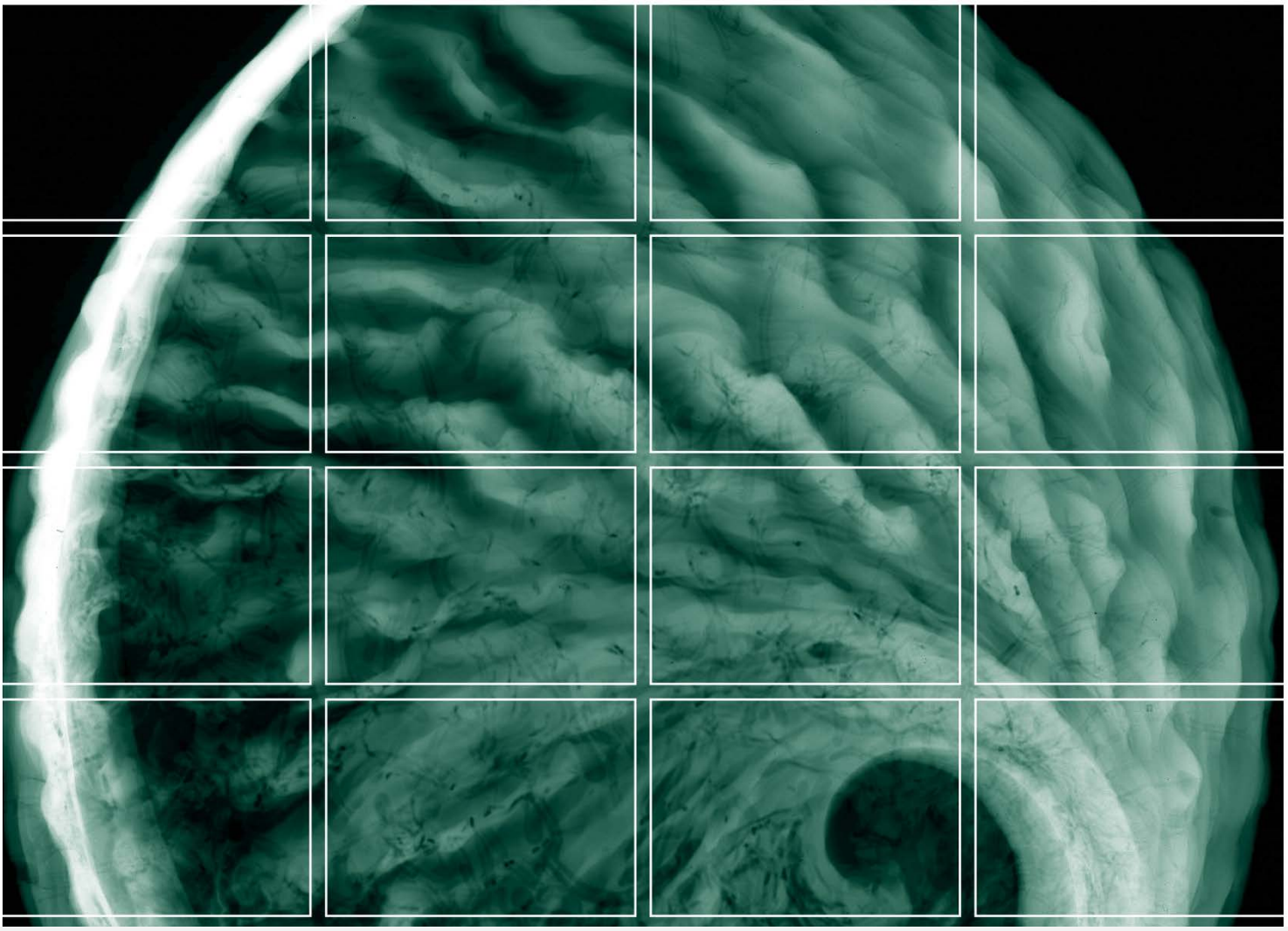

Detailed Site Investigation

SIT Family Pacific Caddens Development Pty Ltd c/- Vantager Group

29, 46 – 66 O'Connell Street, Caddens, NSW 2747

14 May 2020

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The business of sustainability

ERM

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Detailed Site Investigation

29, 46 – 66 O'Connell Street, Caddens, NSW 2747

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CONTENTS

List of Tables

EXECUTIVE SUMMARY

ERM Services Australia Pty Ltd (ERM) was commissioned by SIT Family Pacific Caddens Development Pty Ltd c/- Vantager Group (the Client) to undertake a Detailed Site Investigation (DSI) of two parcels of land adjacent to O'Connell Street within the suburb of Caddens, NSW, 2747. The Site comprises of two lots, Lot 3 DP1103503 (44-66 O'Connell St) and Lot 6 DP593628 (29 O'Connell St) that form two neighbouring rural residential properties that are currently unoccupied.

The DSI has been prepared in support of a proposed residential development for the Site, and is required based on a Preliminary Site Investigation (PSI) conducted on the Site by APP in December 2019. The PSI recommended a DSI be undertaken to characterise the contamination status of the Site, draw conclusions regarding the suitability of the Site for a low density residential land use and provide recommendations based on those conclusions.

ERM understands that the Site is proposed to be subdivided and redeveloped for low-density residential purposes consistent with 'Residential A' land use as defined in the NEPM (NEPC, 2013). The proposed subdivision and redevelopment application will cover both lots that comprise the Site in one Development Application. It is understood the current subdivision is for residential lots approximately 300m2 and associated infrastructure lots.

ERM visited the Site on Wednesday 11th and Thursday 12th March 2020 with the initial visit to undertake service location works and the second visit to undertake intrusive fieldworks. During these visits a Site walkover was conducted to assess the Site and identify any indicators of potential contamination. The Site comprises two formerly rural residential lots with associated sheds and outbuildings and former agricultural land, much of which is covered by regrowth native vegetation.

Targeted soil investigation works were conducted across the Site on 12 March 2020 to determine any existing contamination on the Site from past and present land use activities. A total of 13 test-pits were excavated across the Site. Test pits were excavated to depths between 0.5m to 0.7m, dependent on refusal, extent of fill encountered and depth of naturally occurring material. From these 13 test pits a total of 19 primary samples were collected. Additionally six different stockpiled soils were noted around the residence in Lot 3. A total of 15 primary samples were collected from the stockpiled soils.

The sampling regime assessment for the Site is considered to be adequate for an assessment evaluating the suitability of the Site for its intended use. All reporting has been undertaken in accordance with the Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites (NSW EPA, 2011)

Based on the findings of the investigation works completed and reported upon within this DSI report, the overall objectives are considered to have been met and a suitable understanding of soil conditions and contamination issues at the Site has been established.

In the context of the CSM developed for the Site, there exists a potential SPR linkage onsite under the current land use. This includes inhalation risks associated with the AF/FA identified in SP6. Asbestos within this stockpile exceeded the relevant health screening levels. As such the material should be classified and disposed from Site to a facility licensed to accept the waste. Other soil stockpiles in Lot 3 (SP1-SP5) were assessed as being compliant with the relevant human health and environmental criteria. Stockpiles of inert building materials within Lot 3 should be removed from Site when the structures are demolished.

The footprints of the structures are considered data gaps and should be further assessed post demolition of the Site structures. Evidence of chemical storage was identified within sheds across both lots.

The investigation concludes that the Site can be made suitable for the intended land use, consistent with 'Residential A' as defined in the National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1) ('NEPM', NEPC, 2013), following the disposal of SP6 and assessment of identified data gap areas post demolition.

1. INTRODUCTION

1.1 General

ERM Services Australia Pty Ltd (ERM) was commissioned by SIT Family Pacific Caddens Development Pty Ltd c/- Vantager Group (the Client) to undertake a Detailed Site Investigation (DSI) of two parcels of land adjacent to O'Connell Street within the suburb of Caddens, NSW, 2747. The Site comprises of two lots, Lot 3 DP1103503 (44-66 O'Connell St) and Lot 6 DP593628 (29 O'Connell St) that form two neighbouring rural residential properties that are currently unoccupied. Further Site identification details are presented in Section 2.

Refer to **Figure 1** – Site Location and **Figure 2** – Site Layout and Sample Locations.

This DSI report provides the requirements of a detailed investigation including an appraisal of past and present potentially contaminating activities, assessment of the environmental condition of the Site and the need for further investigation. The report also details the site investigation, prepared utilising information obtained as part of the assessment process and from experience, knowledge, and current industry practice in the investigation of similar sites.

1.2 Background

The DSI has been prepared in support of a proposed residential development for the Site, and is required based on a Preliminary Site Investigation (PSI) conducted on the Site by APP in December 2019. The PSI recommended a DSI be undertaken to characterise the contamination status of the Site, draw conclusions regarding the suitability of the Site for a low density residential land use and provide recommendations based on those conclusions.

1.3 Objectives

The project objectives of this DSI are to assess the likelihood of contamination to be present on the Site as a result of past, present and surrounding land use activities. The DSI will also provide recommendations to the future management or remediation works for the Site (if required).

Specifically the objectives of the DSI are to:

- Establish an understanding of Site history and activities;
- Identify potential sources of contamination and determine potential contaminants of concern;
- Identify areas of potential contamination and potentially affected media;
- Investigate and characterise the nature and extent of potential contamination at the Site;
- Develop a conceptual site model (CSM), to determine the source-pathway–receptor linkages through understanding the Site setting, Site history and potential sources of contamination;
- Provide an assessment of whether the current contamination status of the Site presents a potentially unacceptable risk to human health and/or the environment under the current land use zoning and proposed future use; and
- Provide conclusions regarding the suitability of the land for future land use consistent with a Residential A land use as defined in the National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1) ('NEPM', NEPC, 2013).

1.4 Scope of Works

The following scope of work was conducted for the DSI, based on the requirements outlined in the State of NSW Office of Environment and Heritage *Guidelines for Consultants Reporting on Contaminated Sites* (2019) Draft and the *National Environment Protection Council (NEPC) National Environment Protection (Assessment of Site Contamination) Measure 1999* (the ASC NEPM) – Schedule B2: Guideline on Site Characterisation (2013).

The assessment comprised the following general scope:

- Desktop review of Site plans, historical records and aerial photographs;
- Review of the environmental conditions of the Site including geology and hydrogeology;
- Provision of an overview of the Site's past and current land uses, possible contamination issues and potential Areas of Environmental Concern (AEC);
- Comprehensive inspection of accessible areas of the Site;
- Photographic survey of key features and potential contamination sources/issues;
- Identification of any areas of staining or evidence of environmental impact associated with former Site uses and/or surrounding land uses;
- Sampling of 13 test pits across the Site;
- Investigation of in-situ fill and natural soils onsite;
- Interpretation of the results of laboratory testing in the context of the Site Assessment Criteria, field observations, provision of a detailed assessment of Site contamination (if any) and the need for further assessment, management or remediation works; and,
- Preparation of this report presenting the assessment of Site contamination works to date, determine potential future investigation works and discussion of the suitability of the Site for its intended land use.

It should be noted that hazardous materials associated with Site structures are to be assessed as part of the demolition and removal process and are not included within the scope of works of this investigation.

1.5 Limitations

The findings of this report are based on the scope of work summarised in **Section 1.4**. ERM performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties, express or implied, are made. Although normal standards of professional practice have been applied, the absence of any identified hazardous or toxic materials on the subject Site should not be interpreted as a guarantee that such materials do not exist on the Site.

This assessment is based on Site inspections conducted by ERM personnel, sampling and analyses described in the report, and information provided by people with knowledge of Site conditions.

All conclusions and recommendations made in the report are the professional opinions of the ERM personnel involved with the project and, while normal checking of the accuracy of data has been conducted, ERM assumes no responsibility or liability for errors in data obtained from regulatory agencies or any other external sources, nor from occurrences outside the scope of this project.

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

The client acknowledges that this report is for the exclusive use of the client, its representatives and advisors and any investors, lenders, underwriters and financiers who agree to execute a reliance letter, and the client agrees that ERM's report or correspondences will not be, except as set forth herein, used or reproduced in full or in parts for such promotional purposes, and may not be used or relied upon in any prospectus or offering circular.

2. SITE SETTING

2.1 Site Location, Identification and Description

The Site comprises two adjacent rural residential properties, Lot 3 DP 1103503 and Lot 6 DP 593628 within the suburb of Caddens. The Site covers a total area of approximately 11.6 hectares (ha). The lots are zoned B2 – Local Centre & R3 – Medium Density Residential.

Specific Site identification details are summarised in **Table 1**.

Table 1: Site Identification

Item	Description
Site Address	29, 46 – 66 O'Connell Street and 29 O'Connell Street, Caddens, NSW 2747
Legal Identification	Lot 3 DP 1103503 and Lot 6 DP 593628
Local Government Authority	Penrith City Council
Current Zoning	B2 – Local Centre R3 – Medium Density Residential under Penrith Local Environmental Plan 2010
Site Area	Approximately 11.6 ha Lot 3 – 5.8 ha Lot 6 – 5.8 ha
Elevation	Approximately 45 – 67m AHD
Site Location	Refer to **Figure 1**
Site Survey	Refer to **Appendix G**

2.2 Proposed Site Use

ERM understands that the Site is proposed to be subdivided and redeveloped for low-density residential purposes consistent with 'Residential A' land use as defined in the NEPM (NEPC, 2013). The proposed subdivision and redevelopment application will cover both lots that comprise the Site in one Development Application. It is understood the current subdivision is for residential lots approximately 300m^2 and associated infrastructure lots, with potential for design changes prior to the development application process.

