                  | 94   |
| 2,4,6-Tribromophenol                             | 118-79-6   | 17                  | 125  |
| <b>EP075(SIM)T: PAH Surrogates</b>               |            |                     |      |
| 2-Fluorobiphenyl                                 | 321-60-8   | 20                  | 104  |
| Anthracene-d10                                   | 1719-06-8  | 27                  | 113  |
| 4-Terphenyl-d14                                  | 1718-51-0  | 32                  | 112  |

## QUALITY CONTROL REPORT

|                         |   |                         |   |
|-------------------------|---|-------------------------|---|
| <b>Work Order</b>       | : <b>ES1807425</b>                              | Page                    | : 1 of 3  |
| Client                  | : <b>ROBERT CARR &amp; ASSOCIATES P/L</b>       | Laboratory              | : Environmental Division Sydney                       |
| Contact                 | : MS FIONA BROOKER                              | Contact                 | : Customer Services ES                                |
| Address                 | : P O BOX 175<br>CARRINGTON NSW, AUSTRALIA 2294 | Address                 | : 277-289 Woodpark Road Smithfield NSW Australia 2164 |
| Telephone               | : +61 02 4902 9200                              | Telephone               | : +61-2-8784 8555                                     |
| Project                 | : 13156   | Date Samples Received   | : 12-Mar-2018   |
| Order number            | : ----  | Date Analysis Commenced | : 13-Mar-2018   |
| C-O-C number            | : ----  | Issue Date              | : 16-Mar-2018   |
| Sampler                 | : KATY SHAW                                     |                         |   |
| Site                    | : ----  |                         |   |
| Quote number            | : SYBQ/400/17                                   |                         |   |
| No. of samples received | : 2   |                         |   |
| No. of samples analysed | : 2   |                         |   |



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%.

- **No Laboratory Duplicate (DUP) Results are required to be reported.**
-



## Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

| Method: Compound   | CAS Number           | LOR | Unit | Method Blank (MB) Report | Laboratory Control Spike (LCS) Report |                    |     |                     |  |
|--|----------------------|-----|------|--------------------------|---------------------------------------|--------------------|-----|---------------------|--|
|  |                      |     |      | Result                   | Spike Concentration                   | Spike Recovery (%) |     | Recovery Limits (%) |  |
|  |                      |     |      |                          |                                       | LCS                | Low | High                |  |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1494315)</b> |                      |     |      |                          |                                       |                    |     |                     |  |
| EP075(SIM): Naphthalene  | 91-20-3              | 1   | µg/L | <1.0                     | 5 µg/L                                | 65.8               | 50  | 94                  |  |
| EP075(SIM): Acenaphthylene   | 208-96-8             | 1   | µg/L | <1.0                     | 5 µg/L                                | 76.1               | 64  | 114                 |  |
| EP075(SIM): Acenaphthene   | 83-32-9              | 1   | µg/L | <1.0                     | 5 µg/L                                | 68.2               | 62  | 113                 |  |
| EP075(SIM): Fluorene   | 86-73-7              | 1   | µg/L | <1.0                     | 5 µg/L                                | 75.0               | 64  | 115                 |  |
| EP075(SIM): Phenanthrene   | 85-01-8              | 1   | µg/L | <1.0                     | 5 µg/L                                | 75.1               | 63  | 116                 |  |
| EP075(SIM): Anthracene   | 120-12-7             | 1   | µg/L | <1.0                     | 5 µg/L                                | 94.0               | 64  | 116                 |  |
| EP075(SIM): Fluoranthene   | 206-44-0             | 1   | µg/L | <1.0                     | 5 µg/L                                | 92.1               | 64  | 118                 |  |
| EP075(SIM): Pyrene   | 129-00-0             | 1   | µg/L | <1.0                     | 5 µg/L                                | 92.0               | 63  | 118                 |  |
| EP075(SIM): Benz(a)anthracene  | 56-55-3              | 1   | µg/L | <1.0                     | 5 µg/L                                | 73.3               | 64  | 117                 |  |
| EP075(SIM): Chrysene   | 218-01-9             | 1   | µg/L | <1.0                     | 5 µg/L                                | 94.9               | 63  | 116                 |  |
| EP075(SIM): Benzo(b+j)fluoranthene                                     | 205-99-2<br>205-82-3 | 1   | µg/L | <1.0                     | 5 µg/L                                | 76.4               | 62  | 119                 |  |
| EP075(SIM): Benzo(k)fluoranthene                                       | 207-08-9             | 1   | µg/L | <1.0                     | 5 µg/L                                | 77.4               | 63  | 115                 |  |
| EP075(SIM): Benzo(a)pyrene   | 50-32-8              | 0.5 | µg/L | <0.5                     | 5 µg/L                                | 80.7               | 63  | 117                 |  |
| EP075(SIM): Indeno(1.2.3.cd)pyrene                                     | 193-39-5             | 1   | µg/L | <1.0                     | 5 µg/L                                | 88.5               | 60  | 118                 |  |
| EP075(SIM): Dibenz(a.h)anthracene                                      | 53-70-3              | 1   | µg/L | <1.0                     | 5 µg/L                                | 93.0               | 61  | 117                 |  |
| EP075(SIM): Benzo(g,h,i)perylene                                       | 191-24-2             | 1   | µg/L | <1.0                     | 5 µg/L                                | 92.1               | 59  | 118                 |  |

## 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.

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

## QA/QC Compliance Assessment to assist with Quality Review

|              |                                |                         |                                 |
|--------------|--------------------------------|-------------------------|---------------------------------|
| Work Order   | : ES1807425                    | Page                    | : 1 of 4                        |
| Client       | : ROBERT CARR & ASSOCIATES P/L | Laboratory              | : Environmental Division Sydney |
| Contact      | : MS FIONA BROOKER             | Telephone               | : +61-2-8784 8555               |
| Project      | : 13156                        | Date Samples Received   | : 12-Mar-2018                   |
| Site         | : ----                         | Issue Date              | : 16-Mar-2018                   |
| Sampler      | : KATY SHAW                    | No. of samples received | : 2                             |
| Order number | : ----                         | No. of samples analysed | : 2                             |

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

### Summary of Outliers

#### Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- **NO** Matrix Spike outliers occur.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

#### Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

#### Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



### Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

| Method<br>Container / Client Sample ID(s)                              | Extraction / Preparation |                    |              | Analysis      |                  |              |
|--|--------------------------|--------------------|--------------|---------------|------------------|--------------|
|  | Date extracted           | Due for extraction | Days overdue | Date analysed | Due for analysis | Days overdue |
| <b>EN60: Bottle Leaching Procedure</b>                                 |                          |                    |              |               |                  |              |
| <b>Non-Volatile Leach: 14 day HT(e.g. SV organics)</b><br>BH17B, BH17C | 13-Mar-2018              | 26-Feb-2018        | 15           | ----          | ----             | ----         |

### Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

| Quality Control Sample Type<br>Method | Count |         | Rate (%) |          | Quality Control Specification  |
|---------------------------------------|-------|---------|----------|----------|--------------------------------|
|                                       | QC    | Regular | Actual   | Expected |                                |
| <b>Laboratory Duplicates (DUP)</b>    |       |         |          |          |                                |
| PAH/Phenols (GC/MS - SIM)             | 0     | 12      | 0.00     | 10.00    | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>             |       |         |          |          |                                |
| PAH/Phenols (GC/MS - SIM)             | 0     | 12      | 0.00     | 5.00     | NEPM 2013 B3 & ALS QC Standard |

### Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)   | Sample Date | Extraction / Preparation |                    |            | Analysis      |                  |            |
|---|-------------|--------------------------|--------------------|------------|---------------|------------------|------------|
|   |             | Date extracted           | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| <b>EN60: Bottle Leaching Procedure</b>  |             |                          |                    |            |               |                  |            |
| <b>Non-Volatile Leach: 14 day HT(e.g. SV organics) (EN60-D1a)</b><br>BH17B, BH17C | 12-Feb-2018 | 13-Mar-2018              | 26-Feb-2018        | *          | ----          | ----             | ----       |

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

| Method<br>Container / Client Sample ID(s)                            | Sample Date | Extraction / Preparation |                    |            | Analysis      |                  |            |
|--|-------------|--------------------------|--------------------|------------|---------------|------------------|------------|
|  |             | Date extracted           | Due for extraction | Evaluation | Date analysed | Due for analysis | Evaluation |
| <b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>                |             |                          |                    |            |               |                  |            |
| <b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b><br>BH17B, BH17C | 13-Mar-2018 | 14-Mar-2018              | 20-Mar-2018        | ✓          | 14-Mar-2018   | 23-Apr-2018      | ✓          |



## 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: **WATER** Evaluation: ✘ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

| Quality Control Sample Type             | Method     | Count |         | Rate (%) |          |            | Quality Control Specification  |
|---|------------|-------|---------|----------|----------|------------|--------------------------------|
|   |            | QC    | Regular | Actual   | Expected | Evaluation |                                |
| <b>Analytical Methods</b>               |            |       |         |          |          |            |                                |
| <b>Laboratory Duplicates (DUP)</b>      |            |       |         |          |          |            |                                |
| PAH/Phenols (GC/MS - SIM)               | EP075(SIM) | 0     | 12      | 0.00     | 10.00    | ✘          | NEPM 2013 B3 & ALS QC Standard |
| <b>Laboratory Control Samples (LCS)</b> |            |       |         |          |          |            |                                |
| PAH/Phenols (GC/MS - SIM)               | EP075(SIM) | 1     | 12      | 8.33     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Method Blanks (MB)</b>               |            |       |         |          |          |            |                                |
| PAH/Phenols (GC/MS - SIM)               | EP075(SIM) | 1     | 12      | 8.33     | 5.00     | ✔          | NEPM 2013 B3 & ALS QC Standard |
| <b>Matrix Spikes (MS)</b>               |            |       |         |          |          |            |                                |
| PAH/Phenols (GC/MS - SIM)               | EP075(SIM) | 0     | 12      | 0.00     | 5.00     | ✘          | NEPM 2013 B3 & ALS QC Standard |



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

| <i>Analytical Methods</i>               | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
|---|---------------|---------------|--|
| PAH/Phenols (GC/MS - SIM)               | EP075(SIM)    | SOIL          | In house: Referenced to USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)   |
| <i>Preparation Methods</i>              | <i>Method</i> | <i>Matrix</i> | <i>Method Descriptions</i>   |
| Deionised Water Leach                   | EN60-D1a      | SOIL          | In house QWI-EN/60 referenced to AS4439.3 Preparation of Leachates   |
| Separatory Funnel Extraction of Liquids | ORG14         | SOIL          | In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 60mL DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM (2013) Schedule B(3) . ALS default excludes sediment which may be resident in the container. |

Received: 12/3/18  
11:40 am  
Saman

**Saman Taeidi**

**From:** Chloe Leong on behalf of ALSEnviro Sydney  
**Sent:** Monday, 12 March 2018 11:27 AM  
**To:** Saman Taeidi  
**Subject:** FW: Samples under 13156

Hi Saman,

⑤      ⑥  
①      ②

May you please arrange a re-batch for samples BH17B and BH17C in workorder ES1805085 for ASLP DI Water Leach for PAH on standard turnaround?

Thanks!

Kind regards,  
Chloe Leong

**From:** Katy Shaw [mailto:katys@rca.com.au]  
**Sent:** Monday, 12 March 2018 10:43 AM  
**To:** ALSEnviro Sydney <ALSEnviro.Sydney@ALSGlobal.com>  
**Subject:** RE: Samples under 13156

31033  
ES1805085

Hi Chloe,

Yes, please use DI water for extraction.

Many thanks,



**Katy Shaw**  
Environmental Scientist, Robert Carr & Associates  
t: 02 4902 9207 | f: 02 4902 9299 | m: 0408 467 698  
e: katys@rca.com.au | w: www.rca.com.au  
a: PO Box 175 / 92 Hill Street, Carrington NSW 2294

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**From:** Chloe Leong [mailto:Chloe.Leong@ALSGlobal.com] **On Behalf Of** ALSEnviro Sydney  
**Sent:** Monday, 12 March 2018 9:57 AM  
**To:** Katy Shaw; ALSEnviro Sydney  
**Subject:** RE: Samples under 13156

Hi Katy, thanks for sending your request through.

Can you please confirm if the extraction fluid you require for ASLP is DI Water?

Kind regards,

Environmental Division  
Sydney  
Work Order Reference  
**ES1807425**



Telephone: +61-2-8794 8555

**Chloe Leong**

Client Services Officer, Environmental  
Sydney



**T** +61 2 8784 8555 **D** +61 2 8784 8501

**F** +61 2 8784 8500

[chloe.leong@alsglobal.com](mailto:chloe.leong@alsglobal.com)

277-289 Woodpark Road  
Smithfield, NSW, 2164

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**From:** Katy Shaw [<mailto:katys@rca.com.au>]

**Sent:** Monday, 12 March 2018 9:10 AM

**To:** ALSEnviro Sydney <[ALSEnviro.Sydney@ALSGlobal.com](mailto:ALSEnviro.Sydney@ALSGlobal.com)>

**Subject:** FW: Samples under 13156

Morning,

I received an out of office from Tamie, please find an analysis request below for two samples under WO ES1805085.

Thanks,



**Katy Shaw**

**Environmental Scientist, Robert Carr & Associates**

t: 02 4902 9207 | f: 02 4902 9299 | m: 0408 467 698

e: [katys@rca.com.au](mailto:katys@rca.com.au) | w: [www.rca.com.au](http://www.rca.com.au)

a: PO Box 175 / 92 Hill Street, Carrington NSW 2294

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---

**From:** Katy Shaw

**Sent:** Monday, 12 March 2018 9:07 AM

**To:** 'Tamara Duker'

**Subject:** RE: Samples under 13156

Morning Tamie,

We've heard back and would like to get samples BH17B and BH17C further analysed for PAH ASLP leach please. These were under WO ES1805085 and would just be on standard turnaround.

Many thanks,  
Katy

---

**From:** Tamara Duker [<mailto:tamara.duker@ALSGlobal.com>]  
**Sent:** Wednesday, 7 March 2018 11:24 AM  
**To:** Katy Shaw  
**Subject:** RE: Samples under 13156

Hi Katy are standard hold time is approx. 2 months for soils so as they were released only a couple of weeks ago you still have a good number of weeks before any disposal will occur.

**Tamie Duker**  
Client Services Officer, Environmental  
Newcastle



**T** +61 2 4014 2500  
**D** +61 2 4014 2509  
**F** +61 2 4967 7382  
[tamara.duker@alsglobal.com](mailto:tamara.duker@alsglobal.com)  
5/585 Maitland Rd  
Mayfield West NSW 2320

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**From:** Katy Shaw [<mailto:katys@rca.com.au>]  
**Sent:** Wednesday, 7 March 2018 11:18 AM  
**To:** Tamara Duker <[tamara.duker@ALSGlobal.com](mailto:tamara.duker@ALSGlobal.com)>  
**Subject:** RE: Samples under 13156

Hi Tamie,

We are in discussions with our client and will be in touch. Please could the samples not be disposed of though until we hear back?

Has there been any news on the herbicide analysis?

Thanks,

## Katy Shaw

Environmental Scientist



PO Box 175/92 Hill Street, Carrington NSW 2294

Web: [www.rca.com.au](http://www.rca.com.au)

Phone: 02 4902 9207

Mobile: 0408 467 698

E-mail: [katys@rca.com.au](mailto:katys@rca.com.au)

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**From:** Tamara Duker [<mailto:tamara.duker@ALSGlobal.com>]

**Sent:** Monday, 5 March 2018 5:25 PM

**To:** Katy Shaw

**Subject:** RE: Samples under 13156

Hi Katy, so we do not do coal tar testing in house but are able to subcontract it if you would like to another lab and is essentially a presence/absence test. The charge would be \$143.00. Let me know if you would like any further information on this 😊

### Tamie Duker

Client Services Officer, Environmental

Newcastle



T +61 2 4014 2500

D +61 2 4014 2509

F +61 2 4967 7382

[tamara.duker@alsglobal.com](mailto:tamara.duker@alsglobal.com)

5/585 Maitland Rd

Mayfield West NSW 2320

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**From:** Katy Shaw [<mailto:katys@rca.com.au>]

**Sent:** Monday, 5 March 2018 1:28 PM

**To:** Tamara Duker <[tamara.duker@ALSGlobal.com](mailto:tamara.duker@ALSGlobal.com)>

**Subject:** RE: Samples under 13156

Great thanks Tamie. Please would you be able to provide prices for:

TCLP and distilled water leachability of PAH  
TCLP and distilled water leachability of only benzo(a)pyrene  
Silica gel TRH on TRH C10-C40  
Also do you guys analyse for presence of coal tar?

Thanks,

**Katy Shaw**

Environmental Scientist



PO Box 175/92 Hill Street, Carrington NSW 2294  
Web: [www.rca.com.au](http://www.rca.com.au)  
Phone: 02 4902 9207  
Mobile: 0408 467 698  
E-mail: [katys@rca.com.au](mailto:katys@rca.com.au)

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**From:** Tamara Duker [<mailto:tamara.duker@ALSGlobal.com>]  
**Sent:** Monday, 5 March 2018 12:20 PM  
**To:** Katy Shaw  
**Subject:** RE: Samples under 13156

Hi Katy, we still have both batches 😊 Please note any sample with just an asbestos bag submitted will not be able to have further analysis added (unless metals) as this sample has been pre-dried. Let me know when you have locked in what analysis and samples you are after.

**Tamie Duker**  
Client Services Officer, Environmental  
Newcastle



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**From:** Katy Shaw [mailto:[katys@rca.com.au](mailto:katys@rca.com.au)]  
**Sent:** Monday, 5 March 2018 12:06 PM  
**To:** Tamara Duker <[tamara.duker@ALSGlobal.com](mailto:tamara.duker@ALSGlobal.com)>  
**Subject:** Samples under 13156

Hi Tamie,

Just wanted to double check that none of the samples under 13156 (ES1804838 & ES1805085) have been disposed of? We may be after some additional analysis on a few samples.