Refer to Appendix D – Subdivision Plan

2.3 Previous Investigations

A Preliminary Site Investigation (PSI) was undertaken by APP Corporation with the most recently issued report dated 12th December 2019.

The primary aims of the PSI were to identify any past or present potentially contaminating activities at the site or surrounds, to identify the potential for site contamination and make a preliminary assessment of the potential for contamination to be present on the Site. The assessment objectives were to:

- Assess the current site conditions and use via a site walkover inspection;
- Provide an appraisal of the past site use(s) based on a review of historical records; and
- Identify potential contamination sources/areas of environmental concern and contaminants of potential concern.

The investigation concluded there was a moderate risk of potential contamination with the following areas of environmental concern identified on Site:

- Presence of stockpiles of unknown origin stored on the site;
- Presence of potentially hazardous materials and uncontrolled chemicals storage on the site;
- Filling of materials in the driveway of lot 2 (not included within DSI site boundary); and
- Extensive history of agricultural land use.

As a result, it was recommended that a targeted intrusive environmental site assessment should be undertaken to assess the areas of environmental concern.

ERM considers that the investigation and report satisfactorily achieved the stated project objectives and was completed in general accordance with requirements for a preliminary site investigation as provided by NEPC (2013).

ERM are aware of other Site investigation works that have occurred on the Site, however these have not yet been provided for review. It is noted that the APP PSI report was prepared with no reference to any other investigation works that have occurred on the Site, however reference was made to studies conducted on the adjacent property currently under development.

2.4 Environmental Setting

2.4.1 Surrounding Land Use

Land use features surrounding the Site are summarised below:

Table 2: Surrounding Land Uses

Direction	Land Use
Lot 3:	
North	Lot 2 access track, then Nepean, Kingswood TAFE Campus
West	O'Connell Street and Western Sydney University Campus.
South	Construction site – estimated Industrial /Commercial land use
East	Lot 6 – Rural Residential Lot
Lot 6:	
North	Lot 2 access track, then Nepean, Kingswood TAFE Campus
West	Lot 3 – Rural Residential Lot
South	Construction site – estimated Industrial / Commercial land use
East	Grassy fields, car park belonging to Western Sydney University

2.4.2 Topography and Local Hydrology

Survey information for the Site provided to ERM indicates the Site lies at an elevation between approximately 45m and 67m AHD. Across the Site the elevation varies between approximately 67m AHD in the north section of the site to 52m AHD in the south-western corner of the site.

Lot 3 lies at elevation of approximately 48 to 67 m AHD. Elevation is highest on Lot 3 from where the houses are located and running relatively flat towards the east. From this area of peak elevation the Site slopes gently northwards, more sharply towards the south and drops very sharply from the houses to O'Connell Street in the west

Lot 6 lies at elevations of approximately 55 to 67m AHD. The elevation is highest around the dwellings onsite, slopes gently towards the East and more sharply to the South.

The closest waterbody to the Site is Claremont Creek which lies approximately 500m to the east of the site. As the Site is comprised entirely of unsealed surfaces with the exception of the house and site sheds, it is expected that runoff water generated from rainfall would largely infiltrate in to the surface of the Site, with the rate of infiltration dependent upon the permeability of the subsurface. Where the surface is heavily compacted, or the subsurface becomes waterlogged (i.e. following heavy or prolonged rainfall), it is expected that runoff water would form overland flow and follow the gradient of the land towards the south to south west.

2.4.3 Geology and Soils

The 1:100,000 'Penrith Geological Series Sheet 9035' indicates that the Site is underlain by Bringelly Shale of the Wianamatta Group. This formation comprises shale, carbonaceous claystone, claystone, laminate, fine to medium grained lithic sandstone, rare coal and tuff.

The 1:100,000 'Penrith Soil Landscape Map Sheet 9030' indicates that the Site lies within the Luddenham Landscape area which comprises poorly drained and relatively impermeable residual natural soils. Investigations on Site encountered natural topsoils described as dark brown silty clay clay with vegetative matter to a depth of 0.2-0.5m BGL. Red and tan plastic clays were observed underlying the topsoils.

A search of the Australian Soil Resource Information System (ASRIS) soil database indicates that there are no known occurrences of acid sulfate soils (ASS) in the vicinity of the Site. There were also no observations of suspected ASS during the field works. The NSW Planning Portal concurs that no known occurrence of ASS are present in the area.

2.4.4 Acid Sulfate Soils

Review of the Penrith Local Environmental Plan 2010 Acid Sulfate Soils Maps, has indicated the Site to be located within a region of no known occurrences. There were no visual indications of acid sulfate soils observed on the Site.

2.4.5 Salinity

The 'Salinity Potential in Western Sydney' map indicates the Site lies within a region of low salinity potential. There were no visual indicators of saline soils during the investigation with the site appearing to have good vegetation coverage free of stress.

2.4.6 Hydrogeology

A search of the New South Wales (NSW) Office of Water groundwater database indicates that there are no registered bores within a 500m radius of the Site. The Preliminary Site Investigation (APP 2019) indicated there was a low potential contamination risk associated with the groundwater at the Site. As such investigative groundwater assessments were excluded from the scope of this report, with provisions made to assess further should potential contamination sources be identified. Future redevelopment works are also unlikely to impact on Site groundwater quality. Groundwater intrusion into test pits was also not observed during the field works.

3. DESKTOP INVESTIGATION

The following desktop search information is based on information provided in the PSI (APP, 2019).

3.1 Section 10.7 Planning Certificate

Planning Certificates from Penrith City Council under Section 10.7 of the Environmental Planning and Assessment Act 1979 (NSW) were obtained during the PSI for both Lots within the Site. The certificate provided the following information:

- The site does not contain any critical habitat;
- The site does not contain any conservation areas;
- The site does not contain any environmental heritage items;
- The site is not proclaimed to be within a mine subsidence district;
- The land is affected by the Asbestos Policy adopted by the Council however is not affected by any other policy including land slip, bushfire, tidal inundation, subsidence, acid sulphate soils;
- The site has not been identified as being below flood plaining level;
- Biodiversity certified land is not present on the site;
- The site is recognised as being bushfire prone land; and,
- The site is not identified as being a contaminated site.

3.2 Regulatory Agency Search

3.2.1 Contaminated Land Record Search

A search of the NSW Environment Protection Authority (NSW EPA) 'Contaminated Land Record' and 'List of Contaminated Sites Notified to EPA' was carried out by ERM on 25th March 2020.

The search indicated that there are no notices issued for the Site and immediately surrounding properties under the Contaminated Land Management Act 1997.

3.2.2 POEO Search

A search of the NSW EPA *Protection of the Environment Operations (POEO) Act 1997* public register did not locate any records of notices, audits, or pollution studies/reduction programs for the Site or surrounding properties.

3.2.3 Local and State Heritage

ERM are not aware of any areas of local or state heritage significant within the Site. A search on the State Heritage Inventory on the Office of Environment and Heritage Website accessed on the 25th of March 2020 did not identify any Aboriginal Places or State Heritage Register listings within the vicinity of the site.

3.2.4 Hazardous Chemical Information

The PSI states that there no evidence of a Dangerous Goods License being held for either property on the Site within the WorkCover NSW Stored Chemical Information Database.

3.3 Site History

3.3.1 Historical Aerial Photographs

A review of aerial photographs was undertaken during the PSI to assess visible changes in land use within the Site and surrounding properties overtime. Relevant observations are summarised in **Table 3**.

Table 3: Aerial Photograph Review

DATE	DESCRIPTION
1943	The majority of the site is being used as agricultural land. There are orchard trees in Lot 3 as well as a residence. A small area of remnant bushland is present in the south-west corner of Lot 6, along with rows of crops and a small unknown structure. A small shed is also located in the north-west corner of Lot 6.
1956	The layout of crops and agricultural land observed has changed since 1943. The field appears barer while the remnant bushland in Lot 6 appeared established.
1961	A possible storage facility was observed to have been built adjacent to the residence in Lot 3. The unknown structure was observed to be demolished
1965	The site remains mostly unchanged with the remnant bushland appearing to expand further in the south of Lot 6. A possible new structure or disturbed soil was also observed in in the south west of Lot 3
1970	In Lot 3 the main brick building has been built. There are two possible structures in the south of Lot 3 but their use cannot be determined due to picture quality. In Lot 6 a fibro-cement building has been established along with a small structure to the east. A possible water tank was observed in the central portion of the site.
1982	Large sections of Lot 6 appear to have been back burnt. The small structure to the east of Lot 6 having been removed.
1991	Infrastructure that was used for the orchards and crops has been removed, with remnant bushland continuing to grow. The small structure in the centre of the site was observed to be demolished.
2002	Lot 3 remains unchanged. Throughout Lot 6 scrub species are growing. Building rubble can be seen in lot 6 to the east of the residential building
2009	The majority of the site remains relatively unchanged from the previous aerial photograph review, however vegetation in Lot 6 continues to increase.
2014	Vegetation continues to increase in Lot 6. The remainder of the site remains unchanged.
2016	Vegetation continues to expand in Lot 6 with the remainder of the site staying relatively unchanged.
2019	Multiple stockpiles of unknown origin have appeared around the house in Lot 3. The remainder of the Site appears relatively unchanged.

3.3.2 Title Deed Information

Historical land title records were reviewed in the PSI (APP, 2019). The review of the certificates did not identify any additional proprietors whose occupation would indicate the potential adverse site use. The potential areas of environmental concern identified have historically been the Site being used for residential purposes with an associated agricultural use (orchards and farming). This coincides with historical conclusions from the historical aerial photography and the Land Title Certificates.

3.4 Site History Summary

Land title records and aerial photographs indicate that the Site has historically been used as agricultural facilities with fruit orchards and crops up until 1982. No evidence of any other potentially contaminating activities or extractive industries occurring on Site has been identified, apart from the existing residential buildings that potentially contain hazardous materials.

The earliest Site history records (1943) indicate the land has a mixed history of private and business ownership since 1905. Aerial photography from 1943 show the Site has a history of being used for crop production with a dwelling established on the property.

Common chemicals that are used in agricultural activities and may have been used at the Site are Organochlorine Pesticides (OCP), Organophosphorus Pesticides (OPP), herbicides and fungicides. OCP is the most persistent of these chemicals, with residues lasting in the environment up to 20 years; whilst OPP, herbicides and fungicides are less persistent in the environment and are therefore not considered as efficient indicators of residual contamination. Fertilisers used can also contain heavy metals which are more persistent in the environment. It is considered that there is some risk of contamination associated with agricultural activities confined to the upper surface topsoil at the Site. Pesticides are therefore considered a potential contaminant of concern. These pesticides and other chemicals/fuels may have been stored in the Site sheds. As these sheds were inaccessible for intrusive assessment during the time of this investigation, they will be addressed once demolition has occurred.

Historical hazardous building materials such as lead based paint, galvanised zinc and asbestos containing materials (ACM) are likely to have been used within the construction of buildings on the Site within the last 50 years, including sheds and residential properties. Therefore, heavy metals and asbestos are considered potential contaminants of concern at the Site. There is also a risk of hydrocarbons to be present in the surface soils due to the possible use of farm machinery.

4. INITIAL CONCEPTUAL SITE MODEL

4.1 Source of Contamination

A Conceptual Site Model (CSM) is a representation of an environmental system and the processes that determine the transport of contaminants from sources through environmental media to environmental receptors. The development of a CSM comprises an iterative process of characterising Site contamination on the basis of historical, anecdotal, previous and current environmental data.

A CSM, as used herein, is the qualitative description of plausible mechanisms by which receptors may be exposed to contamination at a given site. For exposure to be considered possible, some mechanism ('pathway') must exist by which contamination from a given source can reach a given receptor. Such complete 'source-pathway-receptor' exposure mechanisms are commonly termed 'SPR linkages'.

Potential exposure pathways are evaluated based on the existence of:

- A source of contamination/impact;
- A mechanism for release of contaminants from identified sources;
- A contaminant retention or transport medium (eg, soil, air, groundwater, etc.);
- Potential receptors of contamination; and
- Mechanism for chemical intake by the receptors at the point of exposure (ingestion, dermal contact or inhalation or a combination).

Contaminant sources, exposure mechanisms and receptors at the Site are discussed in the following sections, with a thorough understanding of the relationships between each considered fundamental in assessing potential risk.

4.2 Nature and Extent of Site Contamination

Based on the information collected from the Desktop Investigation and the APP PSI (2019) ERM have identified three potential Areas of Environmental Concern (AECs) at the Site. These have been summarised in **Table 4** below. Given the buildings onsite are to be subject to hazardous materials assessment and removal at a later date this investigation focused on AECs 2 and 3, with AECs 1 to be addressed following removal of Site structures.