Thanks,

**Katy Shaw**  
Environmental Scientist



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## Certificate of Analysis

Robert Carr and Associates Pty Ltd  
 PO Box 175  
 Carrington  
 NSW 2294



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Accredited for compliance with ISO/IEC 17025 – Testing  
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Attention: Katy Shaw

Report 585313-S

Project name

Project ID 13156

Received Date Feb 16, 2018

| Client Sample ID                    |      |       | QA2          |
|-------------------------------------|------|-------|--------------|
| Sample Matrix                       |      |       | Soil         |
| Eurofins   mgt Sample No.           |      |       | M18-Fe19952  |
| Date Sampled                        |      |       | Feb 12, 2018 |
| Test/Reference                      | LOR  | Unit  |              |
| <b>Organochlorine Pesticides</b>    |      |       |              |
| Chlordanes - Total                  | 0.1  | mg/kg | < 0.1        |
| 4.4'-DDD                            | 0.05 | mg/kg | < 0.05       |
| 4.4'-DDE                            | 0.05 | mg/kg | < 0.05       |
| 4.4'-DDT                            | 0.05 | mg/kg | < 0.05       |
| a-BHC                               | 0.05 | mg/kg | < 0.05       |
| Aldrin                              | 0.05 | mg/kg | < 0.05       |
| b-BHC                               | 0.05 | mg/kg | < 0.05       |
| d-BHC                               | 0.05 | mg/kg | < 0.05       |
| Dieldrin                            | 0.05 | mg/kg | < 0.05       |
| Endosulfan I                        | 0.05 | mg/kg | < 0.05       |
| Endosulfan II                       | 0.05 | mg/kg | < 0.05       |
| Endosulfan sulphate                 | 0.05 | mg/kg | < 0.05       |
| Endrin                              | 0.05 | mg/kg | < 0.05       |
| Endrin aldehyde                     | 0.05 | mg/kg | < 0.05       |
| Endrin ketone                       | 0.05 | mg/kg | < 0.05       |
| g-BHC (Lindane)                     | 0.05 | mg/kg | < 0.05       |
| Heptachlor                          | 0.05 | mg/kg | < 0.05       |
| Heptachlor epoxide                  | 0.05 | mg/kg | < 0.05       |
| Hexachlorobenzene                   | 0.05 | mg/kg | < 0.05       |
| Methoxychlor                        | 0.05 | mg/kg | < 0.05       |
| Toxaphene                           | 1    | mg/kg | < 1          |
| Aldrin and Dieldrin (Total)*        | 0.05 | mg/kg | < 0.05       |
| DDT + DDE + DDD (Total)*            | 0.05 | mg/kg | < 0.05       |
| Vic EPA IWRG 621 OCP (Total)*       | 0.1  | mg/kg | < 0.1        |
| Vic EPA IWRG 621 Other OCP (Total)* | 0.1  | mg/kg | < 0.1        |
| Dibutylchloroendate (surr.)         | 1    | %     | 112          |
| Tetrachloro-m-xylene (surr.)        | 1    | %     | 105          |
| <b>Organophosphorus Pesticides</b>  |      |       |              |
| Azinphos-methyl                     | 0.2  | mg/kg | < 0.2        |
| Bolstar                             | 0.2  | mg/kg | < 0.2        |
| Chlorfenvinphos                     | 0.2  | mg/kg | < 0.2        |
| Chlorpyrifos                        | 0.2  | mg/kg | < 0.2        |
| Chlorpyrifos-methyl                 | 0.2  | mg/kg | < 0.2        |
| Coumaphos                           | 2    | mg/kg | < 2          |
| Demeton-S                           | 0.2  | mg/kg | < 0.2        |

|  |     |       |                     |
|--|-----|-------|---------------------|
| <b>Client Sample ID</b>                    |     |       | <b>QA2</b>          |
| <b>Sample Matrix</b>                       |     |       | <b>Soil</b>         |
| <b>Eurofins   mgt Sample No.</b>           |     |       | <b>M18-Fe19952</b>  |
| <b>Date Sampled</b>                        |     |       | <b>Feb 12, 2018</b> |
| Test/Reference                             | LOR | Unit  |                     |
| <b>Organophosphorus Pesticides</b>         |     |       |                     |
| Demeton-O                                  | 0.2 | mg/kg | < 0.2               |
| Diazinon                                   | 0.2 | mg/kg | < 0.2               |
| Dichlorvos                                 | 0.2 | mg/kg | < 0.2               |
| Dimethoate                                 | 0.2 | mg/kg | < 0.2               |
| Disulfoton                                 | 0.2 | mg/kg | < 0.2               |
| EPN  | 0.2 | mg/kg | < 0.2               |
| Ethion                                     | 0.2 | mg/kg | < 0.2               |
| Ethoprop                                   | 0.2 | mg/kg | < 0.2               |
| Ethyl parathion                            | 0.2 | mg/kg | < 0.2               |
| Fenitrothion                               | 0.2 | mg/kg | < 0.2               |
| Fensulfothion                              | 0.2 | mg/kg | < 0.2               |
| Fenthion                                   | 0.2 | mg/kg | < 0.2               |
| Malathion                                  | 0.2 | mg/kg | < 0.2               |
| Merphos                                    | 0.2 | mg/kg | < 0.2               |
| Methyl parathion                           | 0.2 | mg/kg | < 0.2               |
| Mevinphos                                  | 0.2 | mg/kg | < 0.2               |
| Monocrotophos                              | 2   | mg/kg | < 2                 |
| Naled                                      | 0.2 | mg/kg | < 0.2               |
| Omethoate                                  | 2   | mg/kg | < 2                 |
| Phorate                                    | 0.2 | mg/kg | < 0.2               |
| Pirimiphos-methyl                          | 0.2 | mg/kg | < 0.2               |
| Pyrazophos                                 | 0.2 | mg/kg | < 0.2               |
| Ronnel                                     | 0.2 | mg/kg | < 0.2               |
| Terbufos                                   | 0.2 | mg/kg | < 0.2               |
| Tetrachlorvinphos                          | 0.2 | mg/kg | < 0.2               |
| Tokuthion                                  | 0.2 | mg/kg | < 0.2               |
| Trichloronate                              | 0.2 | mg/kg | < 0.2               |
| Triphenylphosphate (surr.)                 | 1   | %     | 116                 |
| <b>Acid Herbicides</b>                     |     |       |                     |
| 2.4-D                                      | 0.5 | mg/kg | < 0.5               |
| 2.4-DB                                     | 0.5 | mg/kg | < 0.5               |
| 2.4.5-T                                    | 0.5 | mg/kg | < 0.5               |
| 2.4.5-TP                                   | 0.5 | mg/kg | < 0.5               |
| Actril (loxynil)                           | 0.5 | mg/kg | < 0.5               |
| Dicamba                                    | 0.5 | mg/kg | < 0.5               |
| Dichlorprop                                | 0.5 | mg/kg | < 0.5               |
| Dinitro-o-cresol                           | 0.5 | mg/kg | < 0.5               |
| Dinoseb                                    | 0.5 | mg/kg | < 0.5               |
| MCPA                                       | 0.5 | mg/kg | < 0.5               |
| MCPB                                       | 0.5 | mg/kg | < 0.5               |
| Mecoprop                                   | 0.5 | mg/kg | < 1                 |
| Warfarin (surr.)                           | 1   | %     | 74                  |
| Conductivity (1:5 aqueous extract at 25°C) | 10  | uS/cm | 45                  |
| % Moisture                                 | 1   | %     | 15                  |

|                                  |     |       |                     |
|----------------------------------|-----|-------|---------------------|
| <b>Client Sample ID</b>          |     |       | <b>QA2</b>          |
| <b>Sample Matrix</b>             |     |       | <b>Soil</b>         |
| <b>Eurofins   mgt Sample No.</b> |     |       | <b>M18-Fe19952</b>  |
| <b>Date Sampled</b>              |     |       | <b>Feb 12, 2018</b> |
| Test/Reference                   | LOR | Unit  |                     |
| <b>Heavy Metals</b>              |     |       |                     |
| Arsenic                          | 2   | mg/kg | < 2                 |
| Cadmium                          | 0.4 | mg/kg | < 0.4               |
| Chromium                         | 5   | mg/kg | 14                  |
| Copper                           | 5   | mg/kg | < 5                 |
| Lead                             | 5   | mg/kg | 10                  |
| Mercury                          | 0.1 | mg/kg | < 0.1               |
| Nickel                           | 5   | mg/kg | < 5                 |
| Zinc                             | 5   | mg/kg | 10                  |

### Sample History

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

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

| Description  | Testing Site | Extracted    | Holding Time |
|--|--------------|--------------|--------------|
| Eurofins   mgt Suite B14   |              |              |              |
| Organochlorine Pesticides<br>- Method: LTM-ORG-2220 OCP & PCB in Soil and Water            | Melbourne    | Feb 19, 2018 | 14 Day       |
| Organophosphorus Pesticides<br>- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS | Melbourne    | Feb 19, 2018 | 14 Day       |
| Acid Herbicides<br>- Method: LTM-ORG-2180 Phenoxy Acid Herbicides                          | Melbourne    | Feb 19, 2018 | 14 Day       |
| Conductivity (1:5 aqueous extract at 25°C)<br>- Method: LTM-INO-4030                       | Melbourne    | Feb 19, 2018 | 7 Day        |
| Metals M8<br>- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS          | Melbourne    | Feb 19, 2018 | 28 Days      |
| % Moisture<br>- Method: LTM-GEN-7080 Moisture  | Melbourne    | Feb 17, 2018 | 14 Day       |

|   |                            |                                       |
|---|----------------------------|---------------------------------------|
| <b>Company Name:</b> Robert Carr and Associates Pty Ltd | <b>Order No.:</b>          | <b>Received:</b> Feb 16, 2018 8:46 AM |
| <b>Address:</b> PO Box 175<br>Carrington<br>NSW 2294    | <b>Report #:</b> 585313    | <b>Due:</b> Feb 23, 2018              |
|   | <b>Phone:</b> 02 4902 9200 | <b>Priority:</b> 5 Day                |
|   | <b>Fax:</b> 02 4902 9299   | <b>Contact Name:</b> Katy Shaw        |
| <b>Project Name:</b>                                    |                            |                                       |
| <b>Project ID:</b> 13156                                |                            |                                       |

**Eurofins | mgt Analytical Services Manager : Andrew Black**

| Sample Detail  |           |              |               |        |             | Conductivity (1:5 aqueous extract at 25°C) | Acid Herbicides | Metals M8 | Eurofins   mgt Suite B14 | Moisture Set |
|--|-----------|--------------|---------------|--------|-------------|--|-----------------|-----------|--------------------------|--------------|
| <b>Melbourne Laboratory - NATA Site # 1254 &amp; 14271</b> |           |              |               |        |             | X  | X               | X         | X                        | X            |
| <b>Sydney Laboratory - NATA Site # 18217</b>               |           |              |               |        |             |  |                 |           |                          |              |
| <b>Brisbane Laboratory - NATA Site # 20794</b>             |           |              |               |        |             |  |                 |           |                          |              |
| <b>Perth Laboratory - NATA Site # 23736</b>                |           |              |               |        |             |  |                 |           |                          |              |
| <b>External Laboratory</b>                                 |           |              |               |        |             |  |                 |           |                          |              |
| No   | Sample ID | Sample Date  | Sampling Time | Matrix | LAB ID      |  |                 |           |                          |              |
| 1  | QA2       | Feb 12, 2018 |               | Soil   | M18-Fe19952 | X  | X               | X         | X                        | X            |
| <b>Test Counts</b>   |           |              |               |        |             | 1  | 1               | 1         | 1                        | 1            |

## Internal Quality Control Review and Glossary

### General

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

### Holding Times

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

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

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

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

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

### Units

**mg/kg:** milligrams per kilogram

**mg/L:** milligrams per litre

**ug/L:** micrograms per litre

**ppm:** Parts per million

**ppb:** Parts per billion

**%:** Percentage

**org/100mL:** Organisms per 100 millilitres

**NTU:** Nephelometric Turbidity Units

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

### Terms

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

### QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

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

### QC Data General Comments

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

**Quality Control Results**

| Test                               | Units | Result 1 |  |  | Acceptance Limits | Pass Limits | Qualifying Code |
|------------------------------------|-------|----------|--|--|-------------------|-------------|-----------------|
| <b>Method Blank</b>                |       |          |  |  |                   |             |                 |
| <b>Organochlorine Pesticides</b>   |       |          |  |  |                   |             |                 |
| Chlordanes - Total                 | mg/kg | < 0.1    |  |  | 0.1               | Pass        |                 |
| 4.4'-DDD                           | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| 4.4'-DDE                           | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| 4.4'-DDT                           | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| a-BHC                              | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| Aldrin                             | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| b-BHC                              | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| d-BHC                              | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| Dieldrin                           | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| Endosulfan I                       | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| Endosulfan II                      | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| Endosulfan sulphate                | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| Endrin                             | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| Endrin aldehyde                    | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| Endrin ketone                      | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| g-BHC (Lindane)                    | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| Heptachlor                         | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| Heptachlor epoxide                 | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| Hexachlorobenzene                  | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| Methoxychlor                       | mg/kg | < 0.05   |  |  | 0.05              | Pass        |                 |
| Toxaphene                          | mg/kg | < 1      |  |  | 1                 | Pass        |                 |
| <b>Method Blank</b>                |       |          |  |  |                   |             |                 |
| <b>Organophosphorus Pesticides</b> |       |          |  |  |                   |             |                 |
| Azinphos-methyl                    | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Bolstar                            | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Chlorfenvinphos                    | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Chlorpyrifos                       | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Chlorpyrifos-methyl                | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Coumaphos                          | mg/kg | < 2      |  |  | 2                 | Pass        |                 |
| Demeton-S                          | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Demeton-O                          | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Diazinon                           | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Dichlorvos                         | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Dimethoate                         | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Disulfoton                         | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| EPN                                | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Ethion                             | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Ethoprop                           | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Ethyl parathion                    | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Fenitrothion                       | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Fensulfothion                      | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Fenthion                           | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Malathion                          | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Merphos                            | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Methyl parathion                   | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Mevinphos                          | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Monocrotophos                      | mg/kg | < 2      |  |  | 2                 | Pass        |                 |
| Naled                              | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Omethoate                          | mg/kg | < 2      |  |  | 2                 | Pass        |                 |
| Phorate                            | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |

| Test                               | Units | Result 1 |  |  | Acceptance Limits | Pass Limits | Qualifying Code |
|------------------------------------|-------|----------|--|--|-------------------|-------------|-----------------|
| Pirimiphos-methyl                  | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Pyrazophos                         | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Ronnel                             | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Terbufos                           | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Tetrachlorvinphos                  | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Tokuthion                          | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| Trichloronate                      | mg/kg | < 0.2    |  |  | 0.2               | Pass        |                 |
| <b>Method Blank</b>                |       |          |  |  |                   |             |                 |
| <b>Acid Herbicides</b>             |       |          |  |  |                   |             |                 |
| 2.4-D                              | mg/kg | < 0.5    |  |  | 0.5               | Pass        |                 |
| 2.4-DB                             | mg/kg | < 0.5    |  |  | 0.5               | Pass        |                 |
| 2.4.5-T                            | mg/kg | < 0.5    |  |  | 0.5               | Pass        |                 |
| 2.4.5-TP                           | mg/kg | < 0.5    |  |  | 0.5               | Pass        |                 |
| Actril (loxynil)                   | mg/kg | < 0.5    |  |  | 0.5               | Pass        |                 |
| Dicamba                            | mg/kg | < 0.5    |  |  | 0.5               | Pass        |                 |
| Dichlorprop                        | mg/kg | < 0.5    |  |  | 0.5               | Pass        |                 |
| Dinitro-o-cresol                   | mg/kg | < 0.5    |  |  | 0.5               | Pass        |                 |
| Dinoseb                            | mg/kg | < 0.5    |  |  | 0.5               | Pass        |                 |
| MCPA                               | mg/kg | < 0.5    |  |  | 0.5               | Pass        |                 |
| MCPB                               | mg/kg | < 0.5    |  |  | 0.5               | Pass        |                 |
| Mecoprop                           | mg/kg | < 0.5    |  |  | 0.5               | Pass        |                 |
| <b>Method Blank</b>                |       |          |  |  |                   |             |                 |
| <b>Heavy Metals</b>                |       |          |  |  |                   |             |                 |
| Arsenic                            | mg/kg | < 2      |  |  | 2                 | Pass        |                 |
| Cadmium                            | mg/kg | < 0.4    |  |  | 0.4               | Pass        |                 |
| Chromium                           | mg/kg | < 5      |  |  | 5                 | Pass        |                 |
| Copper                             | mg/kg | < 5      |  |  | 5                 | Pass        |                 |
| Lead                               | mg/kg | < 5      |  |  | 5                 | Pass        |                 |
| Mercury                            | mg/kg | < 0.1    |  |  | 0.1               | Pass        |                 |
| Nickel                             | mg/kg | < 5      |  |  | 5                 | Pass        |                 |
| Zinc                               | mg/kg | < 5      |  |  | 5                 | Pass        |                 |
| <b>LCS - % Recovery</b>            |       |          |  |  |                   |             |                 |
| <b>Organochlorine Pesticides</b>   |       |          |  |  |                   |             |                 |
| 4.4'-DDD                           | %     | 130      |  |  | 70-130            | Pass        |                 |
| 4.4'-DDE                           | %     | 124      |  |  | 70-130            | Pass        |                 |
| 4.4'-DDT                           | %     | 113      |  |  | 70-130            | Pass        |                 |
| a-BHC                              | %     | 97       |  |  | 70-130            | Pass        |                 |
| Aldrin                             | %     | 113      |  |  | 70-130            | Pass        |                 |
| b-BHC                              | %     | 98       |  |  | 70-130            | Pass        |                 |
| d-BHC                              | %     | 100      |  |  | 70-130            | Pass        |                 |
| Dieldrin                           | %     | 115      |  |  | 70-130            | Pass        |                 |
| Endosulfan I                       | %     | 112      |  |  | 70-130            | Pass        |                 |
| Endosulfan II                      | %     | 116      |  |  | 70-130            | Pass        |                 |
| Endosulfan sulphate                | %     | 115      |  |  | 70-130            | Pass        |                 |
| Endrin                             | %     | 119      |  |  | 70-130            | Pass        |                 |
| Endrin aldehyde                    | %     | 117      |  |  | 70-130            | Pass        |                 |
| Endrin ketone                      | %     | 111      |  |  | 70-130            | Pass        |                 |
| g-BHC (Lindane)                    | %     | 99       |  |  | 70-130            | Pass        |                 |
| Heptachlor                         | %     | 119      |  |  | 70-130            | Pass        |                 |
| Heptachlor epoxide                 | %     | 113      |  |  | 70-130            | Pass        |                 |
| Hexachlorobenzene                  | %     | 95       |  |  | 70-130            | Pass        |                 |
| Methoxychlor                       | %     | 99       |  |  | 70-130            | Pass        |                 |
| <b>LCS - % Recovery</b>            |       |          |  |  |                   |             |                 |
| <b>Organophosphorus Pesticides</b> |       |          |  |  |                   |             |                 |

| Test                               |               | Units     | Result 1 |          |  | Acceptance Limits | Pass Limits | Qualifying Code |
|------------------------------------|---------------|-----------|----------|----------|--|-------------------|-------------|-----------------|
| Diazinon                           |               | %         | 97       |          |  | 70-130            | Pass        |                 |
| Dimethoate                         |               | %         | 79       |          |  | 70-130            | Pass        |                 |
| Ethion                             |               | %         | 107      |          |  | 70-130            | Pass        |                 |
| Fenitrothion                       |               | %         | 113      |          |  | 70-130            | Pass        |                 |
| Methyl parathion                   |               | %         | 87       |          |  | 70-130            | Pass        |                 |
| Mevinphos                          |               | %         | 95       |          |  | 70-130            | Pass        |                 |
| <b>LCS - % Recovery</b>            |               |           |          |          |  |                   |             |                 |
| <b>Acid Herbicides</b>             |               |           |          |          |  |                   |             |                 |
| 2.4-D                              |               | %         | 100      |          |  | 70-130            | Pass        |                 |
| 2.4-DB                             |               | %         | 111      |          |  | 70-130            | Pass        |                 |
| 2.4.5-T                            |               | %         | 102      |          |  | 70-130            | Pass        |                 |
| 2.4.5-TP                           |               | %         | 82       |          |  | 70-130            | Pass        |                 |
| Actril (loxynil)                   |               | %         | 94       |          |  | 70-130            | Pass        |                 |
| Dicamba                            |               | %         | 95       |          |  | 70-130            | Pass        |                 |
| Dichlorprop                        |               | %         | 98       |          |  | 70-130            | Pass        |                 |
| Dinitro-o-cresol                   |               | %         | 94       |          |  | 70-130            | Pass        |                 |
| Dinoseb                            |               | %         | 94       |          |  | 70-130            | Pass        |                 |
| MCPA                               |               | %         | 102      |          |  | 70-130            | Pass        |                 |
| MCPB                               |               | %         | 110      |          |  | 70-130            | Pass        |                 |
| Mecoprop                           |               | %         | 92       |          |  | 70-130            | Pass        |                 |
| <b>LCS - % Recovery</b>            |               |           |          |          |  |                   |             |                 |
| <b>Heavy Metals</b>                |               |           |          |          |  |                   |             |                 |
| Arsenic                            |               | %         | 98       |          |  | 80-120            | Pass        |                 |
| Cadmium                            |               | %         | 112      |          |  | 80-120            | Pass        |                 |
| Chromium                           |               | %         | 116      |          |  | 80-120            | Pass        |                 |
| Copper                             |               | %         | 113      |          |  | 80-120            | Pass        |                 |
| Lead                               |               | %         | 120      |          |  | 80-120            | Pass        |                 |
| Mercury                            |               | %         | 110      |          |  | 75-125            | Pass        |                 |
| Nickel                             |               | %         | 111      |          |  | 80-120            | Pass        |                 |
| Zinc                               |               | %         | 110      |          |  | 80-120            | Pass        |                 |
| Test                               | Lab Sample ID | QA Source | Units    | Result 1 |  | Acceptance Limits | Pass Limits | Qualifying Code |
| <b>Spike - % Recovery</b>          |               |           |          |          |  |                   |             |                 |
| <b>Organochlorine Pesticides</b>   |               |           |          | Result 1 |  |                   |             |                 |
| 4.4'-DDD                           | M18-Fe23980   | NCP       | %        | 119      |  | 70-130            | Pass        |                 |
| 4.4'-DDE                           | M18-Fe23980   | NCP       | %        | 116      |  | 70-130            | Pass        |                 |
| 4.4'-DDT                           | M18-Fe23980   | NCP       | %        | 122      |  | 70-130            | Pass        |                 |
| a-BHC                              | M18-Fe23980   | NCP       | %        | 107      |  | 70-130            | Pass        |                 |
| Aldrin                             | M18-Fe23980   | NCP       | %        | 130      |  | 70-130            | Pass        |                 |
| b-BHC                              | M18-Fe23980   | NCP       | %        | 114      |  | 70-130            | Pass        |                 |
| d-BHC                              | M18-Fe23980   | NCP       | %        | 116      |  | 70-130            | Pass        |                 |
| Dieldrin                           | M18-Fe23980   | NCP       | %        | 115      |  | 70-130            | Pass        |                 |
| Endosulfan I                       | M18-Fe23980   | NCP       | %        | 117      |  | 70-130            | Pass        |                 |
| Endosulfan II                      | M18-Fe23980   | NCP       | %        | 126      |  | 70-130            | Pass        |                 |
| Endosulfan sulphate                | M18-Fe23980   | NCP       | %        | 114      |  | 70-130            | Pass        |                 |
| Endrin                             | M18-Fe23980   | NCP       | %        | 118      |  | 70-130            | Pass        |                 |
| Endrin aldehyde                    | M18-Fe23980   | NCP       | %        | 109      |  | 70-130            | Pass        |                 |
| Endrin ketone                      | M18-Fe23980   | NCP       | %        | 125      |  | 70-130            | Pass        |                 |
| g-BHC (Lindane)                    | M18-Fe23980   | NCP       | %        | 110      |  | 70-130            | Pass        |                 |
| Heptachlor                         | M18-Fe17565   | NCP       | %        | 115      |  | 70-130            | Pass        |                 |
| Heptachlor epoxide                 | M18-Fe17565   | NCP       | %        | 119      |  | 70-130            | Pass        |                 |
| Hexachlorobenzene                  | M18-Fe23980   | NCP       | %        | 106      |  | 70-130            | Pass        |                 |
| Methoxychlor                       | M18-Fe23980   | NCP       | %        | 108      |  | 70-130            | Pass        |                 |
| <b>Spike - % Recovery</b>          |               |           |          |          |  |                   |             |                 |
| <b>Organophosphorus Pesticides</b> |               |           |          | Result 1 |  |                   |             |                 |

| Test                               | Lab Sample ID | QA Source | Units | Result 1 |          |     | Acceptance Limits | Pass Limits | Qualifying Code |
|------------------------------------|---------------|-----------|-------|----------|----------|-----|-------------------|-------------|-----------------|
| Diazinon                           | M18-Fe18628   | NCP       | %     | 118      |          |     | 70-130            | Pass        |                 |
| Dimethoate                         | M18-Fe18628   | NCP       | %     | 86       |          |     | 70-130            | Pass        |                 |
| Ethion                             | M18-Fe18628   | NCP       | %     | 128      |          |     | 70-130            | Pass        |                 |
| Fenitrothion                       | M18-Fe18628   | NCP       | %     | 109      |          |     | 70-130            | Pass        |                 |
| Methyl parathion                   | M18-Fe18628   | NCP       | %     | 83       |          |     | 70-130            | Pass        |                 |
| Mevinphos                          | M18-Fe18628   | NCP       | %     | 102      |          |     | 70-130            | Pass        |                 |
| <b>Spike - % Recovery</b>          |               |           |       |          |          |     |                   |             |                 |
| <b>Acid Herbicides</b>             |               |           |       | Result 1 |          |     |                   |             |                 |
| 2,4-D                              | M18-Fe18628   | NCP       | %     | 77       |          |     | 70-130            | Pass        |                 |
| Actril (loxynil)                   | M18-Fe18628   | NCP       | %     | 114      |          |     | 70-130            | Pass        |                 |
| Dichlorprop                        | M18-Fe18628   | NCP       | %     | 92       |          |     | 70-130            | Pass        |                 |
| MCPA                               | M18-Fe18628   | NCP       | %     | 83       |          |     | 70-130            | Pass        |                 |
| MCPB                               | M18-Fe18628   | NCP       | %     | 55       |          |     | 70-130            | Fail        | Q08             |
| <b>Spike - % Recovery</b>          |               |           |       |          |          |     |                   |             |                 |
| <b>Heavy Metals</b>                |               |           |       | Result 1 |          |     |                   |             |                 |
| Arsenic                            | M18-Fe18977   | NCP       | %     | 97       |          |     | 75-125            | Pass        |                 |
| Cadmium                            | M18-Fe18977   | NCP       | %     | 112      |          |     | 75-125            | Pass        |                 |
| Chromium                           | M18-Fe18977   | NCP       | %     | 117      |          |     | 75-125            | Pass        |                 |
| Copper                             | M18-Fe18977   | NCP       | %     | 117      |          |     | 75-125            | Pass        |                 |
| Lead                               | M18-Fe18977   | NCP       | %     | 110      |          |     | 75-125            | Pass        |                 |
| Mercury                            | M18-Fe18977   | NCP       | %     | 108      |          |     | 70-130            | Pass        |                 |
| Nickel                             | M18-Fe18977   | NCP       | %     | 131      |          |     | 75-125            | Fail        | Q08             |
| Zinc                               | M18-Fe18977   | NCP       | %     | 125      |          |     | 75-125            | Pass        |                 |
| Test                               | Lab Sample ID | QA Source | Units | Result 1 |          |     | Acceptance Limits | Pass Limits | Qualifying Code |
| <b>Duplicate</b>                   |               |           |       |          |          |     |                   |             |                 |
| <b>Organochlorine Pesticides</b>   |               |           |       | Result 1 | Result 2 | RPD |                   |             |                 |
| Chlordanes - Total                 | M18-Fe19859   | NCP       | mg/kg | < 0.1    | < 0.1    | <1  | 30%               | Pass        |                 |
| 4,4'-DDD                           | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| 4,4'-DDE                           | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| 4,4'-DDT                           | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| a-BHC                              | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| Aldrin                             | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| b-BHC                              | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| d-BHC                              | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| Dieldrin                           | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| Endosulfan I                       | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| Endosulfan II                      | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| Endosulfan sulphate                | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| Endrin                             | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| Endrin aldehyde                    | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| Endrin ketone                      | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| g-BHC (Lindane)                    | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| Heptachlor                         | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| Heptachlor epoxide                 | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| Hexachlorobenzene                  | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| Methoxychlor                       | M18-Fe19859   | NCP       | mg/kg | < 0.05   | < 0.05   | <1  | 30%               | Pass        |                 |
| Toxaphene                          | M18-Fe19859   | NCP       | mg/kg | < 1      | < 1      | <1  | 30%               | Pass        |                 |
| <b>Duplicate</b>                   |               |           |       |          |          |     |                   |             |                 |
| <b>Organophosphorus Pesticides</b> |               |           |       | Result 1 | Result 2 | RPD |                   |             |                 |
| Azinphos-methyl                    | M18-Fe18625   | NCP       | mg/kg | < 0.2    | < 0.2    | <1  | 30%               | Pass        |                 |
| Bolstar                            | M18-Fe18625   | NCP       | mg/kg | < 0.2    | < 0.2    | <1  | 30%               | Pass        |                 |
| Chlorfenvinphos                    | M18-Fe18625   | NCP       | mg/kg | < 0.2    | < 0.2    | <1  | 30%               | Pass        |                 |
| Chlorpyrifos                       | M18-Fe18625   | NCP       | mg/kg | < 0.2    | < 0.2    | <1  | 30%               | Pass        |                 |
| Chlorpyrifos-methyl                | M18-Fe18625   | NCP       | mg/kg | < 0.2    | < 0.2    | <1  | 30%               | Pass        |                 |

| <b>Duplicate</b>                           |             |     |       |          |          |     |     |      |
|--|-------------|-----|-------|----------|----------|-----|-----|------|
| <b>Organophosphorus Pesticides</b>         |             |     |       | Result 1 | Result 2 | RPD |     |      |
| Coumaphos                                  | M18-Fe18625 | NCP | mg/kg | < 2      | < 2      | <1  | 30% | Pass |
| Demeton-S                                  | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Demeton-O                                  | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Diazinon                                   | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Dichlorvos                                 | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Dimethoate                                 | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Disulfoton                                 | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| EPN  | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Ethion                                     | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Ethoprop                                   | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Ethyl parathion                            | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Fenitrothion                               | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Fensulfothion                              | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Fenthion                                   | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Malathion                                  | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Merphos                                    | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Methyl parathion                           | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Mevinphos                                  | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Monocrotophos                              | M18-Fe18625 | NCP | mg/kg | < 2      | < 2      | <1  | 30% | Pass |
| Naled                                      | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Omethoate                                  | M18-Fe18625 | NCP | mg/kg | < 2      | < 2      | <1  | 30% | Pass |
| Phorate                                    | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Pirimiphos-methyl                          | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Pyrazophos                                 | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Ronnel                                     | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Terbufos                                   | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Tetrachlorvinphos                          | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Tokuthion                                  | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| Trichloronate                              | M18-Fe18625 | NCP | mg/kg | < 0.2    | < 0.2    | <1  | 30% | Pass |
| <b>Duplicate</b>                           |             |     |       |          |          |     |     |      |
| <b>Acid Herbicides</b>                     |             |     |       | Result 1 | Result 2 | RPD |     |      |
| 2.4-D                                      | M18-Fe18625 | NCP | mg/kg | < 0.5    | < 0.5    | <1  | 30% | Pass |
| 2.4-DB                                     | M18-Fe18625 | NCP | mg/kg | < 0.5    | < 0.5    | <1  | 30% | Pass |
| 2.4.5-T                                    | M18-Fe18625 | NCP | mg/kg | < 0.5    | < 0.5    | <1  | 30% | Pass |
| 2.4.5-TP                                   | M18-Fe18625 | NCP | mg/kg | < 0.5    | < 0.5    | <1  | 30% | Pass |
| Actril (loxynil)                           | M18-Fe18625 | NCP | mg/kg | < 0.5    | < 0.5    | <1  | 30% | Pass |
| Dicamba                                    | M18-Fe18625 | NCP | mg/kg | < 0.5    | < 0.5    | <1  | 30% | Pass |
| Dichlorprop                                | M18-Fe18625 | NCP | mg/kg | < 0.5    | < 0.5    | <1  | 30% | Pass |
| Dinitro-o-cresol                           | M18-Fe18625 | NCP | mg/kg | < 0.5    | < 0.5    | <1  | 30% | Pass |
| Dinoseb                                    | M18-Fe18625 | NCP | mg/kg | < 0.5    | < 0.5    | <1  | 30% | Pass |
| MCPA                                       | M18-Fe18625 | NCP | mg/kg | < 0.5    | < 0.5    | <1  | 30% | Pass |
| MCPB                                       | M18-Fe18625 | NCP | mg/kg | < 0.5    | < 0.5    | <1  | 30% | Pass |
| Mecoprop                                   | M18-Fe18625 | NCP | mg/kg | < 0.5    | < 0.5    | <1  | 30% | Pass |
| <b>Duplicate</b>                           |             |     |       |          |          |     |     |      |
|  |             |     |       | Result 1 | Result 2 | RPD |     |      |
| Conductivity (1:5 aqueous extract at 25°C) | M18-Fe19968 | NCP | uS/cm | 200      | 270      | 28  | 30% | Pass |
| % Moisture                                 | M18-Fe19953 | NCP | %     | 7.9      | 7.4      | 7.0 | 30% | Pass |
| <b>Duplicate</b>                           |             |     |       |          |          |     |     |      |
| <b>Heavy Metals</b>                        |             |     |       | Result 1 | Result 2 | RPD |     |      |
| Arsenic                                    | M18-Fe19965 | NCP | mg/kg | 9.0      | 8.8      | 2.0 | 30% | Pass |
| Cadmium                                    | M18-Fe19965 | NCP | mg/kg | < 0.4    | < 0.4    | <1  | 30% | Pass |
| Chromium                                   | M18-Fe19965 | NCP | mg/kg | 51       | 53       | 2.0 | 30% | Pass |
| Copper                                     | M18-Fe19965 | NCP | mg/kg | 26       | 26       | 2.0 | 30% | Pass |

| Duplicate    |             |     |       |          |          |     |     |      |
|--------------|-------------|-----|-------|----------|----------|-----|-----|------|
| Heavy Metals |             |     |       | Result 1 | Result 2 | RPD |     |      |
| Lead         | M18-Fe19965 | NCP | mg/kg | 16       | 16       | <1  | 30% | Pass |
| Mercury      | M18-Fe19965 | NCP | mg/kg | < 0.1    | < 0.1    | <1  | 30% | Pass |
| Nickel       | M18-Fe19965 | NCP | mg/kg | 120      | 120      | 3.0 | 30% | Pass |
| Zinc         | M18-Fe19965 | NCP | mg/kg | 73       | 74       | 2.0 | 30% | Pass |

**Comments**

**Sample Integrity**

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

**Comments**

**Qualifier Codes/Comments**

| Code | Description  |
|------|--|
| Q08  | The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference |

**Authorised By**

|                  |                                |
|------------------|--------------------------------|
| Andrew Black     | Analytical Services Manager    |
| Alex Petridis    | Senior Analyst-Metal (VIC)     |
| Joseph Edouard   | Senior Analyst-Organic (VIC)   |
| Michael Brancati | Senior Analyst-Inorganic (VIC) |



**Glenn Jackson**

**National Operations Manager**

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please [click here](#).