Table 4: COPC

Area of Environmental Concern	COPC
AEC 1 – Buildings and Associated Outbuildings Weathering and demolition of former structures potentially comprised of hazardous building materials, potential underlying fill materials of unknown origin and/or storage of chemicals within structures.	Asbestos, OC/OP/TRH/BTEX/PAHs, Heavy Metals
AEC 2 – Stockpiled Materials Stockpiled material of unknown origin located within Lot 3	Asbestos, OC/OP/TRH/BTEX/PAHs, Heavy Metals
AEC 3 – Topsoil Soils across Site potentially impacted as a result of long history of agricultural activities	Asbestos, OC/OP/TRH/BTEX/PAHs, Heavy Metals

4.3 Release and Transport Mechanism

Contaminants generally migrate from a source to a receptor via, or as a combination of, windblown dusts, infiltration, groundwater migration and/or surface water runoff. The potential for contaminants to migrate is a combination of:

- The nature of the contaminants (solid/liquid, concentration and mobility characteristics);

- The extent of the contaminants (isolated or widespread);
- The location of the contaminants (surface soils or at depth); and
- The Site topography, geology, hydrology and hydrogeology.

4.4 Exposure Pathway

Identified Potential Pathways/Receptors:

- Vapours migrating upwards from fill material of unknown origins or impacted surface soils resulting from potential historical activities;
- Potential dermal and oral contact with impacted soils;
- Potential contaminant uptake by vegetation;
- Potential contaminant uptake by Site occupants as a result of ingestion via consuming vegetation grown in areas of the Site; and
- Direct ingestion of soil, particularly by young children playing on the ground surface in unsealed areas of the Site.

Given the understanding of historical and current Site use, the nature of the potential contamination sources (generally limited to above ground sources), groundwater has not been considered for detailed assessment within the investigation. It is noted however that in the absence of data, groundwater impact, while unlikely, cannot be completely excluded.

4.5 Receptors

The potentially sensitive receptors of environmental impacts present at the Site and in the immediately surrounding area include:

- Present and future occupants of the Site;
- Present and future visitors to the Site;
- Construction and maintenance workers conducting activities at the Site; and
- Flora and fauna species established at the Site and adjacent to the Site.

5. SAMPLING AND ANALYSIS PLAN

5.1 Data Quality Objectives

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

5.1.1 Step 1: State the Problem

Based on the nature of the historical uses known to have occupied across the site, the DSI needs to address/provide data required for the characterisation of the Site and an assessment of whether the Site is suitable for a Residential 'A' land use as defined by the NEPM (NEPC, 2013).

5.1.2 Step 2: Identify the Decisions

The decisions to be made on the contamination and the new environmental data required includes considering relevant site contamination criteria for the Site. It is proposed that for the Site to be suitable the 95% Upper Confidence Limit (UCL) of the mean concentrations for all PCOCs must be less than the criteria identified for a Residential 'A' land use. Other inputs to the decision include:

- Do contaminant concentrations in soil comply with the stated Assessment Criteria?
- Have the previous land uses affected the environmental quality of the land?
- Do residual soils pose an unacceptable risk to human health or the environment?

5.1.3 Step 3: Identify the Inputs to the Decision

The primary inputs in assessing the presence of contamination in soil are as follows:

- Historical information obtained from previous environmental reports, including areas of potential and known contamination;
- Investigation objectives;
- Existing and proposed site uses and features;
- Field investigation techniques to assess contamination as per ERM's standard field procedures;
- Laboratory analytical data from analysed samples including interpretation and statistical analysis of laboratory data;
- Assessment of risk based on the nature and extent of contamination, current and future potential receptors and the likelihood of exposure to unacceptable levels of contamination both on and off the Site.

5.1.4 Step 4: Identify the Study Boundaries

- Spatial Boundaries – the spatial boundary of the assessment is confined to the area of the Site. The Site boundaries are presented in **Appendix G**– Site Survey.
- Temporal Boundaries – as data from previous environmental reports will be relied upon, the temporal boundary for this assessment is from November 2019 to the date of this report.

5.1.5 Step 5: Develop a Decision Rule

The Site will be considered suitable for its intended land use if contaminant concentrations in soils comply with the investigation and screening levels of the Assessment Criteria, as determined by the following decision rules being applied to the data:

- The 95% UCL of the arithmetic mean for each Contaminant of Concern must comply with the respective investigation/screening level;
- The individual contaminant concentration should not exceed the respective investigation/screening level by more than 250%; and
- The standard deviation of individual contaminants should not exceed 50% of the respective investigation/screening level.

5.1.6 Step 6: Specify Performance Criteria

Field and laboratory quality controls are implemented to avoid error and to ensure the action levels exceed the measurement detection limits. The performance of decision making inputs will be enhanced through the application of Data Quality Indicators (DQI), defined in **Table 5**.

A site under validation is assumed to be contaminated until statistically proven otherwise (e.g.: Ho= Analyte 95% UCL exceeds the investigation criteria), therefore two types of error are possible:

- Type 1 error (α or false negative), where the site is assessed to be uncontaminated when it is actually is; and
- Type 2 error (β or false positive), when the site is assessed to be contaminated though is actually not.

The more severe consequence is with Type 1 errors (α) since the risk of jeopardising human or environmental health outweighs the consequences of additional remediation costs. Therefore, to achieve appropriate confidence in the data, probabilities are set at 5% for Type 1 error, whilst Type 2 errors are set at a 20% probability limit.

5.1.7 Step 7: Optimise the Plan for Completion of Works

Appropriate QA/QC procedures have been adopted to ensure the quality of the data obtained in the current assessment. The most resource-effective sampling and analysis plan for general data has been designed to satisfy the DQOs. Refer to the following Sections and Section 8 – QA/QC.

5.1.8 Data Quality Indicators

Table 5: Data Quality Indicators

Data Precision and Accuracy	
Relative Percentage Difference (RPD)	>10x laboratory limit of reporting (LOR): 30% inorganics; 50% organics (field) <10x LOR: Assessed on individual basis (field) >5x LOR 50% (laboratory) <5x LOR No Limit (laboratory)
Laboratory Performance	Based on acceptance criteria of laboratory as specified on certificate of analysis, includes: blank samples, matrix spikes, control samples, and surrogate spike samples. Use of analytical laboratories with adequately trained and experienced testing staff experienced in the analyses undertaken, with appropriate NATA certification.
Fieldwork Performance	Use of trained and qualified field staff; same sampler(s) used for all recoveries. Appropriate sampling methods used, minimising the opportunity for cross-contamination.
Data Representativeness	
Sample Coverage	Representative coverage of potential contaminants, based on site history, site activities and site features.
Sample and Analysis Selection	Representativeness of all contaminants of concern.
Trip Blanks	No detection above LOR.
Trip Spikes	Recoverable concentrations of volatiles between 60 – 140%.
Laboratory Selection	Adequate laboratory internal quality control and quality assurance methods, complying with the NEPM (NEPC, 2013).
Document Completeness	
Documentation Review	Review of acquired documented information pertaining to site history
Fieldwork Observation	Preparation of borehole logs, sample location plan.
Chain of Custody Records	Laboratory sample receipt information received confirming receipt of samples intact and appropriate chain of custody. NATA registered laboratory results certificates provided
Data Completeness	
	Analysis for all contaminants of concern. Field duplicate sample numbers complying with NEPM (NEPC, 2013). Trip spike samples prepared and sent with field samples regularly.
Comparability	
Fieldwork Performance	Use of consistent test methods for each sample. Using appropriate techniques for sample recovery. Using experienced sampler.
Laboratory Performance	Use of NATA registered laboratories. Test methods comparable between primary and secondary laboratory. Acceptable RPD's between original samples and field duplicates and inter-laboratory triplicate samples.

5.2 Field Investigation Procedure

Field investigation works were required to assess the nature and extent of contamination of the land, considering the area has historically been used for grazing, agriculture, residential purposes including disturbances related to land clearing, storage of materials and installation of agricultural infrastructure on-site.

5.3 Soil Investigation

Targeted soil investigation works were conducted across the Site to determine any existing contamination on the Site from past and present land use activities. A total of 13 test-pits were excavated across the Site. Test pits were excavated to depths between 0.5m to 0.7m, dependent on refusal, extent of fill encountered and depth of naturally occurring material. From these 13 test pits a total of 19 primary samples were collected. Additionally six different stockpiled soils were noted around the residence in Lot 3. A total of 15 primary samples were collected from the stockpiled soils.

Refer to **Figure 2** – Site layout with Sample Locations and **Figure 3** – Stockpile Locations.

Soil samples were collected and submitted to NATA accredited Laboratories for analysis. Laboratories used included Envirolab Services, located in Chatswood and Australian Safer Environment technologies located in Hornsby. Soil samples were subjected to the following analysis:

- Total Recoverable Hydrocarbons (TRH)
- Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene (BTEXN);
- Poly Aromatic Hydrocarbons (PAH);
- Organochlorine Pesticides (OCP);
- Organophosphorus Pesticides (OPP);
- Polychlorinated Biphenyls (PCB);
- Heavy Metals: Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc;
- pH;
- Electrical Conductivity (EC);
- Cation Exchange Capacity (CEC); and
- Asbestos

5.4 Groundwater Investigation

Due to the previous conclusion of groundwater to be unlikely to have been negatively impacted at the Site (as outlined in **Section 2.4.6**) groundwater was not deemed to be relevant to the contamination status of the Site and therefore was not included within the scope of this report.

6. INVESTIGATION CRITERIA

6.1 Soil Criteria

Investigation criteria used to assess the success, or otherwise, of the investigation works was obtained from the following publications:

- National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1) (NEPC, 2013); and,
- Health screening levels for petroleum hydrocarbons in soil and groundwater, Part 2: Application document, CRC CARE Technical Report no. 10. (Friebel, E and Nadebaum, P, 2011).

The Assessment Criteria are not clean up criteria, but are indicative of a level of contamination above which there is a potentially unacceptable risk which may require further assessment, management or remediation.

6.1.1 Health Investigation Levels and Asbestos Health Screening Levels

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

- HIL A – Residential A

The adopted HIL and HSL are from Table 1A(1) and Table 7, Schedule B1 of NEPM (NEPC, 2013).

6.1.2 Hydrocarbon Health Screening Levels

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

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

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

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

- HSL A – Low density residential 'clay' (or 'fine').

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

6.1.3 Hydrocarbon Management Limits

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

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

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

6.1.4 Ecological Investigation Levels

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

Examples include:

- The size of the Site, land value, cost of remediation (economic);
- The type of contaminants present, current and potential Site land use, surrounding land use (societal); and
- The ecological significance (e.g. a rare and endangered species or a species that supports a valued ecological process or a sensitive introduced species of low ecological significance) of the values identified in the Receptor Identification component of Ecological Risk Assessment to be protected.

Ecological Investigation Levels (EILs) have been implemented to environmentally manage the effect of contaminants on terrestrial ecosystems and species sensitivity. The EILs referenced in this report have been developed for the urban residential and public open space land use for the Site. It is important to note that the contamination is assumed to be aged (>2 years), as fresh contamination associated with current industrial/agricultural activity and chemical spills are not likely present on site. The process to derive EILs for Arsenic, Chromium (III), Copper, Lead, Nickel, Zinc, DDT and Naphthalene is given below.

6.1.4.1 Ambient Background Concentration (ABC)

For Nickel, Chromium, Zinc and lead (aged contamination), the EILs are the sum of Added Contaminant Limits (ACLs) and Ambient Background Concentrations (ABCs). To establish the ABC of a contaminant, the recommended method is to measure the ABC at an appropriate unpolluted reference site. Sample TP8_0.5 was collected from the natural soils underlying the Site and is considered representative for the purposes of providing an ABC. The ABC sample was collected from red clay at a depth of 0.5m BGL, with the material corresponding to lu3 (whole coloured, strongly pedal clay) in the Luddenham Soil Landscape, as described in Soil Landscapes of the Penrith 1:100000 Sheet (Bannerman and Hazelton, 1990).

For As, Pb, DDT and Naphthalene (aged contamination), the EILs are generically obtained (i.e. not dependent on soil type).

6.1.4.2 Added Contaminant Limit (ACL)

The ACL is the added contamination (in excess of the ABC). ACLs are applicable to chromium, copper, nickel and zinc and are based on soils properties of pH, Cation Exchange Capacity (CEC) and the clay content. The soil type from sample TP8_0.5 was identified to be natural high plasticity clay allowing for a clay content percentage in excess of 10%. Luddenham lu3 is identified as being strongly acid to moderately acidic with a pH range of 4-5.5 and having a moderate CEC ranging between 12-25. Based on this information the respective soil EILs have been calculated in **Table 9**.