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## Sample Receipt Advice

Company name: **Robert Carr and Associates Pty Ltd**

Contact name: **Katy Shaw**  
Project ID: **13156**  
COC number: **Not provided**  
Turn around time: **5 Day**  
Date/Time received: **Feb 16, 2018 8:46 AM**  
Eurofins | mgt reference: **585313**

### Sample information

- A detailed list of analytes logged into our LIMS, is included in the attached summary table.
  - Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 14.3 degrees Celsius.
  - All samples have been received as described on the above COC.
  - COC has been completed correctly.
  - Attempt to chill was evident.
  - Appropriately preserved sample containers have been used.
  - All samples were received in good condition.
  - Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
  - Appropriate sample containers have been used.
  - Split sample sent to requested external lab.
  - Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

### Contact notes

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

Andrew Black on Phone : (+61) 2 9900 8490 or by e.mail: AndrewBlack@eurofins.com

Results will be delivered electronically via e.mail to Katy Shaw - katys@rca.com.au.

*Note: A copy of these results will also be delivered to the general Robert Carr and Associates Pty Ltd email address.*

|   |  |   |
|---|--|---|
| <b>Company Name:</b> Robert Carr and Associates Pty Ltd<br><b>Address:</b> PO Box 175<br>Carrington<br>NSW 2294<br><br><b>Project Name:</b><br><b>Project ID:</b> 13156 | <b>Order No.:</b><br><b>Report #:</b> 585313<br><b>Phone:</b> 02 4902 9200<br><b>Fax:</b> 02 4902 9299 | <b>Received:</b> Feb 16, 2018 8:46 AM<br><b>Due:</b> Feb 23, 2018<br><b>Priority:</b> 5 Day<br><b>Contact Name:</b> Katy Shaw |
| <b>Eurofins   mgt Analytical Services Manager : Andrew Black</b>  |  |   |

| Sample Detail                                   |           |              |               |        |             | Conductivity (1:5 aqueous extract at 25°C) | Acid Herbicides | Metals M8 | Eurofins   mgt Suite B14 | Moisture Set |
|---|-----------|--------------|---------------|--------|-------------|--|-----------------|-----------|--------------------------|--------------|
| Melbourne Laboratory - NATA Site # 1254 & 14271 |           |              |               |        |             | X  | X               | X         | X                        | X            |
| Sydney Laboratory - NATA Site # 18217           |           |              |               |        |             |  |                 |           |                          |              |
| Brisbane Laboratory - NATA Site # 20794         |           |              |               |        |             |  |                 |           |                          |              |
| Perth Laboratory - NATA Site # 23736            |           |              |               |        |             |  |                 |           |                          |              |
| External Laboratory                             |           |              |               |        |             |  |                 |           |                          |              |
| No  | Sample ID | Sample Date  | Sampling Time | Matrix | LAB ID      |  |                 |           |                          |              |
| 1   | QA2       | Feb 12, 2018 |               | Soil   | M18-Fe19952 | X  | X               | X         | X                        | X            |
| <b>Test Counts</b>                              |           |              |               |        |             | 1  | 1               | 1         | 1                        | 1            |

**CHAIN OF CUSTODY RECORD**

CLIENT DETAILS Page 1 of 1

|   |   |                              |                          |
|---|---|------------------------------|--------------------------|
| Company Name: RCA Australia               | Contact Name: <i>Katy Shaw</i>  | Purchase Order:              | COC Number:              |
| Office Address: 92 Hill St Carrington NSW | Project Manager:  | PROJECT Number: <i>13156</i> | Eurofins   mgt quote ID: |
|   | Email for results: <i>Katy S@RCA.com.au, administrator@RCA.com.au</i> | PROJECT Name:                | Data output format:      |

|                                |   |  |  |  |  |
|--------------------------------|---|--|--|--|--|
| Special Directions & Comments: | Analytes  | Some common holding times (with correct preservation).<br>For further information contact the lab  |  |  |  |
|                                | <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-family: monospace; font-size: 0.8em;">           Metals MS<br/>           B14 - Occ. POCF<br/>           Herbicides (phenoxyc acid)         </div> | Waters   | Soils  |  |  |
|                                |   | BTEX, MAH, VOC<br>TRH, PAH, Phenols, Pesticides<br>Heavy Metals<br>Mercury, CrVI<br>Microbiological testing<br>BOD, Nitrate, Nitrite, Total N<br>Solids - TSS, TDS etc<br>Ferrous iron | 14 days<br>7 days<br>6 months<br>28 days<br>24 hours<br>2 days<br>7 days<br>7 days | BTEX, MAH, VOC<br>TRH, PAH, Phenols, Pesticides<br>Heavy Metals<br>Mercury, CrVI<br>Microbiological testing<br>Anions<br>SPOCAS, pH Field and FOX, CrS<br>ASLP, TCLP | 14 days<br>14 days<br>6 months<br>28 days<br>72 hours<br>28 days<br>24 hours<br>7 days |

|                                       |      |        |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |
|---------------------------------------|------|--------|--|-------------|------|------|-----|-----------|---------|-----|--|--|--|--|--|------------------|
| Eurofins   mgt DI water batch number: |      |        |  | Containers: |      |      |     |           |         |     |  |  |  |  |  | Sample comments: |
| Sample ID                             | Date | Matrix |  | 1LP         | 250P | 125P | 1LA | 40mL vial | 125mL A | Jar |  |  |  |  |  |                  |
| 1                                     |      | Soil   |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |
| 2                                     |      |        |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |
| 3                                     |      |        |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |
| 4                                     |      |        |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |
| 5                                     |      |        |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |
| 6                                     |      |        |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |
| 7                                     |      |        |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |
| 8                                     |      |        |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |
| 9                                     |      |        |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |
| 10                                    |      |        |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |
| 11                                    |      |        |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |
| 12                                    |      |        |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |
| 13                                    |      |        |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |
| 14                                    |      |        |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |
| 15                                    |      |        |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |
| 16                                    |      |        |  |             |      |      |     |           |         |     |  |  |  |  |  |                  |

|                                   |                                  |                                    |   |                                 |                                |   |                                 |
|-----------------------------------|----------------------------------|------------------------------------|---|---------------------------------|--------------------------------|---|---------------------------------|
| Relinquished By: <i>Katy Shaw</i> | Received By: <i>Andrew Black</i> | Received By: <i>STB</i>            | Turn around time                          |                                 |                                | Method Of Shipment                          | Temperature on arrival:         |
| Date & Time: <i>14/2/18 16:00</i> | Date & Time: <i>14/2/18 4pm</i>  | Date & Time: <i>16/2/18 8:46am</i> | 1 DAY <input type="checkbox"/>            | 2 DAY <input type="checkbox"/>  | 3 DAY <input type="checkbox"/> | <input checked="" type="checkbox"/> Courier | Report number:<br><i>585313</i> |
| Signature: <i>[Signature]</i>     | Signature: <i>[Signature]</i>    | Signature: <i>[Signature]</i>      | 5 DAY <input checked="" type="checkbox"/> | 10 DAY <input type="checkbox"/> | Other:                         | <input type="checkbox"/> Hand Delivered     |                                 |
|                                   |                                  |                                    |   |                                 |                                | <input type="checkbox"/> Postal             |                                 |
|                                   |                                  |                                    |   |                                 |                                | Courier Consignment #:                      |                                 |

# Appendix I

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## Summary of Results

| Sample Identification        | Sample Depth (m) <sup>B</sup> | Date       | Sample Profile  | Dominant Stratum <sup>C</sup> | Sample Purpose      | Sample Collected by | Benzene      | Toluene    | Ethylbenzene | meta- and para-Xylene | ortho-Xylene | Total Xylenes | Polycyclic Aromatic Hydrocarbons (PAH) | Naphthalene | Total Recoverable Hydrocarbons (TRH) | TRH C <sub>6</sub> -C <sub>10</sub> | TRH >C <sub>10</sub> -C <sub>16</sub> | TRH >C <sub>16</sub> -C <sub>34</sub> | TRH >C <sub>34</sub> -C <sub>40</sub> | F1   | F2 |  |     |      |      |       |     |     |  |
|------------------------------|-------------------------------|------------|---|-------------------------------|---------------------|---------------------|--------------|------------|--------------|-----------------------|--------------|---------------|--|-------------|--------------------------------------|-------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|------|----|--|-----|------|------|-------|-----|-----|--|
| <b>Guideline<sup>A</sup></b> |                               |            |   |                               |                     |                     | HSL 'A' HSL  | SAND 0-<1m |              |                       |              | 0.5           | 160                                    | 55          |                                      |                                     |                                       | 40                                    | 3                                     |      |    |  |     |      |      | 45    | 110 |     |  |
|                              |                               |            |   |                               |                     |                     | HSL 'B'      | SAND 1-<2m |              |                       |              | 0.5           | 220                                    | NL          |                                      |                                     |                                       | 60                                    | NL                                    |      |    |  |     |      |      |       | 70  | 240 |  |
|                              |                               |            |   |                               |                     |                     | ESL          | SILT 0-<1m |              |                       |              | 0.6           | 390                                    | NL          |                                      |                                     |                                       | 95                                    | 4                                     |      |    |  |     |      |      |       | 40  | 230 |  |
|                              |                               |            |   |                               |                     |                     | URPOS        | SILT 1-<2m |              |                       |              | 0.7           | NL                                     | NL          |                                      |                                     |                                       | 210                                   | NL                                    |      |    |  |     |      |      |       | 65  | NL  |  |
|                              |                               |            |   |                               |                     |                     | Sensitive ML | Coarse     |              |                       |              | 50            | 85                                     | 70          |                                      |                                     |                                       | 105                                   | 170                                   |      |    |  | 120 | 300  | 2800 | 180   |     |     |  |
|                              |                               |            |   |                               |                     |                     |              | Fine       |              |                       |              | 65            | 85                                     | 125         |                                      |                                     |                                       | 45                                    | 170                                   |      |    |  | 120 | 1300 | 5600 | 180   |     |     |  |
|                              |                               |            |   |                               |                     |                     |              | Coarse     |              |                       |              |               |  |             |                                      |                                     |                                       |                                       |                                       |      |    |  |     |      |      |       |     |     |  |
|                              |                               |            |   |                               |                     |                     |              | Fine       |              |                       |              |               |  |             |                                      |                                     |                                       |                                       |                                       |      |    |  |     |      |      |       |     |     |  |
|                              |                               |            |   |                               |                     |                     |              | DC A       |              |                       |              |               |  |             |                                      |                                     |                                       |                                       |                                       |      |    |  |     |      |      |       |     |     |  |
|                              |                               |            |   |                               |                     |                     |              |            |              |                       |              |               |  | 100         | 14000                                | 4500                                |                                       |                                       | 12000                                 | 1400 |    |  | 700 | 1000 | 2500 | 10000 |     |     |  |
| Laboratory PQL               |                               |            |   |                               |                     |                     | 0.2          | 0.5        | 0.5          | 0.5                   | 0.5          | 1             |  | 1           |                                      | 10                                  | 50                                    | 100                                   | 100                                   | 10   | 50 |  |     |      |      |       |     |     |  |
| BH1A                         | 0.05                          | 9/02/2018  | SAND, fine to coarse grained, grey and white, sub angular to sub rounded, trace of silt                         | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH1C                         | 0.5                           | 9/02/2018  | SAND, fine to medium grained, white/pale brown, sub rounded   | SAND                          | Investigation       | RCA- KS/ZL          | --           | --         | --           | --                    | --           | --            | --                                     |             | --                                   | --                                  | --                                    | --                                    | --                                    | --   |    |  |     |      |      |       |     |     |  |
| BH2A                         | 0.05                          | 9/02/2018  | SAND, dark brown with white sand grains, with silt  | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH2C                         | 0.8                           | 9/02/2018  | Silty Sandy CLAY, dark brown  | SAND                          | Investigation       | RCA- KS/ZL          | --           | --         | --           | --                    | --           | --            | --                                     |             | --                                   | --                                  | --                                    | --                                    | --                                    | --   |    |  |     |      |      |       |     |     |  |
| BH3A                         | 0.05                          | 9/02/2018  | SAND, fine to coarse grained, brown with white, sub angular to sub rounded, with silt, trace gravels            | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH4A                         | 0.05                          | 9/02/2018  | TOPSOIL, Silty LOAM, dark brown, organic  | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH4B                         | 0.3                           | 9/02/2018  | Sandy SILT/Silty SAND, fine to medium grained, brown, sub angular to sub rounded                                | SAND                          | Investigation       | RCA- KS/ZL          | --           | --         | --           | --                    | --           | --            | --                                     |             | --                                   | --                                  | --                                    | --                                    | --                                    | --   |    |  |     |      |      |       |     |     |  |
| BH5A                         | 0.05                          | 9/02/2018  | Silty SAND, fine to coarse grained, brown/white, sub angular to sub rounded                                     | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH5B                         | 0.4                           | 9/02/2018  | Becoming SAND, fine to medium grained, pale brown/grey, trace silt  | SAND                          | Investigation       | RCA- KS/ZL          | --           | --         | --           | --                    | --           | --            | --                                     |             | --                                   | --                                  | --                                    | --                                    | --                                    | --   |    |  |     |      |      |       |     |     |  |
| BH6A                         | 0.05                          | 9/02/2018  | Sandy SILT, brown, trace of clay  | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH6B                         | 0.3                           | 9/02/2018  | Clayey SILT, grey   | SILT                          | Investigation       | RCA- KS/ZL          | --           | --         | --           | --                    | --           | --            | --                                     |             | --                                   | --                                  | --                                    | --                                    | --                                    | --   |    |  |     |      |      |       |     |     |  |
| BH7A                         | 0.05                          | 9/02/2018  | TOPSOIL, Sandy LOAM, dark brown, organic rich   | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH8A                         | 0.05                          | 9/02/2018  | FILL, Sandy Gravelly SILT, pale brown, fine to coarse grained sand, gravels consist of siltstone and chert      | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <20                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH8B                         | 0.4                           | 9/02/2018  | Sandy SILT, pale brown, fine to coarse grained sand   | SAND                          | Investigation       | RCA- KS/ZL          | --           | --         | --           | --                    | --           | --            | --                                     |             | --                                   | --                                  | --                                    | --                                    | --                                    | --   |    |  |     |      |      |       |     |     |  |
| BH9A                         | 0.05                          | 9/02/2018  | TOPSOIL, Silty LOAM, fine to medium grained, brown  | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH10A                        | 0.1                           | 9/02/2018  | TOPSOIL, Sandy LOAM, fine to medium grained, grey-brown   | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH10B                        | 0.4                           | 12/02/2018 | TOPSOIL, Sandy LOAM, fine to medium grained, grey-brown   | SAND                          | Investigation       | RCA- KS/ZL          | --           | --         | --           | --                    | --           | --            | --                                     |             | --                                   | --                                  | --                                    | --                                    | --                                    | --   |    |  |     |      |      |       |     |     |  |
| BH11A                        | 0.05                          | 12/02/2018 | TOPSOIL, Sandy LOAM, fine to medium grained, brown  | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH11B                        | 0.4                           | 12/02/2018 | Silty CLAY, brown-red, trace gravels  | SILT                          | Investigation       | RCA- KS/ZL          | --           | --         | --           | --                    | --           | --            | --                                     |             | --                                   | --                                  | --                                    | --                                    | --                                    | --   |    |  |     |      |      |       |     |     |  |
| BH12A                        | 0.05                          | 12/02/2018 | TOPSOIL, Sandy LOAM, fine to medium grained, brown-grey   | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH13A                        | 0.05                          | 12/02/2018 | TOPSOIL, Sandy LOAM, fine to medium grained, brown  | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH14A                        | 0.05                          | 12/02/2018 | TOPSOIL, Sandy LOAM, fine to medium grained, brown  | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH15A                        | 0.05                          | 12/02/2018 | Sandy SILT, fine to medium grained, brown, trace clay nodules   | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH15B                        | 0.4                           | 12/02/2018 | Sandy SILT, fine to medium grained, brown, trace clay nodules   | SAND                          | Investigation       | RCA- KS/ZL          | --           | --         | --           | --                    | --           | --            | --                                     |             | --                                   | --                                  | --                                    | --                                    | --                                    | --   |    |  |     |      |      |       |     |     |  |
| BH16A                        | 0.05                          | 12/02/2018 | Sandy SILT, fine to medium grained, brown   | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH17A                        | 0.05                          | 12/02/2018 | TOPSOIL/FILL, Sandy LOAM, fine to medium grained, brown, trace gravel   | SAND                          | Mound Investigation | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH17B                        | 0.2                           | 12/02/2018 | FILL, Silty SAND, fine to coarse grained, with gravels, includes brick, stone and concrete                      | SAND                          | Mound Investigation | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | 2                                      |             | <10                                  | <50                                 | <b>460</b>                            | 330                                   | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH17C                        | 1.2                           | 12/02/2018 | FILL, Silty Gravelly Sandy CLAY, fine to coarse grained sand, trace asphalt, brick, stone and concrete          | SAND                          | Mound Investigation | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | 260                                   | 320                                   | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH17D                        | 1.4                           | 12/02/2018 | Silty CLAY, brown   | SILT                          | Mound Investigation | RCA- KS/ZL          | --           | --         | --           | --                    | --           | --            | --                                     |             | --                                   | --                                  | --                                    | --                                    | --                                    | --   |    |  |     |      |      |       |     |     |  |
| BH18A                        | 0.05                          | 12/02/2018 | FILL, Silty CLAY, brown, with gravel, fine to coarse, includes stone, brick and asphalt, trace organic material | SAND                          | Mound Investigation | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH18B                        | 0.4                           | 12/02/2018 | FILL, Silty CLAY, brown, with gravel, fine to coarse, includes stone, brick and asphalt, trace organic material | SAND                          | Mound Investigation | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | --                                   | --                                  | --                                    | --                                    | --                                    | --   |    |  |     |      |      |       |     |     |  |
| BH18C                        | 0.8                           | 12/02/2018 | FILL, Silty CLAY, grey and red mottling   | SILT                          | Mound Investigation | RCA- KS/ZL          | --           | --         | --           | --                    | --           | --            | --                                     |             | --                                   | --                                  | --                                    | --                                    | --                                    | --   |    |  |     |      |      |       |     |     |  |
| BH19A                        | 0.05                          | 12/02/2018 | FILL, Sandy SILT, fine to medium grained, brown, trace gravel   | SAND                          | Mound Investigation | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH19B                        | 0.4                           | 12/02/2018 | Silty CLAY, red-brown, trace sand   | SILT                          | Mound Investigation | RCA- KS/ZL          | --           | --         | --           | --                    | --           | --            | --                                     |             | --                                   | --                                  | --                                    | --                                    | --                                    | --   |    |  |     |      |      |       |     |     |  |
| BH20A                        | 0.05                          | 12/02/2018 | Sandy SILT, brown, trace gravel (stone)   | SAND                          | Investigation       | RCA- KS/ZL          | <0.2         | <0.5       | <0.5         | <0.5                  | <0.5         | 0.5           | <1                                     |             | <10                                  | <50                                 | <100                                  | <100                                  | <10                                   | <50  |    |  |     |      |      |       |     |     |  |
| BH20B                        | 0.2                           | 12/02/2018 | Sandy SILT, brown, trace gravel (stone)   | SAND                          | Investigation       | RCA- KS/ZL          | --           | --         | --           | --                    | --           | --            | --                                     |             | --                                   | --                                  | --                                    | --                                    | --                                    | --   |    |  |     |      |      |       |     |     |  |

All results are in units of mg/kg. Blank Cell indicates no criterion available  
PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory  
F1 = TRH C<sub>6</sub>-C<sub>10</sub> minus BTEX. F1 PQL deemed equal TRH C<sub>6</sub>-C<sub>10</sub>.  
F2 = TRH >C<sub>10</sub>-C<sub>16</sub> minus naphthalene. F2 PQL deemed = TRH >C<sub>10</sub>-C<sub>16</sub>.  
<sup>A</sup> ASC NEPM 1999 (amended April 2013) Vapour Based Health Screening Levels (HSL) 'A' (Residential)  
<sup>A</sup> ASC NEPM 1999 (amended April 2013) Ecological Screening Levels (ESL) URPOS (Urban Residential and Public Open Space)  
<sup>A</sup> ASC NEPM 1999 (amended April 2013) Management Limits (ML) Sensitive Sites (Residential, open space)  
<sup>A</sup> CRC Care Technical Report 10, September 2011 Direct Contact (DC) Health Screening Levels 'A' (Residential)  
<sup>B</sup> Note that this is a generalisation for the purpose of comparing to the HSL criteria. Where two strata equally represented, most conservative criterion used  
<sup>C</sup> Start of sample, generally over a 0.1m interval. However refer to Appendix G for full details  
Results for TRH have been compared to TPH guidelines.  
Presented ESL for naphthalene is an Ecological Investigation Level  
For the purpose of the Tier 1 ESL/EIL assessment, all background concentrations are assumed to be zero  
ESL for TRH >C<sub>16</sub>-C<sub>34</sub> and >C<sub>34</sub>-C<sub>40</sub> are low reliability  
NL designates 'Not Limiting' indicating that the pore water concentration required to constitute a vapour risk is higher than the solubility  
Where summation required (Xylene, F1, F2) calculation includes components reported as non detected as 1/2 PQL.

Results shown in **BOLD** are in excess of the vapour based HSL  
Results shown in shading are >250% of the vapour based HSL  
Results shown in underline are in excess of the ESL  
Results shown in *italics* are in excess of the management limit  
Results shown in patterned cells are in excess of the direct contact HSL

Soil Results Summary  
HIL/EIL Comparison

| Sample Identification                              | PQL         | Guideline <sup>A</sup> |           | BH1A  | BH1C  | BH2A   | BH2C                         | BH3A   | BH4A                                     | BH4B   | BH5A  | BH5B   |
|--|-------------|------------------------|-----------|---|---|--|------------------------------|--|--|--|---|--|
|  |             | HIL 'A'                | EIL URPOS | 0.05  | 0.5   | 0.05   | 0.8                          | 0.05   | 0.05                                     | 0.3  | 0.05  | 0.4  |
| Sample Depth (m) <sup>B</sup>                      |             |                        |           | 9/2/18  | 9/2/18  | 9/2/18   | 9/2/18                       | 9/2/18   | 9/2/18                                   | 9/2/18   | 9/2/18  | 9/2/18   |
| Date   |             |                        |           |   |   |  |                              |  |  |  |   |  |
| Sample Profile                                     |             |                        |           | SAND, fine to coarse grained, grey and white, sub angular to sub rounded, trace of silt | SAND, fine to medium grained, white/pale brown, sub rounded | SAND, dark brown with white sand grains, with silt | Silty Sandy CLAY, dark brown | SAND, fine to coarse grained, brown with white, sub angular to sub rounded, with silt, trace gravels | TOPSOIL, Silty LOAM, dark brown, organic | Sandy SILT/Silty SAND, fine to medium grained, brown, sub angular to sub rounded | Silty SAND, fine to coarse grained, brown/white, sub angular to sub rounded | Becoming SAND, fine to medium grained, pale brown/grey, trace silt |
| Sample Purpose                                     |             |                        |           | Investigation   | Investigation   | Investigation                                      | Investigation                | Investigation  | Investigation                            | Investigation  | Investigation   | Investigation  |
| Sample collected by                                |             |                        |           | RCA- KS/ZL  | RCA- KS/ZL  | RCA- KS/ZL   | RCA- KS/ZL                   | RCA- KS/ZL   | RCA- KS/ZL                               | RCA- KS/ZL   | RCA- KS/ZL  | RCA- KS/ZL   |
| <b>Electrical Conductivity</b>                     |             |                        |           |   |   |  |                              |  |  |  |   |  |
| Electrical Conductivity                            | 0.001       |                        |           | 0.04  | 0.008   | 0.038  | 0.012                        | 0.023  | 0.08                                     | 0.009  | 0.041   | 0.01   |
| <b>Polycyclic Aromatic Hydrocarbons (PAH)</b>      |             |                        |           |   |   |  |                              |  |  |  |   |  |
| Naphthalene  | 0.5         | 170                    |           | <0.5  | --  | <0.5   | --                           | <0.5   | <0.5                                     | --   | <0.5  | --   |
| Acenaphthylene                                     | 0.5         |                        |           | <0.5  | --  | <0.5   | --                           | <0.5   | <0.5                                     | --   | <0.5  | --   |
| Acenaphthene                                       | 0.5         |                        |           | <0.5  | --  | <0.5   | --                           | <0.5   | <0.5                                     | --   | <0.5  | --   |
| Fluorene   | 0.5         |                        |           | <0.5  | --  | <0.5   | --                           | <0.5   | <0.5                                     | --   | <0.5  | --   |
| Phenanthrene                                       | 0.5         |                        |           | <0.5  | --  | <0.5   | --                           | <0.5   | <0.5                                     | --   | <0.5  | --   |
| Anthracene   | 0.5         |                        |           | <0.5  | --  | <0.5   | --                           | <0.5   | <0.5                                     | --   | <0.5  | --   |
| Fluoranthene                                       | 0.5         |                        |           | <0.5  | --  | <0.5   | --                           | <0.5   | <0.5                                     | --   | <0.5  | --   |
| Pyrene   | 0.5         |                        |           | <0.5  | --  | <0.5   | --                           | <0.5   | <0.5                                     | --   | <0.5  | --   |
| Benzo(a)anthracene                                 | 0.5         |                        |           | <0.5  | --  | <0.5   | --                           | <0.5   | <0.5                                     | --   | <0.5  | --   |
| Chrysene   | 0.5         |                        |           | <0.5  | --  | <0.5   | --                           | <0.5   | <0.5                                     | --   | <0.5  | --   |
| Benzo(b)&(j)&(k)fluoranthene                       | 0.5         |                        |           | <0.5  | --  | <0.5   | --                           | <0.5   | <0.5                                     | --   | <0.5  | --   |
| Benzo(a) pyrene                                    | 0.5         | 0.7                    |           | <0.5  | --  | <0.5   | --                           | <0.5   | <0.5                                     | --   | <0.5  | --   |
| Indeno(1,2,3-c,d)pyrene                            | 0.5         |                        |           | <0.5  | --  | <0.5   | --                           | <0.5   | <0.5                                     | --   | <0.5  | --   |
| Dibenz(a,h)anthracene                              | 0.5         |                        |           | <0.5  | --  | <0.5   | --                           | <0.5   | <0.5                                     | --   | <0.5  | --   |
| Benzo(g,h,i)perylene                               | 0.5         |                        |           | <0.5  | --  | <0.5   | --                           | <0.5   | <0.5                                     | --   | <0.5  | --   |
| Carcinogenic PAH (B(a)P equivalent)                | 1.2         | 3                      |           | 0.6   | --  | 0.6  | --                           | 0.6  | 0.6                                      | --   | 0.6   | --   |
| Sum of reported PAH                                | 7.5         | 300                    |           | 3.8   | --  | 3.8  | --                           | 3.8  | 3.8                                      | --   | 3.8   | --   |
| <b>Metals</b>                                      |             |                        |           |   |   |  |                              |  |  |  |   |  |
| Arsenic  | 5           | 100                    | 100       | <5  | <5  | <5   | <5                           | <5   | <5                                       | <5   | <5  | <5   |
| Cadmium  | 1           | 20                     |           | <1  | <1  | <1   | <1                           | <1   | <1                                       | <1   | <1  | <1   |
| Chromium   | 2           | 100                    | 190       | <2  | <2  | <2   | 6                            | <2   | 7  | <2   | <2  | <2   |
| Copper   | 5           | 6000                   | 280       | <5  | <5  | <5   | <5                           | <5   | 116                                      | <5   | <5  | <5   |
| Mercury  | 0.1         | 40                     |           | <0.1  | <0.1  | <0.1   | <0.1                         | <0.1   | <0.1                                     | <0.1   | <0.1  | <0.1   |
| Lead   | 5           | 300                    | 1100      | <5  | <5  | <5   | <5                           | <5   | 11                                       | <5   | <5  | <5   |
| Nickel   | 2           | 400                    | 30        | <2  | <2  | <2   | 3                            | <2   | <2                                       | <2   | <2  | <2   |
| Zinc   | 5           | 7400                   | 230       | 8   | <5  | 12   | <5                           | 13   | 35                                       | <5   | 37  | 10   |
| <b>Organochlorine Pesticides (OCP)</b>             |             |                        |           |   |   |  |                              |  |  |  |   |  |
| alpha-BHC  | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Hexachlorobenzene (HCB)                            | 0.05        | 10                     |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| beta-BHC   | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| gamma-BHC  | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| delta-BHC  | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Heptachlor   | 0.05        | 6                      |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Aldrin   | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Heptachlor epoxide                                 | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Total Chlordane (sum)                              | 0.1         | 50                     |           | <0.1  | <0.1  | <0.1   | <0.1                         | <0.1   | <0.1                                     | <0.1   | <0.1  | <0.1   |
| trans-Chlordane                                    | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| alpha-Endosulfan                                   | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| cis-Chlordane                                      | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Dieldrin   | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| 4,4'-DDE   | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Endrin   | 0.05        | 10                     |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| beta-Endosulfan                                    | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| 4,4'-DDD   | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Endrin aldehyde                                    | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Endosulfan sulfate                                 | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| 4,4'-DDT   | 0.2         | 180                    |           | <0.2  | <0.2  | <0.2   | <0.2                         | <0.2   | <0.2                                     | <0.2   | <0.2  | <0.2   |
| Endrin ketone                                      | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Methoxychlor                                       | 0.2         | 300                    |           | <0.2  | <0.2  | <0.2   | <0.2                         | <0.2   | <0.2                                     | <0.2   | <0.2  | <0.2   |
| DDT+DDD+DDE  | 0.3         | 240                    |           | 0.15  | 0.15  | 0.15   | 0.15                         | 0.15   | 0.15                                     | 0.15   | 0.15  | 0.15   |
| Aldrin + Dieldrin                                  | 0.1         | 6                      |           | 0.05  | 0.05  | 0.05   | 0.05                         | 0.05   | 0.05                                     | 0.05   | 0.05  | 0.05   |
| Endosulfan   | 0.1         | 270                    |           | 0.05  | 0.05  | 0.05   | 0.05                         | 0.05   | 0.05                                     | 0.05   | 0.05  | 0.05   |
| <b>Organophosphorous Pesticides (OPP)</b>          |             |                        |           |   |   |  |                              |  |  |  |   |  |
| Dichlorvos   | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Demeton-S-methyl                                   | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Monocrotophos                                      | 0.2         |                        |           | <0.2  | <0.2  | <0.2   | <0.2                         | <0.2   | <0.2                                     | <0.2   | <0.2  | <0.2   |
| Dimethoate   | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Diazinon   | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Chlorpyrifos-methyl                                | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Parathion-methyl                                   | 0.2         |                        |           | <0.2  | <0.2  | <0.2   | <0.2                         | <0.2   | <0.2                                     | <0.2   | <0.2  | <0.2   |
| Malathion  | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Fenthion   | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Chlorpyrifos                                       | 0.05        | 160                    |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Parathion  | 0.2         |                        |           | <0.2  | <0.2  | <0.2   | <0.2                         | <0.2   | <0.2                                     | <0.2   | <0.2  | <0.2   |
| Pirimphos-ethyl                                    | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Chlorfenvinphos                                    | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Bromophos-ethyl                                    | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Fenamiphos   | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Prothiofos   | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Ethion   | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Carbophenothion                                    | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| Azinphos Methyl                                    | 0.05        |                        |           | <0.05   | <0.05   | <0.05  | <0.05                        | <0.05  | <0.05                                    | <0.05  | <0.05   | <0.05  |
| <b>Herbicides</b>                                  |             |                        |           |   |   |  |                              |  |  |  |   |  |
| 2,4,5-T  | 0.04 / 0.02 | 600                    |           | <0.04   | <0.04   | <0.04  | <0.04                        | <0.04  | <0.04                                    | <0.04  | <0.04   | <0.04  |
| 2,4-D  | 0.04 / 0.02 | 900                    |           | <0.04   | <0.04   | <0.04  | <0.04                        | <0.04  | <0.04                                    | <0.04  | <0.04   | <0.04  |
| MCPA   | 0.04 / 0.02 | 600                    |           | <0.04   | <0.04   | <0.04  | <0.04                        | <0.04  | <0.04                                    | <0.04  | <0.04   | <0.04  |
| MCPB   | 0.04 / 0.02 | 600                    |           | <0.04   | <0.04   | <0.04  | <0.04                        | <0.04  | <0.04                                    | <0.04  | <0.04   | <0.04  |
| Mecoprop   | 0.04 / 0.02 | 600                    |           | <0.04   | <0.04   | <0.04  | <0.04                        | <0.04  | <0.04                                    | <0.04  | <0.04   | <0.04  |
| Picloram   | 0.04 / 0.02 | 4500                   |           | <0.04   | <0.04   | <0.04  | <0.04                        | <0.04  | <0.04                                    | <0.04  | <0.04   | <0.04  |
| <b>Per- and poly-fluoroalkyl substances (PFAS)</b> |             |                        |           |   |   |  |                              |  |  |  |   |  |
| PFOS   | 0.0002      |                        | 0.01      | --  | --  | <0.0002  | --                           | <0.0002  | 0.0004                                   | --   | --  | --   |
| PFOS + PFHxS                                       | 0.0002      | 0.009                  |           | --  | --  | <0.0002  | --                           | <0.0002  | 0.0004                                   | --   | --  | --   |
| PFOA   | 0.0002      | 0.1                    | 0.7       | --  | --  | <0.0002  | --                           | <0.0002  | 0.0005                                   | --   | --  | --   |

All results are in units of mg/kg except Electrical conductivity (ds/m)

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

<sup>A</sup> ASC NEPM 1999 (amended April 2013) Health Investigation Levels (HIL) 'A' (Residential), PFAS criteria OEH 20/4/17

<sup>A</sup> ASC NEPM 1999 (amended April 2013) Ecological Investigation Levels (EIL) URPOS (Urban Residential and Public Open Space). PFAS criteria OEH 20/4/17 are for Indirect Exposure and account for bioaccumulation and off-site transport

<sup>B</sup> Start of sample, generally over a 0.10m interval, however refer to Appendix G for full details

The Carcinogenic PAH value is calculated by multiplying the concentration of each of the 8 carcinogenic PAH compounds by its B(a)P toxic equivalence factor and summing these products.