Table 6: Ecological Investigation Levels (mg/kg)

Analyte	ABC	ACL	EIL
Arsenic	-	-	100
Chromium (III)	30	400	430
Copper	40	60	100
Lead	17	1100	1110
Nickel	33	170	200
Zinc	54	85	140
DDT	-	-	180
Napthalene	-	-	170

6.1.4.3 Ecological Screening Levels

Ecological screening levels (ESLs) have been developed for selected petroleum hydrocarbon compounds and are applicable for assessing risk to terrestrial ecosystems. ESLs broadly apply to coarse and fine-grained soils and various land uses. They are generally applicable to the top 2 m of soil. Based on the observed soil types onsite a soil texture of "fine" has been used.

The adopted ESLs are from Table 1B(6), Schedule B1 of NEPM (NEPC, 2013).

6.2 Aesthetic Criteria

No specific numeric aesthetic guideline values are provided within the NEPM (NEPC, 2013), however it requires the consideration of aesthetic issues (as a result of contamination) arising from soils within the site.

ERM considers that an appropriate aesthetic criterion for fill materials to be placed within residential areas or in open space land / road corridors would be:

- Free of odours;
- Free of staining; and
- Do not contain more than trace quantities of anthropogenic material.

7. RESULTS

7.1 Investigation Observations

ERM visited the Site on Wednesday 11th and Thursday 12th March 2020 with the initial visit to undertake service location works and the second visit to undertake intrusive fieldworks. During these visits a Site walkover was conducted to assess the Site and identify any indicators of potential contamination. The Site comprises two formerly rural residential lots with associated sheds and outbuildings and former agricultural land, much of which is covered by regrowth native vegetation.

Refer to **Appendix A** - Photographic Gallery

7.1.1 Residential Properties and Sheds

A residential property, accompanied by sheds and other rural residential structures was present on Lot 3 and Lot 6 onsite. The main residence of Lot 6 comprised a single storey fibre cement sheeting and metal building. Two sheds were present constructed of fibre cement sheeting, wood and metal. Subsurface water services for Lot 6 were located within this access way.

The main house within Lot 3 was a two storey brick structure with a ceramic tile roof. There was a smaller structure behind the main house constructed primarily of fibre cement sheeting with a metal roof. This smaller structure was likely the residence prior to the main building's construction. Multiple sheds constructed primarily of sheet metal and wood are also present within the Lot.

In close proximity to the structures of Lot 3 were a range of soil stockpiles that appear to have be dumped on the Site between December 2018 and March 2019. The stockpiles comprised soils and inert building materials and were overgrown at the time of the assessment. The individual tipped loads were broadly grouped into six stockpiles based on proximity and the visual similarity of the materials present. Refer to Table 7 for further details. Additionally stockpiles of building materials, including bricks and fibre cement sheeting were observed south of the properties in Lot 3. No soil was present within these stockpiles and it is assumed they are to be removed from Site at the time of demolition.

Table 7: Stockpile Details

Stockpile ID	Approximate Volume	Material Description
SP1	15m^3	Approximately two loads of brown/grey/red clay, grey/brown shale and rock, gravel, concrete and brick.
SP2	10m^3	Approximately two loads of mottled brown silty clay and gravel with shale and rock inclusions.
SP3	15m^3	Approximately two loads of light brown sandy clay with gravel, brick, concrete, PVC piping and fabric. Visually similar to SP5.
SP4	10m^3	Approximately one load of light brown mottled clay with gravel, brick, concrete and other inert demolition rubble.
SP5	10m^3	Approximately two loads of light brown sandy clay with gravel, brick, concrete, PVC piping and fabric. Visually similar to SP3.
SP6	50m^3	Approximately five loads of light grey-brown silty clay with gravel, concrete and brick inclusions. Fragments of fibre cement sheeting were observed in some loads.

Refer to **Figure 3** – Stockpile Locations

7.1.2 Former Agricultural Land

The former agricultural land on all lots comprised overgrown grasslands with stands of shrubs and native bushland regenerating over the Site. All observed vegetation appeared healthy and unstressed. The Site-wide soil profile was observed to predominantly comprise shallow topsoil underlain by natural clays. Natural material was observed below the topsoil layers during test pitting with no fill material observed or expected to occur below natural material. Topsoil depths varied slightly with the natural clays encountered generally by 0.3m bgl. Visual inspection revealed no evidence of potential contamination indicators such as staining or odours as a result of the possible cultivation activities that may have occurred from past land use.

Refer to **Appendix E** - Borelogs

7.2 Field Measurements

A Photon Ionisation Detection (PID) was used as a semi-quantitative indicator of the potential presence of volatile contaminants in soil. Soil samples used for field screening were placed in snap-lock bags immediately after collection and sealed. The soil was crumbled within the bag to promote volatilisation and then left to sit for several minutes prior to obtaining a reading. A reading was taken by piercing a small hole in the bag, placing the tip of the PID into the bag, sealing with the fingers and recording the maximum concentration observed. PID readings indicative of the presence of ionisable volatile compounds (>10ppm isobutylene equivalent) were not encountered at any of the investigation locations. Results indicated no detection above 0.0PPM. PID readings for each location are presented on the test pits logs in **Appendix E** and PID calibration certificate is presented in **Appendix H.**

7.3 Soil Results

A total of 34 primary soil samples were collected for analysis from the Site. Nineteen of these primary samples were collected from 13 test pits excavated into the Site, with an additional 15 samples collected from the six different stockpiled materials present around Lot 3.

Appendix B – Data Summary Tables and **Appendix C** – NATA Certified Analytical Results.

The results for both the test pit samples and the stockpile soil samples are summarised below.

7.3.1 Total Recoverable Hydrocarbons and Monocyclic Aromatic Hydrocarbons

All soil samples were analysed for Volatile and Semi-Volatile Total Recoverable Hydrocarbons (TRH) and Benzene, Toluene, Ethylbenzene, Xylene and Naphthalene (BTEXN).

No samples from the test pits or stockpiles reported concentrations of TRH or BTEXN above the laboratory limit of reporting (LOR).

7.3.2 Polycyclic Aromatic Hydrocarbons

All soil samples were analysed for Polycyclic Aromatic Hydrocarbon (PAH) concentrations, including calculation of the Benzo(a)Pyrene Toxicity Equivalence Quotient (BaP TEQ).

No primary samples from the test pits or stockpiles reported BaP TEQ above the LOR. No primary samples from the test pits reported total PAH concentrations above the LOR, with two samples from the stockpiles reporting total PAH concentrations above the LOR, yet compliant with the relevant HILs.

7.3.3 Pesticides

All stockpile samples were analysed for Organochlorine (OC) and Organophosphate (OP) pesticides. Eight of the test pit samples were also analysed for OC and OP pesticides.

Two stockpile samples reported Dieldrin detections above the LOR with concentrations compliant with the HILs. No other OC or OP pesticides were reported within the stockpile samples. No test pit samples reported OC or OP pesticides above the LOR.

7.3.4 Heavy Metals

All soil samples were analysed for eight heavy metals as recommended by the NSW EPA. No detections were reported for cadmium or mercury with detections above the LOR reported for the other six heavy metals. No concentrations within the stockpile or test pit samples exceeded the relevant HIL or EILs. Given the separate nature of the stockpiles a statistical analysis was not undertaken of the stockpiled materials. Refer to **Table 8** for a statistical summary of heavy metal detections within the test pit samples.

Table 8: Heavy Metal Results Summary – Test Pits (mg/kg)

	As	CR	Cu	Pb	Ni	Zn
Minimum	ND	18	22	12	14	33
Maximum	28	46	79	33	63	11
Average	10.76	24.74	42.11	20.68	27.58	57
Std. Dev.	5.729	6.773	15.15	63.95	11.5	17.73
No. of Detections	16	19	19	19	19	19
No. of HIL Exceedances	0	0	0	0	0	0
No. of EIL Exceedances	0	0	0	0	0	0

ND – Not Detected above LOR

7.3.5 Asbestos in Soil

An asbestos quantification sample was collected from each of the 13 test pits. No ACM was observed to be present in the test pits and no asbestos was reported to be present within any of the test pit samples.

A total of 15 samples were collected for asbestos quantification from the stockpiles onsite, with an additional ACM fragment collected. Two stockpile samples, SP6-4 and SP6-5, both within stockpile SP6, reported detections of asbestos fines (AF) above the LOR and exceeding the AF w/w% HSL. The fragment sample, collected from SP6-5 also report a positive detection of asbestos and exceeded the ACM w/w% HSL. The ACM w/w% calculation for this stockpile is presented in **Table 9.**

Table 9: ACM w/w% Calculation

Sample ID	Fragment Weight (kg)	Asbestos %	Quantification Volume (L)	Bulk Density	ACM w/w%
SP6-5-ACM	0.01442	15.46	10	1.7	0.0131

8. FIELD AND LABORATORY QUALITY CONTROL

Samples were collected in accordance with ERM Standard Operating Procedures. Field intra-laboratory and inter-laboratory duplicates were collected at a rate exceeding the requirements of the SAQP. Field duplicates provide an indication of the whole validation process, including the sampling process, sample preparation and analysis. The Relative Percent Difference (RPDs) between the parent, intra-laboratory and inter-laboratory duplicate samples were assessed based on the criteria provided in **Section 6** of this report.

A summary of field QA/QC samples collected and analysed is presented below:

- One rinsate sample was submitted for analysis of Heavy Metals, TRH and BTEX. All analytes were reported back beneath the Laboratory PQLs.
- One trip spike and one trip blank were submitted for laboratory analysis as part of this investigation. Trip blank results reported all analytes below the laboratory PQLs, while recoveries for the trip spike were all within the acceptable range of 70 – 130%.
- Four intra-laboratory duplicates and four inter-laboratory triplicate sample were collected for submission for laboratory analysis as part of this investigation. RPDs for most of the analytes were all reported within the acceptable range with the following exceptions:
  - Inter-Laboratory sample pair TP01_0.2 and 20200312_D01 for the following:
    - Total PAH – 67%;
    - Cu – 62%; and,
    - Pb – 32%;
  - Inter-Laboratory sample pair SP1-1_0.1 and 20200312_D03 for the following:
    - As – 57%;
    - Cr – 378%; and
    - Zn – 31%;
  - Inter-Laboratory sample pair SP6-1 and 20200312_D04 for the following:
    - Cr – 42%;
    - Pb – 38%;
    - Ni – 40%; and
    - Zn – 47%;
  - Intra-Laboratory sample pair TP01_0.2 and 20200312_T01 for the following:
    - BaP TEQ – 67%;
  - Intra-Laboratory sample pair TP03_0.1 and 20200312_T02 for the following:
    - BaP TEQ – 82%;
    - Cu – 42%; and,
    - Ni – 35%;
  - Intra-Laboratory sample pair SP1-1 and 20200312_T03 for the following:
    - BaP TEQ – 82%; and,
    - Cr – 51%;
  - Intra-Laboratory sample pair SP6-1 and 20200312_T04 for the following:
    - BaP TEQ – 82%; and,

- Zi – 33%.

- The noted RPD exceedances are all related to differences between the laboratory LOR, or for results with one sample within five times the laboratory LOR and/or results with a difference of less than 5% of the relevant HIL/HSL criteria.
- Considering that the majority of duplicate pairs were within the adopted limits and the effects of confidence intervals with low concentrations, the heterogeneity observed in the duplicate samples is not significant enough to diminish the confidence in sampling technique or laboratory results

Refer to Appendix D – QA/QC for further details.

8.1 Laboratory QA/QC

Percentage recovery results for matrix spikes, duplicates, laboratory control samples and surrogates were generally within the acceptable range defined by both primary and secondary laboratories. The primary lab reported no non-conformances with the laboratories Data Quality Objectives. Laboratory analytical certificates are presented in **Appendix C**.

After reviewing the laboratory QA/QC data available, ERM considers the quality of the laboratory data reported both by the primary and secondary labs to be reliable.

8.2 QC Summary

Overall, ERM considers that the field and laboratory data obtained is representative of subsurface conditions at the sampling locations, and therefore the results are acceptable for the purposes of this validation assessment.

9. UPDATED CONCEPTUAL SITE MODEL

The CSM presented in Section 4 of this report has been updated using the results of the sampling and laboratory analysis undertaken as part of this investigation, to reflect the actual conditions known to exist on Site at the completion of works.

9.1 Source of Contamination

The principal potential contamination sources are assumed to be associated with dumped stockpiles of unknown origin and previous agricultural activities within the Site. Based on the results of the investigation the only contamination identified comprises of asbestos contamination within dumped stockpiles. No exceedances of the chemical HIL/HSL or EIL/ESL criteria were noted.

9.2 Nature and Extent of Site Contamination

Contamination onsite is limited to a single stockpile of dumped material that exceeds health screening levels for asbestos. Indicators of widespread contamination were not identified within soils onsite.

9.3 Exposure Pathways and Potential Receptors

The stockpile reporting exceedances of the adopted Site criteria for asbestos was found adjacent to the residence in Lot 3. A potential inhalation risk exists for asbestos under a residential land-use scenario. The reported bonded asbestos within the stockpiled material could potentially lead to an exposure pathway forming with future Site users. Therefore a potential exposure pathway exists between the reported asbestos contamination and potential receptors under the current Site land use. Remediation is required to remove this exposure pathways prior to the redevelopment works.