Soil Results Summary  
HIL/EIL Comparison

| Sample Identification                              | PQL         | Guideline <sup>A</sup> |           | BH6A                             | BH6B              | BH7A  | BH8A   | BH8B  | BH9A   | BH10A   | BH10B   | BH11A  |
|--|-------------|------------------------|-----------|----------------------------------|-------------------|---|--|---|--|---|---|--|
|  |             | HIL 'A'                | EIL URPOS | 0.05                             | 0.3               | 0.05  | 0.05   | 0.4   | 0.05   | 0.1   | 0.4   | 0.05   |
| Sample Depth (m) <sup>B</sup>                      |             |                        |           | 9/2/18                           | 9/2/18            | 9/2/18  | 9/2/18   | 9/2/18  | 9/2/18   | 9/2/18  | 12/2/18   | 12/2/18  |
| Date   |             |                        |           |                                  |                   |   |  |   |  |   |   |  |
| Sample Profile                                     |             |                        |           | Sandy SILT, brown, trace of clay | Clayey SILT, grey | TOPSOIL, Sandy LOAM, dark brown, organic rich | FILL, Sandy Gravelly SILT, pale brown, fine to coarse grained sand, gravels consist of siltstone and chert | Sandy SILT, pale brown, fine to coarse grained sand | TOPSOIL, Silty LOAM, fine to medium grained, brown | TOPSOIL, Sandy LOAM, fine to medium grained, grey-brown | TOPSOIL, Sandy LOAM, fine to medium grained, grey-brown | TOPSOIL, Sandy LOAM, fine to medium grained, brown |
| Sample Purpose                                     |             |                        |           | Investigation                    | Investigation     | Investigation                                 | Investigation  | Investigation                                       | Investigation                                      | Investigation   | Investigation   | Investigation                                      |
| Sample collected by                                |             |                        |           | RCA- KS/ZL                       | RCA- KS/ZL        | RCA- KS/ZL                                    | RCA- KS/ZL   | RCA- KS/ZL  | RCA- KS/ZL   | RCA- KS/ZL  | RCA- KS/ZL  | RCA- KS/ZL   |
| <b>Electrical Conductivity</b>                     |             |                        |           |                                  |                   |   |  |   |  |   |   |  |
| Electrical Conductivity                            | 0.001       |                        |           | 0.058                            | 0.019             | 0.054   | 0.1  | 0.045   | 0.068  | 0.052   | 0.032   | 0.042  |
| <b>Polycyclic Aromatic Hydrocarbons (PAH)</b>      |             |                        |           |                                  |                   |   |  |   |  |   |   |  |
| Naphthalene  | 0.5         |                        | 170       | <0.5                             | --                | <0.5  | <0.5   | --  | <0.5   | <0.5  | --  | <0.5   |
| Acenaphthylene                                     | 0.5         |                        |           | <0.5                             | --                | <0.5  | <0.5   | --  | <0.5   | <0.5  | --  | <0.5   |
| Acenaphthene                                       | 0.5         |                        |           | <0.5                             | --                | <0.5  | <0.5   | --  | <0.5   | <0.5  | --  | <0.5   |
| Fluorene   | 0.5         |                        |           | <0.5                             | --                | <0.5  | <0.5   | --  | <0.5   | <0.5  | --  | <0.5   |
| Phenanthrene                                       | 0.5         |                        |           | <0.5                             | --                | <0.5  | <0.5   | --  | <0.5   | <0.5  | --  | <0.5   |
| Anthracene   | 0.5         |                        |           | <0.5                             | --                | <0.5  | <0.5   | --  | <0.5   | <0.5  | --  | <0.5   |
| Fluoranthene                                       | 0.5         |                        |           | <0.5                             | --                | <0.5  | <0.5   | --  | <0.5   | <0.5  | --  | <0.5   |
| Pyrene   | 0.5         |                        |           | <0.5                             | --                | <0.5  | <0.5   | --  | <0.5   | <0.5  | --  | <0.5   |
| Benzo(a)anthracene                                 | 0.5         |                        |           | <0.5                             | --                | <0.5  | <0.5   | --  | <0.5   | <0.5  | --  | <0.5   |
| Chrysene   | 0.5         |                        |           | <0.5                             | --                | <0.5  | <0.5   | --  | <0.5   | <0.5  | --  | <0.5   |
| Benzo(b)&(j)&(k)fluoranthene                       | 0.5         |                        |           | <0.5                             | --                | <0.5  | <0.5   | --  | <0.5   | <0.5  | --  | <0.5   |
| Benzo(a) pyrene                                    | 0.5         |                        | 0.7       | <0.5                             | --                | <0.5  | <0.5   | --  | <0.5   | <0.5  | --  | <0.5   |
| Indeno(1,2,3-c,d)pyrene                            | 0.5         |                        |           | <0.5                             | --                | <0.5  | <0.5   | --  | <0.5   | <0.5  | --  | <0.5   |
| Dibenz(a,h)anthracene                              | 0.5         |                        |           | <0.5                             | --                | <0.5  | <0.5   | --  | <0.5   | <0.5  | --  | <0.5   |
| Benzo(g,h,i)perylene                               | 0.5         |                        |           | <0.5                             | --                | <0.5  | <0.5   | --  | <0.5   | <0.5  | --  | <0.5   |
| Carcinogenic PAH (B(a)P equivalent)                | 1.2         | 3                      |           | 0.6                              | --                | 0.6   | 0.6  | --  | 0.6  | 0.6   | --  | 0.6  |
| Sum of reported PAH                                | 7.5         | 300                    |           | 3.8                              | --                | 3.8   | 3.8  | --  | 3.8  | 3.8   | --  | 3.8  |
| <b>Metals</b>                                      |             |                        |           |                                  |                   |   |  |   |  |   |   |  |
| Arsenic  | 5           | 100                    | 100       | <5                               | <5                | <5  | 5  | <5  | <5   | <5  | <5  | <5   |
| Cadmium  | 1           | 20                     |           | <1                               | <1                | <1  | <1   | <1  | <1   | <1  | <1  | <1   |
| Chromium   | 2           | 100                    | 190       | 9                                | 6                 | 24  | 11   | 32  | 21   | 13  | 28  | 20   |
| Copper   | 5           | 6000                   | 280       | <5                               | <5                | <5  | <5   | <5  | 6  | <5  | <5  | <5   |
| Mercury  | 0.1         | 40                     |           | <0.1                             | <0.1              | <0.1  | <0.1   | <0.1  | <0.1   | <0.1  | <0.1  | <0.1   |
| Lead   | 5           | 300                    | 1100      | 8                                | <5                | 6   | 11   | 8   | 8  | 10  | 10  | 9  |
| Nickel   | 2           | 400                    | 30        | <2                               | <2                | 3   | 4  | 4   | 5  | 3   | 5   | 4  |
| Zinc   | 5           | 7400                   | 230       | 9                                | <5                | 9   | 36   | 5   | 22   | 16  | <5  | 14   |
| <b>Organochlorine Pesticides (OCP)</b>             |             |                        |           |                                  |                   |   |  |   |  |   |   |  |
| alpha-BHC  | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Hexachlorobenzene (HCB)                            | 0.05        | 10                     |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| beta-BHC   | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| gamma-BHC  | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| delta-BHC  | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Heptachlor   | 0.05        | 6                      |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Aldrin   | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Heptachlor epoxide                                 | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Total Chlordane (sum)                              | 0.1         | 50                     |           | <0.1                             | <0.1              | <0.1  | <0.1   | <0.1  | <0.1   | <0.1  | <0.1  | <0.1   |
| trans-Chlordane                                    | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| alpha-Endosulfan                                   | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| cis-Chlordane                                      | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Dieldrin   | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| 4,4'-DDE   | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Endrin   | 0.05        | 10                     |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| beta-Endosulfan                                    | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| 4,4'-DDD   | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Endrin aldehyde                                    | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Endosulfan sulfate                                 | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| 4,4'-DDT   | 0.2         |                        | 180       | <0.2                             | <0.2              | <0.2  | <0.2   | <0.2  | <0.2   | <0.2  | <0.2  | <0.2   |
| Endrin ketone                                      | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Methoxychlor                                       | 0.2         | 300                    |           | <0.2                             | <0.2              | <0.2  | <0.2   | <0.2  | <0.2   | <0.2  | <0.2  | <0.2   |
| DDT+DDD+DDE  | 0.3         | 240                    |           | 0.15                             | 0.15              | 0.15  | 0.15   | 0.15  | 0.15   | 0.15  | 0.15  | 0.15   |
| Aldrin + Dieldrin                                  | 0.1         | 6                      |           | 0.05                             | 0.05              | 0.05  | 0.05   | 0.05  | 0.05   | 0.05  | 0.05  | 0.05   |
| Endosulfan   | 0.1         | 270                    |           | 0.05                             | 0.05              | 0.05  | 0.05   | 0.05  | 0.05   | 0.05  | 0.05  | 0.05   |
| <b>Organophosphorous Pesticides (OPP)</b>          |             |                        |           |                                  |                   |   |  |   |  |   |   |  |
| Dichlorvos   | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Demeton-S-methyl                                   | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Monocrotophos                                      | 0.2         |                        |           | <0.2                             | <0.2              | <0.2  | <0.2   | <0.2  | <0.2   | <0.2  | <0.2  | <0.2   |
| Dimethoate   | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Diazinon   | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Chlorpyrifos-methyl                                | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Parathion-methyl                                   | 0.2         |                        |           | <0.2                             | <0.2              | <0.2  | <0.2   | <0.2  | <0.2   | <0.2  | <0.2  | <0.2   |
| Malathion  | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Fenthion   | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Chlorpyrifos                                       | 0.05        |                        | 160       | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Parathion  | 0.2         |                        |           | <0.2                             | <0.2              | <0.2  | <0.2   | <0.2  | <0.2   | <0.2  | <0.2  | <0.2   |
| Pirimphos-ethyl                                    | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Chlorfenvinphos                                    | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Bromophos-ethyl                                    | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Fenamiphos   | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Prothiofos   | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Ethion   | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Carbophenothion                                    | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| Azinphos Methyl                                    | 0.05        |                        |           | <0.05                            | <0.05             | <0.05   | <0.05  | <0.05   | <0.05  | <0.05   | <0.05   | <0.05  |
| <b>Herbicides</b>                                  |             |                        |           |                                  |                   |   |  |   |  |   |   |  |
| 2,4,5-T  | 0.04 / 0.02 | 600                    |           | <0.04                            | <0.04             | <0.04   | <0.04  | <0.04   | <0.04  | <0.04   | <0.04   | <0.04  |
| 2,4-D  | 0.04 / 0.02 | 900                    |           | <0.04                            | <0.04             | <0.04   | <0.04  | <0.04   | <0.04  | <0.04   | <0.04   | <0.04  |
| MCPA   | 0.04 / 0.02 | 600                    |           | <0.04                            | <0.04             | <0.04   | <0.04  | <0.04   | <0.04  | <0.04   | <0.04   | <0.04  |
| MCPB   | 0.04 / 0.02 | 600                    |           | <0.04                            | <0.04             | <0.04   | <0.04  | <0.04   | <0.04  | <0.04   | <0.04   | <0.04  |
| Mecoprop   | 0.04 / 0.02 | 600                    |           | <0.04                            | <0.04             | <0.04   | <0.04  | <0.04   | <0.04  | <0.04   | <0.04   | <0.04  |
| Picloram   | 0.04 / 0.02 | 4500                   |           | <0.04                            | <0.04             | <0.04   | <0.04  | <0.04   | <0.04  | <0.04   | <0.04   | <0.04  |
| <b>Per- and poly-fluoroalkyl substances (PFAS)</b> |             |                        |           |                                  |                   |   |  |   |  |   |   |  |
| PFOS   | 0.0002      |                        | 0.01      | --                               | --                | --  | --   | --  | --   | --  | --  | --   |
| PFOS + PFHxS                                       | 0.0002      | 0.009                  |           | --                               | --                | --  | --   | --  | --   | --  | --  | --   |
| PFOA   | 0.0002      | 0.1                    | 0.7       | --                               | --                | --  | --   | --  | --   | --  | --  | --   |

All results are in units of mg/kg except Electrical conductivity (ds/m)

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

<sup>A</sup> ASC NEPM 1999 (amended April 2013) Health Investigation Levels (HIL) 'A' (Residential), PFAS criteria OEH 20/4/17

<sup>A</sup> ASC NEPM 1999 (amended April 2013) Ecological Investigation Levels (EIL) URPOS (Urban Residential and Public Open Space). PFAS criteria OEH 20/4/17 are for Indirect Exposure and account for bioaccumulation and off-site transport

<sup>B</sup> Start of sample, generally over a 0.10m interval, however refer to Appendix G for full details

The Carcinogenic PAH value is calculated by multiplying the concentration of each of the 8 carcinogenic PAH compounds by its B(a)P toxic equivalence factor and summing these products.

HIL for Chromium are for Chromium VI

Soil Results Summary  
HIL/EIL Comparison

| Sample Identification                              | PQL         | Guideline <sup>A</sup> |           | BH11B                                | BH12A   | BH13A  | BH14A  | BH15A   | BH15B   | BH16A                                     | BH17A   | BH17B  |
|--|-------------|------------------------|-----------|--------------------------------------|---|--|--|---|---|---|---|--|
|  |             | HIL 'A'                | EIL URPOS | 0.4                                  | 0.05  | 0.05   | 0.05   | 0.05  | 0.4   | 0.05                                      | 0.05  | 0.05   |
| Sample Depth (m) <sup>B</sup>                      |             |                        |           | 12/2/18                              | 12/2/18   | 12/2/18  | 12/2/18  | 12/2/18   | 12/2/18   | 12/2/18                                   | 12/2/18   | 12/2/18  |
| Date   |             |                        |           |                                      |   |  |  |   |   |   |   |  |
| Sample Profile                                     |             |                        |           | Silty CLAY, brown-red, trace gravels | TOPSOIL, sandy LOAM, fine to medium grained, brown-grey | TOPSOIL, Sandy LOAM, fine to medium grained, brown | TOPSOIL, Sandy LOAM, fine to medium grained, brown | Sandy SILT, fine to medium grained, brown, trace clay nodules | Sandy SILT, fine to medium grained, brown, trace clay nodules | Sandy SILT, fine to medium grained, brown | TOPSOIL/FILL, Sandy LOAM, fine to medium grained, brown, trace gravel | FILL, Silty SAND, fine to coarse grained, with gravels, includes brick, stone and concrete |
| Sample Purpose                                     |             |                        |           | Investigation                        | Investigation   | Investigation                                      | Investigation                                      | Investigation   | Investigation   | Investigation                             | Mound Investigation   | Mound Investigation  |
| Sample collected by                                |             |                        |           | RCA- KS/ZL                           | RCA- KS/ZL  | RCA- KS/ZL   | RCA- KS/ZL   | RCA- KS/ZL  | RCA- KS/ZL  | RCA- KS/ZL                                | RCA- KS/ZL  | RCA- KS/ZL   |
| <b>Electrical Conductivity</b>                     |             |                        |           |                                      |   |  |  |   |   |   |   |  |
| Electrical Conductivity                            | 0.001       |                        |           | 0.024                                | 0.048   | 0.04   | 0.06   | 0.04  | 0.031   | 0.059                                     | 0.126   | 0.098  |
| <b>Polycyclic Aromatic Hydrocarbons (PAH)</b>      |             |                        |           |                                      |   |  |  |   |   |   |   |  |
| Naphthalene  | 0.5         |                        | 170       | --                                   | <0.5  | <0.5   | <0.5   | <0.5  | --  | <0.5                                      | <0.5  | 1.2  |
| Acenaphthylene                                     | 0.5         |                        |           | --                                   | <0.5  | <0.5   | <0.5   | <0.5  | --  | <0.5                                      | <0.5  | <0.5   |
| Acenaphthene                                       | 0.5         |                        |           | --                                   | <0.5  | <0.5   | <0.5   | <0.5  | --  | <0.5                                      | <0.5  | 1.9  |
| Fluorene   | 0.5         |                        |           | --                                   | <0.5  | <0.5   | <0.5   | <0.5  | --  | <0.5                                      | <0.5  | 2.4  |
| Phenanthrene                                       | 0.5         |                        |           | --                                   | <0.5  | <0.5   | <0.5   | <0.5  | --  | <0.5                                      | <0.5  | 27.4   |
| Anthracene   | 0.5         |                        |           | --                                   | <0.5  | <0.5   | <0.5   | <0.5  | --  | <0.5                                      | <0.5  | 5.6  |
| Fluoranthene                                       | 0.5         |                        |           | --                                   | <0.5  | <0.5   | <0.5   | <0.5  | --  | <0.5                                      | 1.2   | 32.1   |
| Pyrene   | 0.5         |                        |           | --                                   | <0.5  | <0.5   | <0.5   | <0.5  | --  | <0.5                                      | 1.2   | 27.8   |
| Benzo(a)anthracene                                 | 0.5         |                        |           | --                                   | <0.5  | <0.5   | <0.5   | <0.5  | --  | <0.5                                      | <0.5  | 9.5  |
| Chrysene   | 0.5         |                        |           | --                                   | <0.5  | <0.5   | <0.5   | <0.5  | --  | <0.5                                      | <0.5  | 8.9  |
| Benzo(b)&(j)&(k)fluoranthene                       | 0.5         |                        |           | --                                   | <0.5  | <0.5   | <0.5   | <0.5  | --  | <0.5                                      | 0.5   | 13.6   |
| Benzo(a) pyrene                                    | 0.5         |                        | 0.7       | --                                   | <0.5  | <0.5   | <0.5   | <0.5  | --  | <0.5                                      | <0.5  | 10   |
| Indeno(1,2,3-c,d)pyrene                            | 0.5         |                        |           | --                                   | <0.5  | <0.5   | <0.5   | <0.5  | --  | <0.5                                      | <0.5  | 3.9  |
| Dibenz(a,h)anthracene                              | 0.5         |                        |           | --                                   | <0.5  | <0.5   | <0.5   | <0.5  | --  | <0.5                                      | <0.5  | 0.8  |
| Benzo(g,h,i)perylene                               | 0.5         |                        |           | --                                   | <0.5  | <0.5   | <0.5   | <0.5  | --  | <0.5                                      | <0.5  | 4.2  |
| Carcinogenic PAH (B(a)P equivalent)                | 1.2         | 3                      |           | --                                   | 0.6   | 0.6  | 0.6  | 0.6   | --  | 0.6                                       | 0.6   | 13.6   |
| Sum of reported PAH                                | 7.5         | 300                    |           | --                                   | 3.8   | 3.8  | 3.8  | 3.8   | --  | 3.8                                       | 5.9   | 149.6  |
| <b>Metals</b>                                      |             |                        |           |                                      |   |  |  |   |   |   |   |  |
| Arsenic  | 5           | 100                    | 100       | <5                                   | <5  | <5   | <5   | <5  | <5  | <5  | <5  | <5   |
| Cadmium  | 1           | 20                     |           | <1                                   | <1  | <1   | <1   | <1  | <1  | <1  | <1  | <1   |
| Chromium   | 2           | 100                    | 190       | 30                                   | 15  | 25   | 15   | 12  | 28  | 22  | 28  | 23   |
| Copper   | 5           | 6000                   | 280       | <5                                   | <5  | <5   | <5   | <5  | <5  | <5  | 7   | 6  |
| Mercury  | 0.1         | 40                     |           | <0.1                                 | <0.1  | <0.1   | <0.1   | <0.1  | <0.1  | <0.1                                      | <0.1  | <0.1   |
| Lead   | 5           | 300                    | 1100      | 11                                   | 10  | 18   | 9  | 9   | 7   | 9   | 16  | 14   |
| Nickel   | 2           | 400                    | 30        | 5                                    | 4   | 11   | 3  | 3   | 6   | 3   | 10  | 6  |
| Zinc   | 5           | 7400                   | 230       | <5                                   | 11  | 12   | 12   | 12  | <5  | 18  | 30  | 13   |
| <b>Organochlorine Pesticides (OCP)</b>             |             |                        |           |                                      |   |  |  |   |   |   |   |  |
| alpha-BHC  | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Hexachlorobenzene (HCB)                            | 0.05        | 10                     |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| beta-BHC   | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| gamma-BHC  | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| delta-BHC  | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Heptachlor   | 0.05        | 6                      |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Aldrin   | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Heptachlor epoxide                                 | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Total Chlordane (sum)                              | 0.1         | 50                     |           | <0.1                                 | <0.1  | <0.1   | <0.1   | <0.1  | <0.1  | <0.1                                      | <0.1  | --   |
| trans-Chlordane                                    | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| alpha-Endosulfan                                   | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| cis-Chlordane                                      | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Dieldrin   | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| 4,4'-DDE   | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Endrin   | 0.05        | 10                     |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| beta-Endosulfan                                    | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| 4,4'-DDD   | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Endrin aldehyde                                    | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Endosulfan sulfate                                 | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| 4,4'-DDT   | 0.2         |                        | 180       | <0.2                                 | <0.2  | <0.2   | <0.2   | <0.2  | <0.2  | <0.2                                      | <0.2  | --   |
| Endrin ketone                                      | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Methoxychlor                                       | 0.2         | 300                    |           | <0.2                                 | <0.2  | <0.2   | <0.2   | <0.2  | <0.2  | <0.2                                      | <0.2  | --   |
| DDT+DDD+DDE  | 0.3         | 240                    |           | 0.15                                 | 0.15  | 0.15   | 0.15   | 0.15  | 0.15  | 0.15                                      | 0.15  | --   |
| Aldrin + Dieldrin                                  | 0.1         | 6                      |           | 0.05                                 | 0.05  | 0.05   | 0.05   | 0.05  | 0.05  | 0.05                                      | 0.05  | --   |
| Endosulfan   | 0.1         | 270                    |           | 0.05                                 | 0.05  | 0.05   | 0.05   | 0.05  | 0.05  | 0.05                                      | 0.05  | --   |
| <b>Organophosphorous Pesticides (OPP)</b>          |             |                        |           |                                      |   |  |  |   |   |   |   |  |
| Dichlorvos   | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Demeton-S-methyl                                   | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Monocrotophos                                      | 0.2         |                        |           | <0.2                                 | <0.2  | <0.2   | <0.2   | <0.2  | <0.2  | <0.2                                      | <0.2  | --   |
| Dimethoate   | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Diazinon   | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Chlorpyrifos-methyl                                | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Parathion-methyl                                   | 0.2         |                        |           | <0.2                                 | <0.2  | <0.2   | <0.2   | <0.2  | <0.2  | <0.2                                      | <0.2  | --   |
| Malathion  | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Fenthion   | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Chlorpyrifos                                       | 0.05        |                        | 160       | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Parathion  | 0.2         |                        |           | <0.2                                 | <0.2  | <0.2   | <0.2   | <0.2  | <0.2  | <0.2                                      | <0.2  | --   |
| Pirimphos-ethyl                                    | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Chlorfenvinphos                                    | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Bromophos-ethyl                                    | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Fenamiphos   | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Prothiofos   | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Ethion   | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Carbophenothion                                    | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| Azinphos Methyl                                    | 0.05        |                        |           | <0.05                                | <0.05   | <0.05  | <0.05  | <0.05   | <0.05   | <0.05                                     | <0.05   | --   |
| <b>Herbicides</b>                                  |             |                        |           |                                      |   |  |  |   |   |   |   |  |
| 2,4,5-T  | 0.04 / 0.02 | 600                    |           | <0.04                                | <0.04   | <0.04  | <0.04  | <0.04   | <0.04   | <0.04                                     | <0.04   | --   |
| 2,4-D  | 0.04 / 0.02 | 900                    |           | <0.04                                | <0.04   | <0.04  | <0.04  | <0.04   | <0.04   | <0.04                                     | <0.04   | --   |
| MCPA   | 0.04 / 0.02 | 600                    |           | <0.04                                | <0.04   | <0.04  | <0.04  | <0.04   | <0.04   | <0.04                                     | <0.04   | --   |
| MCPB   | 0.04 / 0.02 | 600                    |           | <0.04                                | <0.04   | <0.04  | <0.04  | <0.04   | <0.04   | <0.04                                     | <0.04   | --   |
| Mecoprop   | 0.04 / 0.02 | 600                    |           | <0.04                                | <0.04   | <0.04  | <0.04  | <0.04   | <0.04   | <0.04                                     | <0.04   | --   |
| Picloram   | 0.04 / 0.02 | 4500                   |           | <0.04                                | <0.04   | <0.04  | <0.04  | <0.04   | <0.04   | <0.04                                     | <0.04   | --   |
| <b>Per- and poly-fluoroalkyl substances (PFAS)</b> |             |                        |           |                                      |   |  |  |   |   |   |   |  |
| PFOS   | 0.0002      |                        | 0.01      | --                                   | --  | --   | --   | --  | --  | --  | --  | --   |
| PFOS + PFHxS                                       | 0.0002      | 0.009                  |           | --                                   | --  | --   | --   | --  | --  | --  | --  | --   |
| PFOA   | 0.0002      | 0.1                    | 0.7       | --                                   | --  | --   | --   | --  | --  | --  | --  | --   |