Potentially asbestos containing materials were noted to be present in the majority of structures on the Site. Chemical storage has been noted within some structures. As the structures were still present at the time of assessment the footprint of these structures comprises a data gap for assessment following the demolition of these structures.

10. DISCUSSION/SITE CHARACTERISATION

The objectives of this investigation was to assess the suitability of the Site for the proposed residential development from a contamination perspective. A desktop and historical investigation was undertaken along with a review of available previous investigations. Through this process, ERM identified several areas of potential environmental concern. As such targeted assessment of these areas was undertaken during this investigation.

10.1 In-Situ Soils

Previous use of the Site for agricultural purposes presented a range of potential contamination scenarios at the Site. Sample analysis from the test pits excavated during this investigation indicate there were no exceedances of the chemical HIL/HSL criteria, nor were there any exceedances of the EIL/ESL criteria within the in-situ soils onsite.

10.2 Site Structures

Potentially asbestos containing building materials were observed to be present within the majority of Site structures. Chemical storage has been noted to be present in some structures. As the structures were present at the time of the assessment the footprint of these buildings currently form a data gap that will require assessment following demolition and removal of building materials and other residual waste.

10.3 Dumped Stockpiles

Stockpiles of wood, brick and other building materials without soil were noted to be present onsite, this includes fibre cement sheeting fragments. Multiple stockpiles of soil and inert building materials were noted to be present in the vicinity of the residences in Lot 3. The stockpiles of soil and building rubble were assessed chemically with all chemical results compliant with the land use criteria for the Site. Bonded ACM and AF/FA, at concentrations exceeding the land use criteria were reported to be present within Stockpile SP6. No other assessed stockpiles reported the presence of asbestos.

10.4 Identified AECs

Using observations of asbestos, foreign materials and chemical contamination made during the investigation works, and the results of the laboratory analysis, two areas of potential environmental concern (AEC) on the site have been determined. AEC 1 comprises of the material in dumped stockpile SP6 where asbestos contamination is reported. AEC 2 comprises of the building footprints of the structures and access way present onsite.

Table 10 provides a summary of the Areas of Environmental Concern.

Table 10: Areas of Environmental Concern

AEC	Description	Identified Contaminants of Concern	Estimated Area/Volume
AEC 1	Stockpile SP6	Asbestos	50m^3
AEC 2	Data Gaps: Structure Footprints	Asbestos, Heavy Metals, TRH, PAH, OC/OP Pesticides	1,300m^2

11. CONCLUSIONS AND RECOMMENDATIONS

ERM conducted a DSI at the Site identified as 29, 46-66 O'Connell Street, Caddens, comprising two lots – Lot 3 and Lot 6. Following consultation of previous environmental investigations, observations and analytical results conducted as part of this site investigation ERM have identified two Areas of Environmental Concern (AEC) requiring further attention.

The sampling regime assessment for the Site is considered to be adequate for an assessment evaluating the suitability of the Site for its intended use. All reporting has been undertaken in accordance with the Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites (NSW EPA, 2011)

Based on the findings of the investigation works completed and reported upon within this DSI report, the overall objectives are considered to have been met and a suitable understanding of soil conditions and contamination issues at the Site has been established.

In the context of the CSM developed for the Site, there exists a potential SPR linkage onsite under the current land use. This includes inhalation risks associated with the AF/FA identified in SP6. Asbestos within this stockpile exceeded the relevant health screening levels. As such the material should be classified and disposed from Site to a facility licensed to accept the waste.

Other soil stockpiles in Lot 3 (SP1-SP5) were assessed as being compliant with the relevant human health and environmental criteria. Stockpiles of inert building materials within Lot 3 should be removed from Site when the structures are demolished.

The footprints of the structures are considered data gaps and should be further assessed post demolition of the Site structures. Evidence of chemical storage was identified within sheds across both lots.

The investigation concludes that the Site can be made suitable for the intended land use, consistent with 'Residential A' as defined in the National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1) ('NEPM', NEPC, 2013), following the disposal of SP6 and assessment of identified data gap areas post demolition.

12. REFERENCES

APP (2019). Preliminary Site investigation: 46-66 & 46A O'Connell Street, Caddens, NSW.

AS 4482.1-2005 Guide to the Investigation and Sampling of Sites with Potentially Contaminated Soil Part 1: Non-Volatile and Semi-Volatile Compounds

Friebel, E. and Nadebaum, P. (2011) Health screening levels for petroleum hydrocarbons in soil and groundwater, Part 2: Application document, CRC CARE Technical Report no. 10.

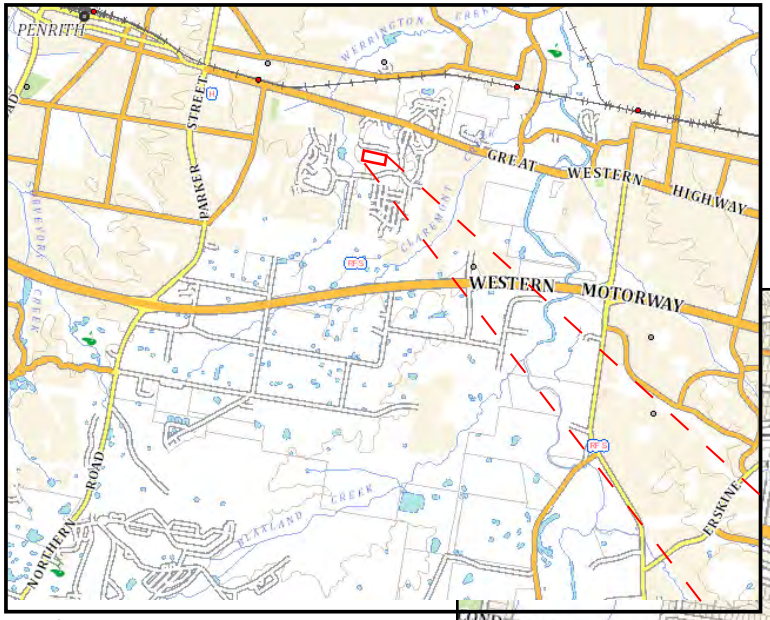
NEPC (1999). National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1). National Environment Protection Council.

NSW EPA (2017). Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme 3rd edition. New South Wales Environment Protection Authority.

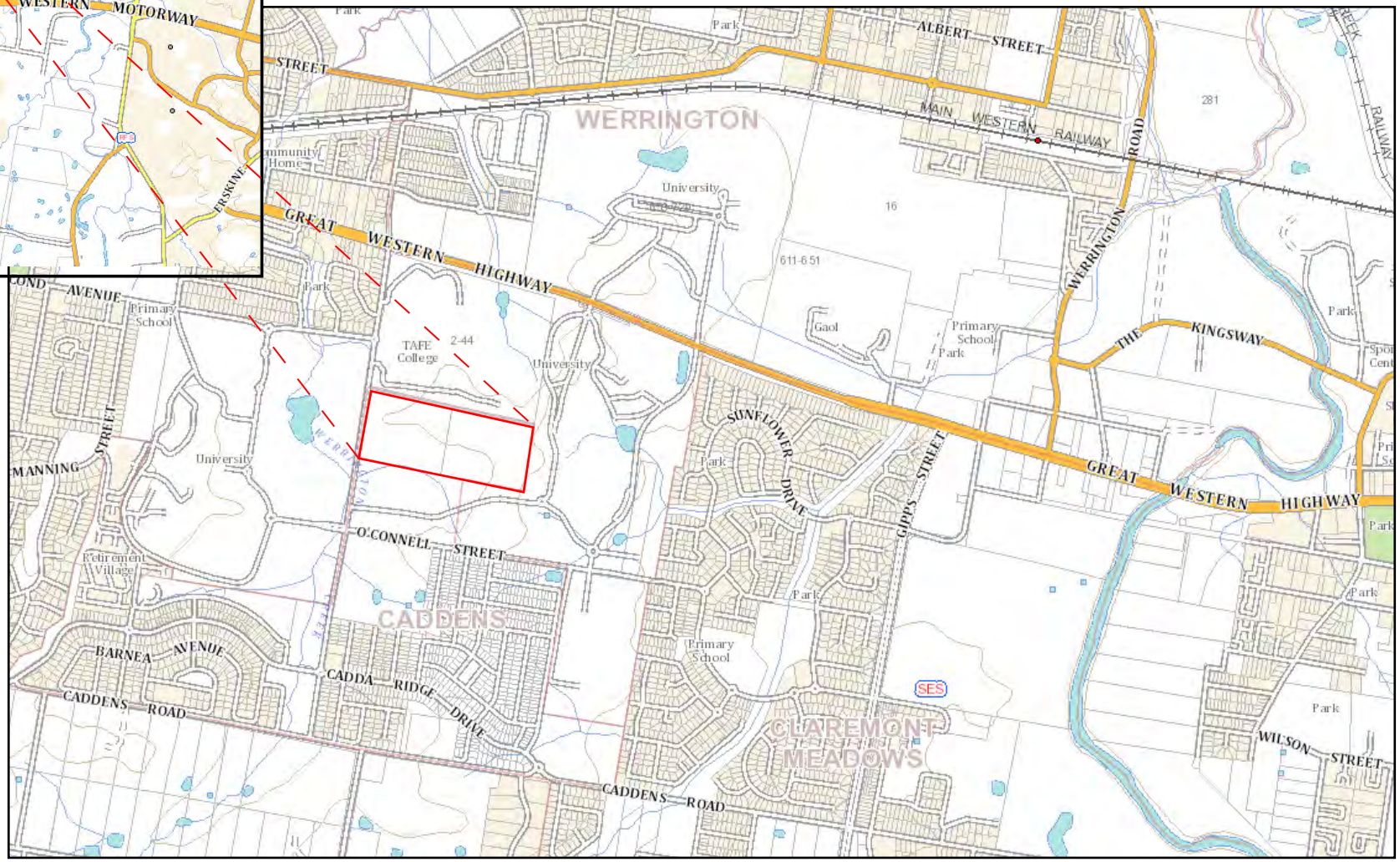
NSW EPA (1995). Sampling Design Guidelines. New South Wales Environment Protection Authority.

NSW OEH (2011). Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites. New South Wales Office of Environment and Heritage.

FIGURE 1 – SITE LOCATION



Locality Map



Legend

Approximate Site Boundary

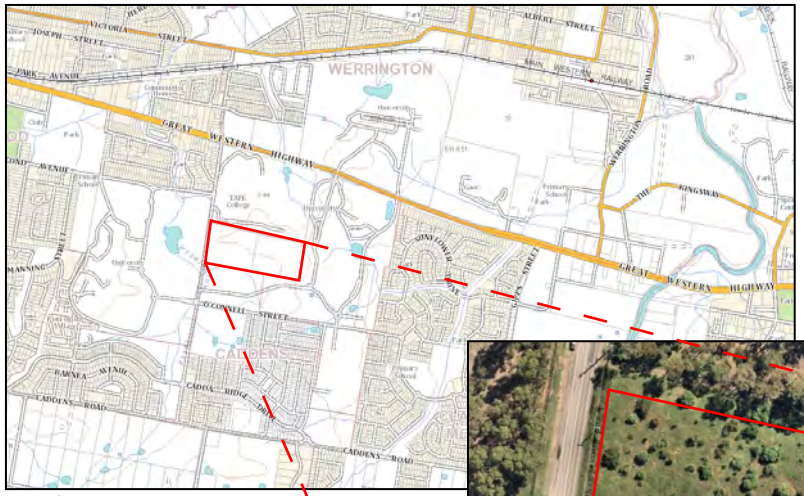
N W E S

Sydney
Unit 11 Macquarie Link
277 Lane Cove Road
Macquarie Park NSW 2113

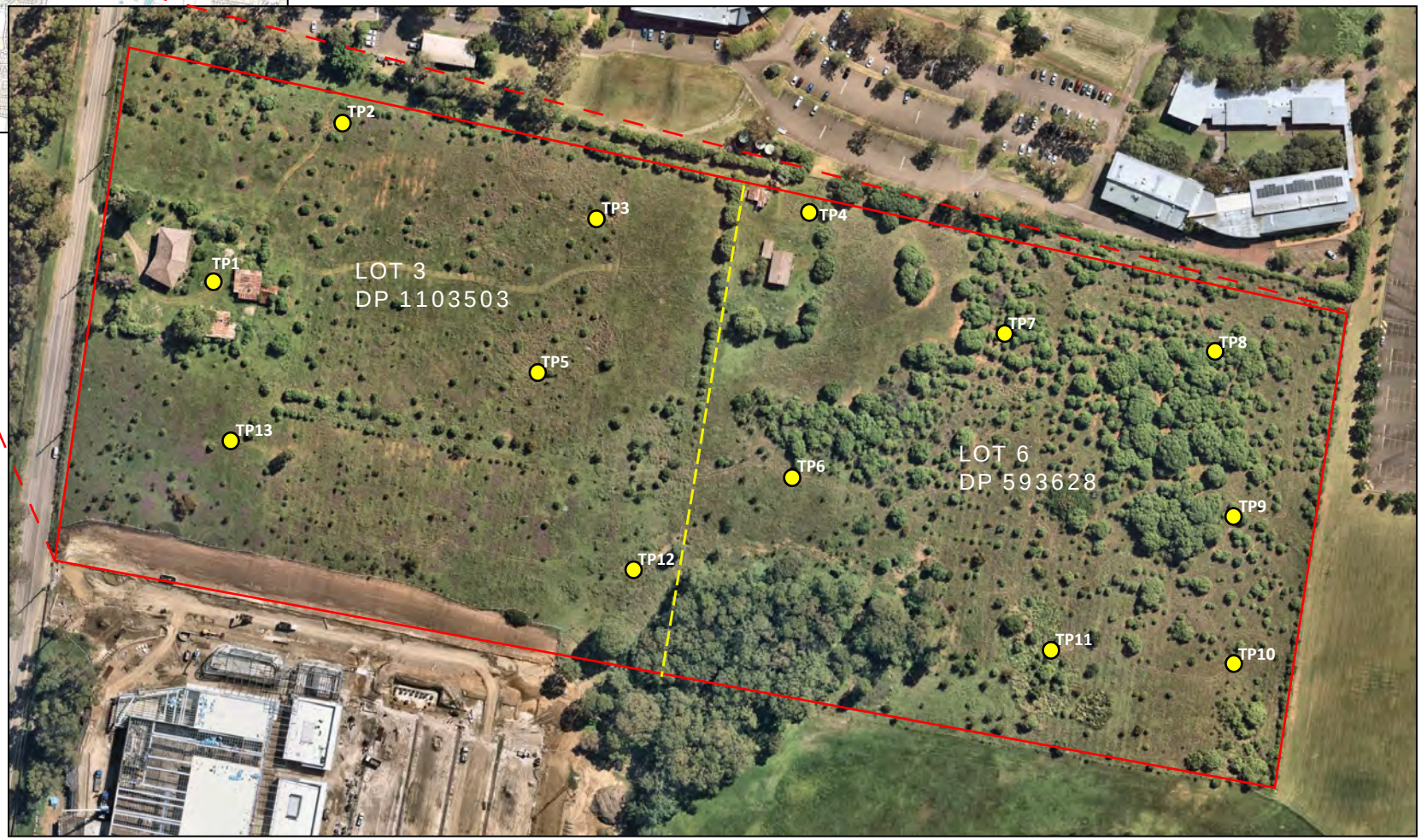
Newcastle
Level 4
45 Watt Street
Newcastle NSW 2300

Title: Site Location			
Site Address: O'Connell Street, Cadden	Project No.: 0471390	Figure No: 1	Date: 3/4/2020
Client: Vantager Group	Scale: Not to Scale	Compiled: AR	Revision: Version 1.0

FIGURE 2 – SITE LAYOUT AND SAMPLE LOCATIONS



Locality Map



Legend

- Approximate Site Boundary
- Approximate Test Pit Location
- Approximate Lot Boundary

Approximate Scale

0m 50m 100m

N W E S

ERM

Sydney
Unit 11 Macquarie Link
277 Lane Cove Road
Macquarie Park NSW 2113

Newcastle
Level 4
45 Watt Street
Newcastle NSW 2300

Title: Site Layout with Sample Locations

Site Address	Project No.	Figure No	Date
O'Connell Street, Cadden	0471390	2	3/4/2020
Client	**Scale**	**Compiled**	**Revision**
Vantager Group	As Shown	AR	Version 1.0

FIGURE 3 – STOCKPILE LOCATIONS

Site Map

Legend

- Approximate Site Boundary
- Approximate Compliant Stockpile Location
- Approximate Building Material Stockpile Location
- Approximate SP6 Location to be Disposed

Approximate Scale

0m 10m 20m

N W E S

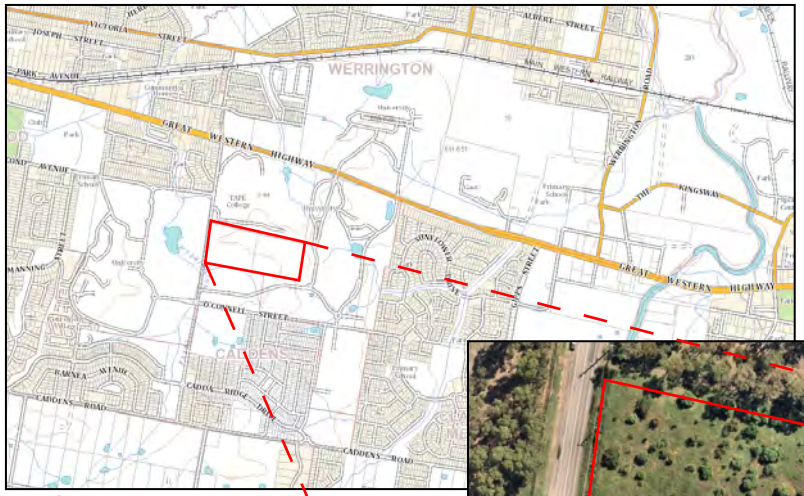
ERM

Sydney
Unit 11 Macquarie Link
277 Lane Cove Road
Macquarie Park NSW 2113

Newcastle
Level 4
45 Watt Street
Newcastle NSW 2300

Title: Stockpile Locations			
Site Address: O'Connell Street, Cadden	Project No.: 0471390	Figure No: 3	Date: 3/4/2020
Client: Vantager Group	Scale: As Shown	Compiled: AR	Revision: Version 1.0

FIGURE 4 – AREAS OF ENVIRONMENTAL CONCERN



Locality Map

Legend

- Approximate Site Boundary
- Approximate Lot Boundary
- Approximate Site Structure Footprints/Access way - data gaps
- Approximate SP6 Location - to be disposed

Approximate Scale

0m 50m 100m

N W E S

ERM

Sydney
Unit 11 Macquarie Link
277 Lane Cove Road
Macquarie Park NSW 2113

Newcastle
Level 4
45 Watt Street
Newcastle NSW 2300

Title: Areas of Environmental Concern

Site Address	Project No.	Figure No	Date
O'Connell Street, Cadden	0471390	4	21/4/2020
Client	**Scale**	**Compiled**	**Revision**
Vantager Group	As Shown	AD	Version 1.0

APPENDIX A PHOTOGRAPHIC GALLERY

Photo 001	Shed on Lot 3 behind residence, facing South – 11/03/20

Photo 002	Stockpiles adjacent to residence on Lot 3, facing East – 11/03/20

Photo 003	Paddocks behind Site structures on Lot 3, facing North – 11/03/20

Photo 004	Residence on Lot 6, facing South – 12/03/20

Photo 005	Stockpile of demolition waste on Lot 3, facing South – 12/03/20

Photo 006	SP6 requiring disposal from Lot 3, facing east – 12/03/20

Photo 007	TP06, showing topsoil and underlying natural clays, indicative of soil profile across the majority of the Site – 12/03/20

APPENDIX B DATA SUMMARY TABLES

Data Summary Table - Primary Soil Samples

	Asbestos		Naphthalene	PAH/Phenols (SIM)																				TRH - Semivolatile Fraction					
	AF/FA	Bonded ACM	Naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Fluoranthene	Fluorene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (half LOR)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ (zero)	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	DiBenz(a,h)anthracene	Indeno(1,2,3,cd)pyrene	Phenanthrene	Pyrene	Sum of polycyclic aromatic hydrocarbons	>C10 - C16 Fraction	>C10 - C16 Fraction minus Naphthalene (F2)	>C10 - C40 Fraction (sum)	>C16 - C34 Fraction	>C34 - C40 Fraction	C10 - C14 Fraction
	%	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.001	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.5	0.5	0.5	0.5	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.5	50	50	50	100	100	50
NEPM (1999) EIL - Urban Residential & Open Space			**170**																									
NEPM (1999) ESL - Urban Residential & Open Space (fine)										**0.7**																**1300**	**5600**	
NEPM (1999) HIL A - Residential (garden)																						**300**						
NEPM (1999) HSL A Residential - Asbestos	**0.001**	**0.01**																										
NEPM (1999) HSL A&B Residential - VI Clay 0 to <1 m																												
NEPM (1999) HSL A&B Residential - VI Clay 1 to <2 m																												
NEPM (1999) HSL A&B Residential - VI Clay 2 to <4 m																												
NEPM (1999) HSL A&B Residential - VI Clay 4 m+																												
NEPM (1999) Management Limits - Urban residential & open space (fine)																												

Sample ID	Sample Date	Lab Report Number	Asbestos Report Number	Sample Depth																									
SP1-1	12/03/2020	ES2008681	ASET080704	--	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
SP1-2	12/03/2020	ES2008681	--	--	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
SP2-1	12/03/2020	ES2008681	ASET080704	--	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
SP2-2	12/03/2020	ES2008681	--	--	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
SP3-1	12/03/2020	ES2008681	ASET080704	--	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
SP3-2	12/03/2020	ES2008681	--	--	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
SP4-1	12/03/2020	ES2008681	ASET080704	--	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
SP4-2	12/03/2020	ES2008681	--	--	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
SP5-1	12/03/2020	ES2008681	ASET080704	--	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
SP5-2	12/03/2020	ES2008681	--	--	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
SP6-1	12/03/2020	ES2008681	--	--	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
SP6-2	12/03/2020	ES2008681	--	--	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
SP6-3	12/03/2020	ES2008681	--	--	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
SP6-4	12/03/2020	ES2008681	ASET080704	--	**0.0016**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	0.5	<50	<50	<50	<100	<100	<50
SP6-5	12/03/2020	ES2008681	ASET080704	--	-	0.0019	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	0.5	<50	<50	<50	<100	<100	<50
TP01_0.1	12/03/2020	ES2008681	ASET080704	0.1	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP01_0.5	12/03/2020	ES2008681	--	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP02_0.1	12/03/2020	ES2008681	ASET080704	0.1	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP03_0.1	12/03/2020	ES2008681	ASET080704	0.1	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP04_0.1	12/03/2020	ES2008681	ASET080704	0.1	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP04_0.5	12/03/2020	ES2008681	--	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP05_0.1	12/03/2020	ES2008681	ASET080704	0.1	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP06_0.1	12/03/2020	ES2008681	ASET080704	0.1	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP07_0.1	12/03/2020	ES2008681	ASET080704	0.1	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP07_0.4	12/03/2020	ES2008681	--	0.4	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP08_0.1	12/03/2020	ES2008681	ASET080704	0.1	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP08_0.5	12/03/2020	ES2008681	--	0.5	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP09_0.1	12/03/2020	ES2008681	ASET080704	0.1	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP10_0.1	12/03/2020	ES2008681	ASET080704	0.1	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP11_0.1	12/03/2020	ES2008681	ASET080704	0.1	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP11_0.4	12/03/2020	ES2008681	--	0.4	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP12_0.1	12/03/2020	ES2008681	ASET080704	0.1	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP12_0.4	12/03/2020	ES2008681	--	0.4	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50
TP13_0.1	12/03/2020	ES2008681	ASET080704	0.1	nd	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<100	<100	<50

Statistical Summary

Number of Results	1	1	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
Number of Detects	1	1	0	0	0	0	0	0	0	0	34	34	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0
Minimum Concentration	0.0016	0.0019	ND	ND	ND	ND	<0.5	ND	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	ND	<0.5	ND	<0.5	<0.5	<0.5	<0.5	ND	ND	ND	ND	ND	ND	ND
Minimum Detect	0.0016	0.0019	ND	ND	ND	ND	ND	ND	ND	ND	0.6	1.2	ND	ND	ND	ND	ND	ND	ND	ND	0.5	0.5	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	0.0016	0.0019	ND	ND	ND	ND	<0.5	ND	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	ND	<0.5	ND	<0.5	<0.5	0.5	0.5	ND	ND	ND	ND	ND	ND	ND
Maximum Detect	0.0016	0.0019	ND	ND	ND	ND	ND	ND	ND	ND	0.6	1.2	ND	ND	ND	ND	ND	ND	ND	ND	0.5	0.5	ND	ND	ND	ND	ND	ND	ND
Average Concentration			ND	ND	ND	ND	0.25	ND	0.25	0.25	0.6	1.2	0.25	0.25	0.25	ND	0.25	ND	0.25	0.25	0.26	0.26	ND	ND	ND	ND	ND	ND	ND
Median Concentration	0.0016	0.0019	ND	ND	ND	ND	0.25	ND	0.25	0.25	0.6	1.2	0.25	0.25	0.25	ND	0.25	ND	0.25	0.25	0.25	0.25	ND	ND	ND	ND	ND	ND	ND
Standard Deviation			ND	ND	ND	ND	0	ND	0	0	0	0	0	0	0	ND	0	ND	0	0	0.06	0.06	ND	ND	ND	ND	ND	ND	ND