All results are in units of mg/kg except Electrical conductivity (ds/m)

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

<sup>A</sup> ASC NEPM 1999 (amended April 2013) Health Investigation Levels (HIL) 'A' (Residential), PFAS criteria OEH 20/4/17

<sup>A</sup> ASC NEPM 1999 (amended April 2013) Ecological Investigation Levels (EIL) URPOS (Urban Residential and Public Open Space). PFAS criteria OEH 20/4/17 are for Indirect Exposure and account for bioaccumulation and off-site transport

<sup>B</sup> Start of sample, generally over a 0.10m interval, however refer to Appendix G for full details

The Carcinogenic PAH value is calculated by multiplying the concentration of each of the 8 carcinogenic PAH compounds by its B(a)P toxic equivalence factor and summing these products.

HIL for Chromium are for Chromium VI

Presented ecological value for benzo(a)pyrene is a low reliability Ecological Screening Level

For the purpose of the Tier 1 ESL/EIL assessment, all background concentrations are assumed to be zero

EIL for Naphthalene are for fresh (<2years) Naphthalene

EIL for Arsenic are for aged (>

| Sample Identification                              | PQL         | Guideline <sup>A</sup> |           | BH17C  | BH17D               | BH18A   | BH18B   | BH18C                                   | BH19A   | BH19B                             | BH20A                                   | BH20B                                   |
|--|-------------|------------------------|-----------|--|---------------------|---|---|---|---|-----------------------------------|---|---|
|  |             | HIL 'A'                | EIL URPOS | 1.2<br>12/2/18   | 1.4<br>12/2/18      | 0.05<br>12/2/18   | 0.4<br>12/2/18  | 0.8<br>12/2/18                          | 0.05<br>12/2/18   | 0.4<br>12/2/18                    | 0.05<br>12/2/18                         | 0.2<br>12/2/18                          |
| Sample Profile                                     |             |                        |           | FILL, Silty Gravelly Sandy CLAY, fine to coarse grained sand, trace asphalt, brick, stone and concrete | Silty CLAY, brown   | FILL, Silty CLAY, brown, with gravel, fine to coarse, includes stone, brick and asphalt, trace organic material | FILL, Silty CLAY, brown, with gravel, fine to coarse, includes stone, brick and asphalt, trace organic material | FILL, Silty CLAY, grey and red mottling | FILL, Sandy SILT, fine to medium grained, brown, trace gravel | Silty CLAY, red-brown, trace sand | Sandy SILT, brown, trace gravel (stone) | Sandy SILT, brown, trace gravel (stone) |
| Sample Purpose                                     |             |                        |           | Mound Investigation  | Mound Investigation | Mound Investigation   | Mound Investigation   | Mound Investigation                     | Mound Investigation   | Mound Investigation               | Investigation                           | Investigation                           |
| Sample collected by                                |             |                        |           | RCA- KS/ZL   | RCA- KS/ZL          | RCA- KS/ZL  | RCA- KS/ZL  | RCA- KS/ZL                              | RCA- KS/ZL  | RCA- KS/ZL                        | RCA- KS/ZL                              | RCA- KS/ZL                              |
| <b>Electrical Conductivity</b>                     |             |                        |           |  |                     |   |   |   |   |                                   |   |   |
| Electrical Conductivity                            | 0.001       |                        |           | 0.21   | 0.068               | 0.054   | 0.082   | 0.113                                   | 0.087   | 0.083                             | 0.181                                   | 0.097                                   |
| <b>Polycyclic Aromatic Hydrocarbons (PAH)</b>      |             |                        |           |  |                     |   |   |   |   |                                   |   |   |
| Naphthalene  | 0.5         | 170                    |           | 0.5  | <0.5                | <0.5  | <0.5  | --                                      | <0.5  | --                                | <0.5                                    | --                                      |
| Acenaphthylene                                     | 0.5         |                        |           | <0.5   | <0.5                | <0.5  | <0.5  | --                                      | <0.5  | --                                | <0.5                                    | --                                      |
| Acenaphthene                                       | 0.5         |                        |           | 0.6  | <0.5                | <0.5  | <0.5  | --                                      | <0.5  | --                                | <0.5                                    | --                                      |
| Fluorene   | 0.5         |                        |           | 0.8  | <0.5                | <0.5  | <0.5  | --                                      | <0.5  | --                                | <0.5                                    | --                                      |
| Phenanthrene                                       | 0.5         |                        |           | 9.7  | 0.8                 | <0.5  | <0.5  | --                                      | <0.5  | --                                | <0.5                                    | --                                      |
| Anthracene   | 0.5         |                        |           | 2  | <0.5                | <0.5  | <0.5  | --                                      | <0.5  | --                                | <0.5                                    | --                                      |
| Fluoranthene                                       | 0.5         |                        |           | 13.9   | 1.7                 | 0.6   | 1   | --                                      | <0.5  | --                                | <0.5                                    | --                                      |
| Pyrene   | 0.5         |                        |           | 12.2   | 1.4                 | 0.7   | 1.1   | --                                      | <0.5  | --                                | <0.5                                    | --                                      |
| Benzo(a)anthracene                                 | 0.5         |                        |           | 4  | <0.5                | <0.5  | 0.5   | --                                      | <0.5  | --                                | <0.5                                    | --                                      |
| Chrysene   | 0.5         |                        |           | 3.8  | <0.5                | <0.5  | 0.6   | --                                      | <0.5  | --                                | <0.5                                    | --                                      |
| Benzo(b)&(j)&(k)fluoranthene                       | 0.5         |                        |           | 5.9  | <0.5                | 0.8   | 1   | --                                      | <0.5  | --                                | <0.5                                    | --                                      |
| Benzo(a) pyrene                                    | 0.5         | 0.7                    |           | 4.1  | <0.5                | 0.6   | 1   | --                                      | <0.5  | --                                | <0.5                                    | --                                      |
| Indeno(1,2,3-c,d)pyrene                            | 0.5         |                        |           | 1.5  | <0.5                | <0.5  | <0.5  | --                                      | <0.5  | --                                | <0.5                                    | --                                      |
| Dibenz(a,h)anthracene                              | 0.5         |                        |           | <0.5   | <0.5                | <0.5  | <0.5  | --                                      | <0.5  | --                                | <0.5                                    | --                                      |
| Benzo(g,h,i)perylene                               | 0.5         |                        |           | 1.6  | <0.5                | 0.6   | 0.7   | --                                      | <0.5  | --                                | <0.5                                    | --                                      |
| Carcinogenic PAH (B(a)P equivalent)                | 1.2         | 3                      |           | 5.5  | 0.6                 | 1.0   | 1.4   | --                                      | 0.6   | --                                | 0.6                                     | --                                      |
| Sum of reported PAH                                | 7.5         | 300                    |           | 61.1   | 6.9                 | 5.8   | 7.9   | --                                      | 3.8   | --                                | 3.8                                     | --                                      |
| <b>Metals</b>                                      |             |                        |           |  |                     |   |   |   |   |                                   |   |   |
| Arsenic  | 5           | 100                    | 100       | <5   | <5                  | <5  | <5  | <5                                      | <5  | <5                                | 23                                      | <5                                      |
| Cadmium  | 1           | 20                     |           | <1   | <1                  | <1  | <1  | <1                                      | <1  | <1                                | <1                                      | <1                                      |
| Chromium   | 2           | 100                    | 190       | 15   | 18                  | 29  | 28  | 23                                      | 30  | 21                                | 26                                      | 24                                      |
| Copper   | 5           | 6000                   | 280       | 20   | <5                  | 6   | 7   | <5                                      | <5  | <5                                | 49                                      | <5                                      |
| Mercury  | 0.1         | 40                     |           | <0.1   | <0.1                | <0.1  | <0.1  | <0.1                                    | <0.1  | <0.1                              | <0.1                                    | <0.1                                    |
| Lead   | 5           | 300                    | 1100      | 24   | 7                   | 19  | 12  | 6                                       | 9   | 9                                 | 241                                     | 17                                      |
| Nickel   | 2           | 400                    | 30        | 11   | 3                   | 5   | 4   | <2                                      | 5   | 4                                 | 7                                       | 5                                       |
| Zinc   | 5           | 7400                   | 230       | 25   | <5                  | 104   | 39  | 7                                       | 14  | 10                                | 244                                     | 16                                      |
| <b>Organochlorine Pesticides (OCP)</b>             |             |                        |           |  |                     |   |   |   |   |                                   |   |   |
| alpha-BHC  | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Hexachlorobenzene (HCB)                            | 0.05        | 10                     |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| beta-BHC   | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| gamma-BHC  | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| delta-BHC  | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Heptachlor   | 0.05        | 6                      |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Aldrin   | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Heptachlor epoxide                                 | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Total Chlordane (sum)                              | 0.1         | 50                     |           | --   | <0.1                | <0.1  | --  | <0.1                                    | <0.1  | <0.1                              | <0.1                                    | <0.1                                    |
| trans-Chlordane                                    | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| alpha-Endosulfan                                   | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| cis-Chlordane                                      | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Dieldrin   | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| 4,4'-DDE   | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Endrin   | 0.05        | 10                     |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| beta-Endosulfan                                    | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| 4,4'-DDD   | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Endrin aldehyde                                    | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Endosulfan sulfate                                 | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| 4,4'-DDT   | 0.2         | 180                    |           | --   | <0.2                | <0.2  | --  | <0.2                                    | <0.2  | <0.2                              | <0.2                                    | <0.2                                    |
| Endrin ketone                                      | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Methoxychlor                                       | 0.2         | 300                    |           | --   | <0.2                | <0.2  | --  | <0.2                                    | <0.2  | <0.2                              | <0.2                                    | <0.2                                    |
| DDT+DDD+DDE  | 0.3         | 240                    |           | --   | 0.15                | 0.15  | --  | 0.15                                    | 0.15  | 0.15                              | 0.15                                    | 0.15                                    |
| Aldrin + Dieldrin                                  | 0.1         | 6                      |           | --   | 0.05                | 0.05  | --  | 0.05                                    | 0.05  | 0.05                              | 0.05                                    | 0.05                                    |
| Endosulfan   | 0.1         | 270                    |           | --   | 0.05                | 0.05  | --  | 0.05                                    | 0.05  | 0.05                              | 0.05                                    | 0.05                                    |
| <b>Organophosphorous Pesticides (OPP)</b>          |             |                        |           |  |                     |   |   |   |   |                                   |   |   |
| Dichlorvos   | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Demeton-S-methyl                                   | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Monocrotophos                                      | 0.2         |                        |           | --   | <0.2                | <0.2  | --  | <0.2                                    | <0.2  | <0.2                              | <0.2                                    | <0.2                                    |
| Dimethoate   | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Diazinon   | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Chlorpyrifos-methyl                                | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Parathion-methyl                                   | 0.2         |                        |           | --   | <0.2                | <0.2  | --  | <0.2                                    | <0.2  | <0.2                              | <0.2                                    | <0.2                                    |
| Malathion  | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Fenthion   | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Chlorpyrifos                                       | 0.05        | 160                    |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Parathion  | 0.2         |                        |           | --   | <0.2                | <0.2  | --  | <0.2                                    | <0.2  | <0.2                              | <0.2                                    | <0.2                                    |
| Pirimphos-ethyl                                    | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Chlorfenvinphos                                    | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Bromophos-ethyl                                    | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Fenamiphos   | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Prothiofos   | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Ethion   | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Carbophenothion                                    | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| Azinphos Methyl                                    | 0.05        |                        |           | --   | <0.05               | <0.05   | --  | <0.05                                   | <0.05   | <0.05                             | <0.05                                   | <0.05                                   |
| <b>Herbicides</b>                                  |             |                        |           |  |                     |   |   |   |   |                                   |   |   |
| 2,4,5-T  | 0.04 / 0.02 | 600                    |           | --   | <0.02               | <0.04   | --  | <0.02                                   | <0.04   | <0.04                             | <0.04                                   | <0.04                                   |
| 2,4-D  | 0.04 / 0.02 | 900                    |           | --   | <0.02               | <0.04   | --  | <0.02                                   | <0.04   | <0.04                             | <0.04                                   | <0.04                                   |
| MCPA   | 0.04 / 0.02 | 600                    |           | --   | <0.02               | <0.04   | --  | <0.02                                   | <0.04   | <0.04                             | <0.04                                   | <0.04                                   |
| MCPB   | 0.04 / 0.02 | 600                    |           | --   | <0.02               | <0.04   | --  | <0.02                                   | <0.04   | <0.04                             | <0.04                                   | <0.04                                   |
| Mecoprop   | 0.04 / 0.02 | 600                    |           | --   | <0.02               | <0.04   | --  | <0.02                                   | <0.04   | <0.04                             | <0.04                                   | <0.04                                   |
| Picloram   | 0.04 / 0.02 | 4500                   |           | --   | <0.02               | <0.04   | --  | <0.02                                   | <0.04   | <0.04                             | <0.04                                   | <0.04                                   |
| <b>Per- and poly-fluoroalkyl substances (PFAS)</b> |             |                        |           |  |                     |   |   |   |   |                                   |   |   |
| PFOS   | 0.0002      |                        | 0.01      | --   | --                  | --  | --  | --                                      | --  | --                                | --                                      | --                                      |
| PFOS + PFHxS                                       | 0.0002      | 0.009                  |           | --   | --                  | --  | --  | --                                      | --  | --                                | --                                      | --                                      |
| PFOA   | 0.0002      | 0.1                    | 0.7       | --   | --                  | --  | --  | --                                      | --  | --                                | --                                      | --                                      |

All results are in units of mg/kg except Electrical conductivity (ds/m)

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

<sup>A</sup> ASC NEPM 1999 (amended April 2013) Health Investigation Levels (HIL) 'A' (Residential), PFAS criteria OEH 20/4/17

<sup>A</sup> ASC NEPM 1999 (amended April 2013) Ecological Investigation Levels (EIL) URPOS (Urban Residential and Public Open Space). PFAS criteria OEH 20/4/17 are for Indirect Exposure and account for bioaccumulation and off-site transport

<sup>B</sup> Start of sample, generally over a 0.10m interval, however refer to Appendix G for full details

The Carcinogenic PAH value is calculated by multiplying the concentration of each of the 8 carcinogenic PAH compounds by its B(a)P toxic equivalence factor and summing these products.