*nd = no detection

Data Summary Table - Primary Soil Samples

			TRH Volatiles/BTEX										Metals																											
C10 - C36 Fraction (sum)	**C15 - C28 Fraction**	**C29 - C36 Fraction**	**Total Xylenes**	**Toluene**	**Benzene**	**C6 - C10 Fraction**	**C6 - C10 Fraction minus BTEX (F1)**	**C6 - C9 Fraction**	**Ethylbenzene**	**meta- & para-Xylene**	**ortho-Xylene**	**Sum of BTEX**	**Arsenic**	**Cadmium**	**Chromium**	**Copper**	**Lead**	**Mercury**	**Nickel**	**Zinc**	**PCBs (Sum of total)**	**4,4-DDE**	**a-BHC**	**Aldrin**	**Aldrin + Dieldrin**	**Azinophos methyl**	**b-BHC**	**Bromophos-ethyl**	**Carbophenothion**	**Chlordane**	**Chlordane (cis)**	**Chlordane (trans)**	**Chlorfenvinphos**	**Chlorpyrifos**	**Chlorpyrifos-methyl**	**d-BHC**	**DDD**	**DDT**	**DDT+DDE+DDD**	**Demeton-S-methyl**
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
50	100	100	0.5	0.5	0.2	10	10	10	0.5	0.5	0.5	0.2	4	0.4	1	1	1	0.1	1	1	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05
													100				**1100**																					**180**		
			45	**105**	**65**				**125**																															
													100	**20**	**100**	**6000**	**300**	**40**	**400**	**7400**	**1**				**6**					**50**				**160**					**240**	
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	9	<1	22	21	23	<0.1	8	46	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	7	<1	15	28	21	<0.1	9	58	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	10	<1	20	22	28	<0.1	11	46	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	7	<1	15	16	18	<0.1	7	34	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	<5	<1	12	92	25	<0.1	10	44	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	<5	<1	12	14	24	<0.1	7	33	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	7	<1	15	18	23	<0.1	8	55	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	8	<1	14	25	21	<0.1	12	64	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	<5	<1	24	20	36	<0.1	8	47	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	<5	<1	15	19	27	<0.1	7	46	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	6	<1	13	18	15	<0.1	8	28	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	<5	<1	14	17	13	<0.1	9	22	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	8	<1	14	19	19	<0.1	7	35	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	18	<1	15	27	179	<0.1	9	225	<0.1	<0.05	<0.05	<0.05	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	10	<1	10	20	136	<0.1	10	185	<0.1	<0.05	<0.05	<0.05	0.18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	<5	<1	21	47	31	<0.1	28	90	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	<5	<1	28	34	15	<0.1	32	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	10	<1	20	79	33	<0.1	21	54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	11	<1	24	40	21	<0.1	20	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	8	<1	18	30	22	<0.1	20	48	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	28	<1	27	44	14	<0.1	43	66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	8	<1	28	48	30	<0.1	36	59	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	11	<1	23	24	27	<0.1	24	57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	10	<1	22	73	18	<0.1	20	49	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	13	<1	46	42	18	<0.1	63	111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	14	<1	24	55	24	<0.1	29	54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	17	<1	30	40	17	<0.1	33	54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	13	<1	20	26	14	<0.1	14	33	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	11	<1	18	48	19	<0.1	17	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	12	<1	19	48	25	<0.1	16	40	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	13	<1	31	34	12	<0.1	32	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	9	<1	19	22	24	<0.1	19	48	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	9	<1	31	39	13	<0.1	31	60	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05
<50	<100	<100	<0.5	<0.5	<0.2	<10	<10	<10	<0.5	<0.5	<0.5	<0.2	<5	<1	21	27	16	<0.1	26	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
0	0	0	0	0	0	0	0	0	0	0	0	0	26	0	34	34	34	0	34	34	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	<5	ND	10	14	12	<0.1	7	22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6	ND	10	14	12	ND	7	22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	28	ND	46	92	179	<0.1	63	225	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	28	ND	46	92	179	ND	63	225	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9	ND	21	35	29	0.05	19	60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9	ND	20	27.5	21.5	0.05	16.5	50.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.4	ND	7.3	19	33	0	13	41	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

			Pesticides																					
Diazinon	Dichlorvos	Dieldrin	Dimethoate	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Ethion	Fenamiphos	Fenthion	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Malathion	Methoxychlor	Methyl parathion	Monocrotophos	Parathion	Pirimphos-ethyl	Prothiofos
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1	0.2	0.2	0.1	0.05	0.05
				270				10							6		10		300					
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
<0.05	<0.05	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
<0.05	<0.05	0.18	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

	SDG	ALSE-Sydney 12-Mar-20	ALSE-Sydney 12-Mar-20		ALSE-Sydney 12-Mar-20	ALSE-Sydney 12-Mar-20		ALSE-Sydney 12-Mar-20	ALSE-Sydney 12-Mar-20		ALSE-Sydney 12-Mar-20	ALSE-Sydney 12-Mar-20		ALSE-Sydney 12-Mar-20	ENVIROLAB 2020-03-13T00:00:00		ALSE-Sydney 12-Mar-20	ENVIROLAB 2020-03-13T00:00:00		ALSE-Sydney 12-Mar-20	ENVIROLAB 2020-03-13T00:00:00		ALSE-Sydney 12-Mar-20	ENVIROLAB 2020-03-13T00:00:00	
	Field ID	TP01_0.1	20020312_D01	RPD	TP03_0.1	20020312_D02	RPD	SP1-1	20200312_D03	RPD	SP6-1	20200312_D04	RPD	TP01_0.1	20200312-T01	RPD	TP03_0.1	20200312-T02	RPD	SP1-1	20200312-T03	RPD	SP6-1	20200312-T04	RPD
	Sampled Date/Time	12/03/2020 15:00	12/03/2020 15:00		12/03/2020 15:00	12/03/2020 15:00		12/03/2020 15:00	12/03/2020 15:00		12/03/2020 15:00	12/03/2020 15:00		12/03/2020 15:00	12/03/2020 15:00		12/03/2020 15:00	12/03/2020 15:00		12/03/2020 15:00	12/03/2020 15:00		12/03/2020 15:00	12/03/2020 15:00	
ChemName	**Units**	**EQL**																						
Naphthalene	mg/kg	0.1 (Primary) 0.1 (Interlab)	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<0.1	0	<1.0	<0.1	0	<1.0	<0.1	0	<1.0	<0.1	0
Naphthalene	mg/kg	0.5 (Primary) 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
ne																										
Acenaphthene	mg/kg	0.5 (Primary) 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
Acenaphthylene	mg/kg	0.5 (Primary) 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
Anthracene	mg/kg	0.5 (Primary) 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
Fluoranthene	mg/kg	0.5 (Primary) 0.1 (Interlab)	**<0.5**	**0.9**	**57**	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	0.5	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
Fluorene	mg/kg	0.5 (Primary) 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
Benzo(a)anthracene	mg/kg	0.5 (Primary) 0.1 (Interlab)	<0.5	0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	0.3	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
Benzo(a)pyrene	mg/kg	0.5 (Primary) 0.05 (Interlab)	<0.5	0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	0.4	0	<0.5	<0.05	0	<0.5	<0.05	0	<0.5	<0.05	0
Benzo(a)pyrene TEQ (half LOR)	mg/kg	0.5	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.5	18	0.6	<0.5	18	0.6	<0.5	18	0.6	<0.5	18
Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	**1.2**	**0.8**	**67**	**1.2**	**<0.5**	**82**	**1.2**	**<0.5**	**82**	**1.2**	**<0.5**	**82**
Benzo(a)pyrene TEQ (zero)	mg/kg	0.5	<0.5	0.6	18	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Benzo(b+j)fluoranthene	mg/kg	0.5	<0.5	0.6	18	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	-	-	<0.5	-	-	<0.5	-	-	<0.5	-	-
Benzo(g,h,i)perylene	mg/kg	0.5 (Primary) 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	0.2	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	-	-	<0.5	-	-	<0.5	-	-	<0.5	-	-
Chrysene	mg/kg	0.5 (Primary) 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	0.3	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
Dibenz(a,h)anthracene	mg/kg	0.5 (Primary) 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
Indeno(1,2,3,cd)pyrene	mg/kg	0.5 (Primary) 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	0.2	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
Phenanthrene	mg/kg	0.5 (Primary) 0.1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	0.2	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
Pyrene	mg/kg	0.5 (Primary) 0.1 (Interlab)	**<0.5**	**1.0**	**67**	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	0.5	0	<0.5	<0.1	0	<0.5	<0.1	0	<0.5	<0.1	0
Sum of polycyclic aromatic hydrocarbons (BSM)	mg/kg	0.5	**<0.5**	**3.5**	**150**	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	-	-	<0.5	-	-	<0.5	-	-	<0.5	-	-
C10 - C16 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
>C10 - C16 Fraction minus Naphthalene (F2)	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
>C10 - C40 Fraction (sum)	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
>C16 - C34 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
>C34 - C40 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
C10 - C14 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0
C10 - C36 Fraction (sum)	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	-	-	<50.0	-	-	<50.0	-	-	<50.0	-	-
C15 - C28 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
C29 - C36 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0
>volatile Fraction																										
Total Xylenes	mg/kg	0.5 (Primary) 0.3 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<3.0	0	<0.5	<3.0	0	<0.5	<3.0	0	<0.5	<3.0	0
Toluene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Benzene	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0
C6 - C10 Fraction	mg/kg	10 (Primary) 25 (Interlab)	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<25.0	0	<10.0	<25.0	0	<10.0	<25.0	0	<10.0	<25.0	0
C6 - C10 Fraction minus BTEX (F1)	mg/kg	10 (Primary) 25 (Interlab)	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<25.0	0	<10.0	<25.0	0	<10.0	<25.0	0	<10.0	<25.0	0
C6 - C9 Fraction	mg/kg	10 (Primary) 25 (Interlab)	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<25.0	0	<10.0	<25.0	0	<10.0	<25.0	0	<10.0	<25.0	0
Ethylbenzene	mg/kg	0.5 (Primary) 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<1.0	0	<0.5	<1.0	0	<0.5	<1.0	0	<0.5	<1.0	0
meta- & para-Xylene	mg/kg	0.5 (Primary) 2 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<2.0	0	<0.5	<2.0	0	<0.5	<2.0	0	<0.5	<2.0	0
ortho-Xylene	mg/kg	0.5 (Primary) 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<1.0	0	<0.5	<1.0	0	<0.5	<1.0	0	<0.5	<1.0	0
Sum of BTEX	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	-	-	<0.2	-	-	<0.2	-	-	<0.2	-	-
>sBTEX																										
Arsenic	mg/kg	5 (Primary) 4 (Interlab)	<5.0	<5.0	0	11.0	9.0	20	**9.0**	**5.0**	**57**	6.0	6.0	0	<5.0	<4.0	0	11.0	9.0	20	9.0	8.0	12	8.0	5.0	18
Cadmium	mg/kg	1 (Primary) 0.4 (Interlab)	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<1.0	0	<1.0	<0.4	0	<1.0	<0.4	0	<1.0	<0.4	0	<1.0	<0.4	0
Chromium	mg/kg	2 (Primary) 1 (Interlab)	21.0	20.0	5	24.0	25.0	4	**22.0**	**15.0**	**38**	13.0	20.0	42	21.0	17.0	21	24.0	18.0	**29**	**22.0**	**13.0**	**51**	13.0	13.0	0
Copper	mg/kg	5 (Primary) 1 (Interlab)	**47.0**	**89.0**	**62**	40.0	40.0	0	21.0	22.0	5	18.0	21.0	15	47.0	62.0	28	**40.0**	**51.0**	**42**	21.0	17.0	21	18.0	19.0	5
Lead	mg/kg	5 (Primary) 1 (Interlab)	31.0	43.0	**32**	21.0	18.0	15	23.0	17.0	**30**	15.0	22.0	**38**	31.0	29.0	7	21.0	25.0	17	23.0	17.0	**30**	15.0	19.0	**24**
Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Nickel	mg/kg	2 (Primary) 1 (Interlab)	28.0	28.0	0	20.0	23.0	14	8.0	13.0	**48**	8.0	12.0	**40**	28.0	24.0	15	**20.0**	**14.0**	**35**	8.0	8.0	0	8.0	9.0	12
Zinc	mg/kg	5 (Primary) 1 (Interlab)	90.0	97.0	7	42.0	46.0	9	**46.0**	**63.0**	**31**	28.0	45.0	47	90.0	71.0	24	42.0	38.0	10	46.0	39.0	16	**28.0**	**39.0**	**33**
PCBs (Sum of total)	mg/kg	0.1	<0.1	<0.1	0				<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0				<0.1	<0.1	0	<0.1	<0.1	0
4,4-DDE	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
a-BHC	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Aldrin	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Aldrin + Dieldrin	mg/kg	0.05	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	-	-				<0.05	-	-	<0.05	-	-
Azinophos methyl	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
b-BHC	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Bromophos-ethyl	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Carbophenothion	mg/kg	0.05	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	-	-				<0.05	-	-	<0.05	-	-
Chlordane	mg/kg	0.05	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	-	-				<0.05	-	-	<0.05	-	-
Chlordane (cis)	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Chlordane (trans)	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Chlorfenvinphos	mg/kg	0.05	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	-	-				<0.05	-	-	<0.05	-	-
Chlorpyrifos	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Chlorpyrifos-methyl	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
d-BHC	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
DDD	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
DDT	mg/kg	0.2 (Primary) 0.1 (Interlab)	<0.2	<0.2	0				<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.1	0				<0.2	<0.1	0	<0.2	<0.1	0
DDT+DDE+DDD	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Demeton-S-methyl	mg/kg	0.05	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	-	-				<0.05	-	-	<0.05	-	-
Diazinon	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Dichlorvos	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Dieldrin	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Dimethoate	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Endosulfan	mg/kg	0.05	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	-	-				<0.05	-	-	<0.05	-	-
Endosulfan I	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Endosulfan II	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Endosulfan sulphate	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Endrin	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Endrin aldehyde	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Endrin ketone	mg/kg	0.05	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	-	-				<0.05	-	-	<0.05	-	-
Ethion	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Fenamiphos	mg/kg	0.05	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	-	-				<0.05	-	-	<0.05	-	-
Fenthion	mg/kg	0.05	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	-	-				<0.05	-	-	<0.05	-	-
g-BHC (Lindane)	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Heptachlor	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Heptachlor epoxide	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Hexachlorobenzene	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Malathion	mg/kg	0.05 (Primary) 0.1 (Interlab)	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.1	0				<0.05	<0.1	0	<0.05	<0.1	0
Methoxychlor	mg/kg	0.2 (Primary) 0.1 (Interlab)	<0.2	<0.2	0				<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.1	0				<0.2	<0.1	0	<0.2	<0.1	0
Methyl parathion	mg/kg	0.2	<0.2	<0.2	0				<0.2	<0.2	0	<0.2	<0.2	0	<0.2						<0.2			<0.2		
Monocrotophos	mg/kg	0.2	<0.2	<0.2	0				<0.2	<0.2	0	<0.2	<0.2	0	<0.2						<0.2			<0.2		
Parathion	mg/kg	0.2 (Primary) 0.1 (Interlab)	<0.2	<0.2	0				<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.1	0				<0.2	<0.1	0	<0.2	<0.1	0
Pirimphos-ethyl	mg/kg	0.05	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05						<0.05			<0.05		
Prothiofos	mg/kg	0.05	<0.05	<0.05	0				<0.05	<0.05	0	<0.05	<0.05	0	<0.05						<0.05			<0.05		