HIL for Chromium are for Chromium VI

Presented ecological value for benzo(a)pyrene is a low reliability Ecological Screening Level

For the purpose of the Tier 1 ESL/EIL assessment, all background concentrations are assumed to be zero

EIL for Naphthalene are for fresh (<2years) Naphthalene

EIL for Arsenic are for aged (>2years) Arsenic

EIL for Chromium are the added contaminant limit for aged (>2years) Chromium III in soils of 1% clay, the most conservative of the criteria.

EIL for Copper are the added contaminant limit for aged (>2years) Copper in soils of pH 6.5.

EIL for Lead are the added contaminant limit for aged (>2years) Lead.

EIL for Nickel are the added contaminant limit for aged (>2years) Nickel in soils of 5% CEC the most conservative of the criteria.

EIL for Zinc are the added contaminant limit for aged (>2years) Zinc in soils of 5% CEC and pH of 6.5, the most conservative of the criteria at pH 6.5.

EIL for DDT are for fresh (<2years) DDT

Results shown in **BOLD** are in excess of the HIL

Results shown in shading are >250% of the HIL

Results shown in underline are in excess of EIL

Groundwater Results Summary  
HSL Comparison

| Sample Identification                                | PQL | Human Health (Vapour Based) Guideline <sup>A</sup> |             | MW1                                   | MW2             | MW3                                     |
|--|-----|--|-------------|---------------------------------------|-----------------|---|
| Sample Depth (m) <sup>B</sup>                        |     | HSL 'A'  | HSL 'B'     | 1.21                                  | 8.50            | 1.40                                    |
| Date   |     | SAND<br>2-<4m                                      | CLAY<br>>8m | 16/2/18                               | 16/2/18         | 16/2/18                                 |
| Sample Description                                   |     |  |             | Brown, turbid.<br>Slight sulfur odour | Clear, no odour | Dark brown,<br>very turbid. No<br>odour |
| Dominant Stratum <sup>C</sup>                        |     |  |             | SAND                                  | CLAY            | SAND                                    |
| Sample Purpose                                       |     |  |             | Investigation                         | Investigation   | Investigation                           |
| Sample collected by                                  |     |  |             | RCA- KS/ZL                            | RCA- KS/ZL      | RCA- KS/ZL                              |
| <b>Benzene, Toluene, Ethylbenzene, Xylene (BTEX)</b> |     |  |             |                                       |                 |   |
| Benzene  | 1   | 800  | 5000        | <1                                    | <1              | <1                                      |
| Toluene  | 2   | NL   | NL          | <2                                    | <2              | <2                                      |
| Ethylbenzene   | 2   | NL   | NL          | <2                                    | <2              | <2                                      |
| meta- and para-Xylene                                | 2   |  |             | <2                                    | <2              | <2                                      |
| ortho-Xylene   | 2   |  |             | <2                                    | <2              | <2                                      |
| Total Xylenes  | 4   | NL   | NL          | 2                                     | 2               | 2                                       |
| <b>Polycyclic Aromatic Hydrocarbons (PAH)</b>        |     |  |             |                                       |                 |   |
| Naphthalene  | 5   | NL   | NL          | <5                                    | <5              | <5                                      |
| <b>Total Recoverable Hydrocarbons (TRH)</b>          |     |  |             |                                       |                 |   |
| TRH C <sub>6</sub> -C <sub>10</sub>                  | 20  |  |             | <20                                   | <20             | <20                                     |
| TRH >C <sub>10</sub> -C <sub>16</sub>                | 100 |  |             | <100                                  | <100            | <100                                    |
| TRH >C <sub>16</sub> -C <sub>34</sub>                | 100 |  |             | <100                                  | <100            | <100                                    |
| TRH >C <sub>34</sub> -C <sub>40</sub>                | 100 |  |             | <100                                  | <100            | <100                                    |
| F1   | 20  | 1000   | NL          | <20                                   | <20             | <20                                     |
| F2   | 100 | 1000   | NL          | <100                                  | <100            | <100                                    |

All results are in units of µg/L

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

F1 = TRH C<sub>6</sub>-C<sub>10</sub> minus BTEX. F1 PQL deemed equal TRH C<sub>6</sub>-C<sub>10</sub>.

F2= TRH >C<sub>10</sub>-C<sub>16</sub> minus naphthalene. F2 PQL deemed = TRH >C<sub>10</sub>-C<sub>16</sub>.

<sup>A</sup> ASC NEPM 1999 (as amended 2013) Vapour Based Health Screening Level (HSL) 'A' (Residential), 'B' (Minimal Soil Access Residential)

<sup>B</sup> Sample depths presented are as encountered prior to commencement of sampling

<sup>C</sup> Note that this is a generalisation for the purpose of comparing to the HSL criteria. Where two strata equally represented, most conservative criterion used

NL designates 'Not Limiting' indicating that the pore water concentration required to constitute a vapour risk is higher than the solubility capacity for that compound based on a petroleum mixture. Vapour is therefore not a risk for this compound.

Results for TRH have been compared to TPH guidelines.

Results shown in shading are in excess of the HSL

Where summation required (Xylene, F1, F2) calculation includes components reported as non detected as 1/2 PQL.

| Sample Identification                                | PQL  | Aquatic Ecosystem Guideline <sup>A</sup> |           | Human Health (Ingestion) Guideline <sup>B</sup> | MW1                                | MW2             | MW3                               | BH17B                   | BH17C   |
|--|------|--|-----------|---|------------------------------------|-----------------|-----------------------------------|-------------------------|---|
|  |      | 99% Fresh                                | 95% Fresh |   | 1.21                               | 8.50            | 1.40                              | 0.20                    | 1.20  |
| Sample Depth (m) <sup>C</sup>                        |      |  |           |   | 16/2/18                            | 16/2/18         | 16/2/18                           | 12/2/18                 | 12/2/18   |
| Date   |      |  |           |   |                                    |                 |                                   |                         |   |
| Sample Description                                   |      |  |           |   | Brown, turbid. Slight sulfur odour | Clear, no odour | Dark brown, very turbid. No odour | Silty CLAY, brown       | FILL, Silty CLAY, brown, with gravel, fine to coarse, includes stone, brick and asphalt, trace organic material |
| Sample Purpose                                       |      |  |           |   | Investigation                      | Investigation   | Investigation                     | Leachability Assessment | Leachability Assessment   |
| Sample collected by                                  |      |  |           |   | RCA- KS/ZL                         | RCA- KS/ZL      | RCA- KS/ZL                        | RCA- KS/ZL              | RCA- KS/ZL  |
| <b>Benzene, Toluene, Ethylbenzene, Xylene (BTEX)</b> |      |  |           |   |                                    |                 |                                   |                         |   |
| Benzene  | 1    |  | 950       | 1   | <1                                 | <1              | <1                                | --                      | --  |
| Toluene  | 2    |  | 180       | 800   | <2                                 | <2              | <2                                | --                      | --  |
| Ethylbenzene   | 2    |  | 80        | 300   | <2                                 | <2              | <2                                | --                      | --  |
| meta- and para-Xylene                                | 2    |  | 275       |   | <2                                 | <2              | <2                                | --                      | --  |
| ortho-Xylene   | 2    |  | 350       |   | <2                                 | <2              | <2                                | --                      | --  |
| Total Xylenes  | 4    |  |           | 600   | 2                                  | 2               | 2                                 | --                      | --  |
| <b>Total Recoverable Hydrocarbons (TRH)</b>          |      |  |           |   |                                    |                 |                                   |                         |   |
| TRH C <sub>6</sub> -C <sub>10</sub>                  | 20   |  |           |   | <20                                | <20             | <20                               | --                      | --  |
| TRH >C <sub>10</sub> -C <sub>16</sub>                | 100  |  |           |   | <100                               | <100            | <100                              | --                      | --  |
| TRH >C <sub>16</sub> -C <sub>34</sub>                | 100  |  |           |   | <100                               | <100            | <100                              | --                      | --  |
| TRH >C <sub>34</sub> -C <sub>40</sub>                | 100  |  |           |   | <100                               | <100            | <100                              | --                      | --  |
| TRH C <sub>6</sub> -C <sub>40</sub>                  | 320  |  | 7         |   | 160                                | 160             | 160                               | --                      | --  |
| <b>Polycyclic Aromatic Hydrocarbons (PAH)</b>        |      |  |           |   |                                    |                 |                                   |                         |   |
| Naphthalene  | 1    | 2.5                                      | 16        |   | <1                                 | <1              | <1                                | 5.3                     | <1.0  |
| Acenaphthylene                                       | 1    |  |           |   | <1                                 | <1              | <1                                | <1.0                    | <1.0  |
| Acenaphthene   | 1    |  |           |   | <1                                 | <1              | <1                                | 4.1                     | 1   |
| Fluorene   | 1    |  |           |   | <1                                 | <1              | <1                                | 3                       | <1.0  |
| Phenanthrene <sup>D</sup>                            | 1    | 0.6                                      | 2         |   | <1                                 | <1              | <1                                | 8.4                     | 3.9   |
| Anthracene <sup>D</sup>                              | 1    | 0.01                                     | 4         |   | <1                                 | <1              | <1                                | 1.3                     | <1.0  |
| Fluoranthene <sup>D</sup>                            | 1    | 1  | 1.4       |   | <1                                 | <1              | <1                                | <1.0                    | <1.0  |
| Pyrene   | 1    |  |           |   | <1                                 | <1              | <1                                | <1.0                    | <1.0  |
| Benzo(a)anthracene                                   | 1    |  |           |   | <1                                 | <1              | <1                                | <1.0                    | <1.0  |
| Chrysene   | 1    |  |           |   | <1                                 | <1              | <1                                | <1.0                    | <1.0  |
| Benzo(b)&(j)&(k)fluoranthene                         | 1    |  |           |   | <1                                 | <1              | <1                                | <1.0                    | <1.0  |
| Benzo(a) pyrene <sup>D</sup>                         | 0.5  | 0.1                                      | 0.2       | 0.01  | <0.5                               | <0.5            | <0.5                              | <1.0                    | <1.0  |
| Indeno(1,2,3-c,d)pyrene                              | 1    |  |           |   | <1                                 | <1              | <1                                | <0.5                    | <0.5  |
| Dibenz(a,h)anthracene                                | 1    |  |           |   | <1                                 | <1              | <1                                | <1.0                    | <1.0  |
| Benzo(g,h,i)perylene                                 | 1    |  |           |   | <1                                 | <1              | <1                                | <1.0                    | <1.0  |
| Sum of reported PAH                                  | 14.5 |  |           |   | 7.25                               | 7.25            | 7.25                              | 26.85                   | 11.15   |
| <b>Metals</b>  |      |  |           |   |                                    |                 |                                   |                         |   |
| Arsenic  | 1    |  | 13        | 10  | 3                                  | 1               | 4                                 | --                      | --  |
| Cadmium  | 0.1  |  | 0.2       | 2   | <0.1                               | 0.5             | <0.1                              | --                      | --  |
| Chromium   | 1    |  | 1         | 50  | 2                                  | <1              | 1                                 | --                      | --  |
| Copper   | 1    |  | 1.4       | 2000  | <1                                 | 35              | <1                                | --                      | --  |
| Lead   | 1    |  | 3.4       | 10  | <1                                 | 1               | <1                                | --                      | --  |
| Mercury <sup>D</sup>                                 | 0.1  | 0.06                                     | 0.6       | 1   | <0.1                               | <0.1            | <0.1                              | --                      | --  |
| Nickel   | 1    |  | 11        |   | <1                                 | 40              | <1                                | --                      | --  |
| Zinc   | 5    |  | 8         |   | 11                                 | 209             | 7                                 | --                      | --  |
| <b>Organochlorine Pesticides (OCP)<sup>P</sup></b>   |      |  |           |   |                                    |                 |                                   |                         |   |
| alpha-BHC  | 0.5  |  |           |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| HCB  | 0.5  |  |           |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| beta-BHC   | 0.5  |  |           |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| gamma-BHC  | 0.5  |  |           |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| delta-BHC  | 0.5  |  |           |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Heptachlor   | 0.5  | 0.01                                     | 0.09      |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Aldrin   | 0.5  | 0.001                                    | 0.001     | 0.3   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Heptachlor epoxide                                   | 0.5  |  |           | 0.3   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Chlordane  | 1    | 0.03                                     | 0.08      | 2   | <1                                 | <1              | <1                                | --                      | --  |
| Endosulfan   | 1    | 0.03                                     | 0.2       | 20  | <1                                 | <1              | <1                                | --                      | --  |
| Dieldrin   | 0.5  | 0.01                                     | 0.01      | 0.3   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| DDE  | 0.5  | 0.03                                     | 0.03      |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Endrin   | 0.5  | 0.01                                     | 0.02      |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| DDD  | 0.5  |  |           | 30  | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Endrin aldehyde                                      | 0.5  |  |           |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Endosulfan sulfate                                   | 0.5  |  |           |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| DDT  | 2    | 0.006                                    | 0.01      | 9   | <2.0                               | <2.0            | <2.0                              | --                      | --  |
| Endrin ketone  | 0.5  |  |           |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Methoxychlor   | 2    | 0.005                                    | 0.005     |   | <2.0                               | <2.0            | <2.0                              | --                      | --  |
| <b>Organophosphorous Pesticides (OPP)</b>            |      |  |           |   |                                    |                 |                                   |                         |   |
| Dichlorvos   | 0.5  |  |           | 5   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Demeton-S-methyl                                     | 0.5  |  | 4         |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Monocrotophos  | 2    |  |           |   | <2.0                               | <2.0            | <2.0                              | --                      | --  |
| Dimethoate   | 0.5  |  | 0.15      | 7   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Diazinon   | 0.5  |  | 0.01      | 4   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Chlorpyrifos-methyl                                  | 0.5  |  |           |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Parathion-methyl                                     | 2    |  |           | 0.7   | <2.0                               | <2.0            | <2.0                              | --                      | --  |
| Malathion  | 0.5  |  | 0.05      | 70  | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Fenthion   | 0.5  |  | 0.2       | 7   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Chlorpyrifos <sup>D</sup>                            | 0.5  | 0.00004                                  | 0.01      | 10  | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Parathion  | 2    |  | 0.004     | 20  | <2.0                               | <2.0            | <2.0                              | --                      | --  |
| Pirimiphos-ethyl                                     | 0.5  |  |           |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Chlorfenvinphos                                      | 0.5  |  |           | 2   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Bromophos-ethyl                                      | 0.5  |  |           |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Fenamiphos   | 0.5  |  |           | 0.5   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Prothiofos   | 0.5  |  |           |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Ethion   | 0.5  |  |           | 4   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Carbophenothion                                      | 0.5  |  |           |   | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| Azinphos-methyl                                      | 0.5  |  | 0.02      | 30  | <0.5                               | <0.5            | <0.5                              | --                      | --  |
| <b>Herbicides</b>                                    |      |  |           |   |                                    |                 |                                   |                         |   |
| MCPA   | 0.01 |  | 1.4       |   | <0.01                              | <0.01           | <0.01                             | --                      | --  |
| 2,4-D  | 0.01 |  | 280       |   | <0.01                              | <0.01           | <0.01                             | --                      | --  |
| 2,4,5-T  | 0.01 |  | 36        |   | <0.01                              | <0.01           | <0.01                             | --                      | --  |
| <b>Per- and poly-fluoroalkyl substances (PFAS)</b>   |      |  |           |   |                                    |                 |                                   |                         |   |
| PFOS   | 0.01 |  | 0.13      |   | <0.01                              | <0.05           | <0.01                             | --                      | --  |
| PFOS+PFHxS   | 0.01 |  |           | 0.07  | <0.01                              | <0.05           | <0.01                             | --                      | --  |
| PFOA   | 0.01 |  | 220       | 0.56  | <0.01                              | <0.05           | <0.01                             | --                      | --  |

All results are in units of µg/L

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

<sup>A</sup> ANZECC 2000 % Protection Level for Receiving Water Type. PFAS criteria OEH 20/4/17

<sup>B</sup> NHMRC Australian Drinking Water Guidelines, 2011. PFAS criteria OEH 20/4/17

<sup>C</sup> Sample depths presented are as encountered prior to commencement of sampling

<sup>D</sup> Bioaccumulative compounds which are compared against 99% protection (where relevant)

ANZECC guidelines in *italics* are low level reliability guidelines

ANZECC arsenic guideline based on As (V) for fresh, the lowest of presented guidelines.

NHMRC arsenic guidelines are based on total arsenic

ANZECC and NHMRC guidelines for chromium are based on Cr (VI)

ANZECC guidelines for mercury are based on inorganic mercury.

NHMRC guidelines for mercury are based on total mercury.

Results for TRH have been compared to TPH guidelines.

Results shown in **shading** are in excess of the 99% aquatic ecosystems guidelines

Results shown in **BOLD** are in excess of the 95% aquatic ecosystems guidelines

Results shown in underline are in excess of the human health (ingestion) guideline

Where summation required (Xylene,TRH,PAH,OCP) calculation includes components reported as non detected as 1/2 PQL.