Filter: SDG in('ALSE-Sydney 12-Mar-20')

APPENDIX C NATA CERTIFIED ANALYTICAL RESULTS

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CERTIFICATE OF ANALYSIS 238829

Client Details

Client	ERM SERVICES AUSTRALIA PTY LTD
Attention	Russell Jarman
Address	Unit 11 Macquarie Link, 277 Lane Cove Rd, Macquarie Park, NSW, 2113

Sample Details

Your Reference	**0471390_P06 O'Connell St**
Number of Samples	4 Soil
Date samples received	13/03/2020
Date completed instructions received	13/03/2020

Analysis Details

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

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

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

Report Details

Date results requested by	20/03/2020
Date of Issue	18/03/2020

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Results Approved By
Josh Williams, Senior Chemist
Ken Nguyen, Reporting Supervisor
Ridwan Wijaya, Lab Team Leader

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil					
Our Reference		238829-1	238829-2	238829-3	238829-4
Your Reference	UNITS	20200312-T01	20200312-T02	20200312-T03	20200312-T04
Date Sampled		12/03/2020	12/03/2020	12/03/2020	12/03/2020
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	16/03/2020	16/03/2020	16/03/2020	16/03/2020
Date analysed	-	17/03/2020	17/03/2020	17/03/2020	17/03/2020
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	103	86	97	104

svTRH (C10-C40) in Soil					
Our Reference		238829-1	238829-2	238829-3	238829-4
Your Reference	UNITS	20200312-T01	20200312-T02	20200312-T03	20200312-T04
Date Sampled		12/03/2020	12/03/2020	12/03/2020	12/03/2020
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	16/03/2020	16/03/2020	16/03/2020	16/03/2020
Date analysed	-	16/03/2020	16/03/2020	16/03/2020	16/03/2020
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50
Surrogate o-Terphenyl	%	100	102	94	94

PAHs in Soil					
Our Reference	UNITS	238829-1	238829-2	238829-3	238829-4
Your Reference		20200312-T01	20200312-T02	20200312-T03	20200312-T04
Date Sampled		12/03/2020	12/03/2020	12/03/2020	12/03/2020
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	16/03/2020	16/03/2020	16/03/2020	16/03/2020
Date analysed	-	16/03/2020	16/03/2020	16/03/2020	16/03/2020
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.2	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.5	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.5	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.3	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.3	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.6	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.4	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.2	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.2	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	3.1	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.6	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	93	94	94	95

Organochlorine Pesticides in soil				
Our Reference		238829-1	238829-3	238829-4
Your Reference	UNITS	20200312-T01	20200312-T03	20200312-T04
Date Sampled		12/03/2020	12/03/2020	12/03/2020
Type of sample		Soil	Soil	Soil
Date extracted	-	16/03/2020	16/03/2020	16/03/2020
Date analysed	-	16/03/2020	16/03/2020	16/03/2020
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	93	89

Organophosphorus Pesticides in Soil				
Our Reference	UNITS	238829-1	238829-3	238829-4
Your Reference		20200312-T01	20200312-T03	20200312-T04
Date Sampled		12/03/2020	12/03/2020	12/03/2020
Type of sample		Soil	Soil	Soil
Date extracted	-	16/03/2020	16/03/2020	16/03/2020
Date analysed	-	16/03/2020	16/03/2020	16/03/2020
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	93	89

PCBs in Soil				
Our Reference		238829-1	238829-3	238829-4
Your Reference	UNITS	20200312-T01	20200312-T03	20200312-T04
Date Sampled		12/03/2020	12/03/2020	12/03/2020
Type of sample		Soil	Soil	Soil
Date extracted	-	16/03/2020	16/03/2020	16/03/2020
Date analysed	-	16/03/2020	16/03/2020	16/03/2020
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	93	89

Acid Extractable metals in soil					
Our Reference		238829-1	238829-2	238829-3	238829-4
Your Reference	UNITS	20200312-T01	20200312-T02	20200312-T03	20200312-T04
Date Sampled		12/03/2020	12/03/2020	12/03/2020	12/03/2020
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	16/03/2020	16/03/2020	16/03/2020	16/03/2020
Date analysed	-	16/03/2020	16/03/2020	16/03/2020	16/03/2020
Arsenic	mg/kg	<4	9	6	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	18	13	13
Copper	mg/kg	62	61	17	19
Lead	mg/kg	29	25	17	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	24	14	8	9
Zinc	mg/kg	71	38	39	39

Moisture					
Our Reference		238829-1	238829-2	238829-3	238829-4
Your Reference	UNITS	20200312-T01	20200312-T02	20200312-T03	20200312-T04
Date Sampled		12/03/2020	12/03/2020	12/03/2020	12/03/2020
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	16/03/2020	16/03/2020	16/03/2020	16/03/2020
Date analysed	-	17/03/2020	17/03/2020	17/03/2020	17/03/2020
Moisture	%	21	19	14	7.5

Method ID	Methodology Summary
AT-008	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-012/017	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS.
Org-012/017	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS and/or GC-MS/MS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-012/017	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			16/03/2020	[NT]	[NT]	[NT]	[NT]	16/03/2020	[NT]
Date analysed	-			17/03/2020	[NT]	[NT]	[NT]	[NT]	17/03/2020	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	97	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	91	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	95	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	100	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	107	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			16/03/2020	[NT]	[NT]	[NT]	[NT]	16/03/2020	[NT]
Date analysed	-			16/03/2020	[NT]	[NT]	[NT]	[NT]	16/03/2020	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	117	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	121	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	117	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	121	[NT]
Surrogate o-Terphenyl	%		Org-003	90	[NT]	[NT]	[NT]	[NT]	116	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			16/03/2020	[NT]	[NT]	[NT]	[NT]	16/03/2020	[NT]
Date analysed	-			16/03/2020	[NT]	[NT]	[NT]	[NT]	16/03/2020	[NT]
Naphthalene	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Acenaphthylene	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Phenanthrene	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Anthracene	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	78	[NT]
Pyrene	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012/017	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012/017	<0.05	[NT]	[NT]	[NT]	[NT]	88	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012/017	95	[NT]	[NT]	[NT]	[NT]	93	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			16/03/2020	[NT]	[NT]	[NT]	[NT]	16/03/2020	[NT]
Date analysed	-			16/03/2020	[NT]	[NT]	[NT]	[NT]	16/03/2020	[NT]
alpha-BHC	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
HCB	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
gamma-BHC	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
delta-BHC	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
gamma-Chlordane	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Dieldrin	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Endrin	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Endosulfan II	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	76	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Methoxychlor	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-012/017	88	[NT]	[NT]	[NT]	[NT]	88	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			16/03/2020	[NT]	[NT]	[NT]	[NT]	16/03/2020	[NT]
Date analysed	-			16/03/2020	[NT]	[NT]	[NT]	[NT]	16/03/2020	[NT]
Dimethoate	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Fenitrothion	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Malathion	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Chlorpyriphos	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Bromophos-ethyl	mg/kg	0.1	AT-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Diazinon	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Parathion	mg/kg	0.1	Org-012/017	<0.1	[NT]	[NT]	[NT]	[NT]	78	[NT]
Surrogate TCMX	%		Org-012/017	88	[NT]	[NT]	[NT]	[NT]	88	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			16/03/2020	[NT]	[NT]	[NT]	[NT]	16/03/2020	[NT]
Date analysed	-			16/03/2020	[NT]	[NT]	[NT]	[NT]	16/03/2020	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-006	88	[NT]	[NT]	[NT]	[NT]	88	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			16/03/2020	[NT]	[NT]	[NT]	[NT]	16/03/2020	[NT]
Date analysed	-			16/03/2020	[NT]	[NT]	[NT]	[NT]	16/03/2020	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	112	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	108	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]

Result Definitions

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

Quality Control Definitions

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

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

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

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SAMPLE RECEIPT ADVICE

Client Details

Client	ERM SERVICES AUSTRALIA PTY LTD
Attention	Russell Jarman

Sample Login Details

Your reference	0471390_P06 O'Connell St
Envirolab Reference	238829
Date Sample Received	13/03/2020
Date Instructions Received	13/03/2020
Date Results Expected to be Reported	20/03/2020

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	4 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	16.1
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
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Analysis Underway, details on the following page:

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil
FB1_KV122	✓	✓	✓	✓	✓	✓	✓
FB2_KV122	✓	✓	✓				✓
FB3_KV122	✓	✓	✓	✓	✓	✓	✓
FB4_KV122	✓	✓	✓	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Document Set ID: 9585299
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AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref : ASET80704 / 83884 / 1 - 24
Your ref :0471390 - O'Connell Street Caddens
NATA Accreditation No: 14484

18 March 2020

ERM Services
11/277 Lane Cove Road
Macquarie Park NSW 2113

Attn: Mr Russell Jarman

Accredited for compliance with ISO/IEC 17025 - Testing.

Dear Russell

Asbestos Identification
This report presents the results of twenty four samples, forwarded by ERM Services on 18 March 2020, for analysis for asbestos.

1.Introduction: Twenty four samples forwarded were examined and analysed for the presence of asbestos.

2. Methods : The samples were examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method **(Australian Standard AS 4964 - 2004 and Safer Environment Method 1 as the supplementary work instruction) (Qualitative Analysis only).**

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

3. Results :

Sample No. 1. ASET80704 / 83884 / 1. 0471390 - TP01-AF.
Approx dimensions 10.0 cm x 10.0 cm x 5.7 cm
Approximate total dry weight of soil = 570.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, char, wood chips and plant matter.
No asbestos detected.

Sample No. 2. ASET80704 / 83884 / 2. 0471390 - TP02-AF.
Approx dimensions 10.0 cm x 10.0 cm x 7.3 cm
Approximate total dry weight of soil = 725.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, wood chips and plant matter.
No asbestos detected.

Sample No. 3. ASET80704 / 83884 / 3. 0471390 - TP03-AF.
Approx dimensions 10.0 cm x 10.0 cm x 5.4 cm
Approximate total dry weight of soil = 540.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, wood chips and plant matter.
No asbestos detected.

Sample No. 4. ASET80704 / 83884 / 4. 0471390 - TP04-AF.
Approx dimensions 10.0 cm x 10.0 cm x 5.9 cm
Approximate total dry weight of soil = 585.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, wood chips and plant matter.
No asbestos detected.

Sample No. 5. ASET80704 / 83884 / 5. 0471390 - TP05-AF.
Approx dimensions 10.0 cm x 10.0 cm x 6.5 cm
Approximate total dry weight of soil = 645.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, wood chips and plant matter.
No asbestos detected.

Sample No. 6. ASET80704 / 83884 / 6. 0471390 - TP06-AF.
Approx dimensions 10.0 cm x 10.0 cm x 5.4 cm
Approximate total dry weight of soil = 540.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, wood chips and plant matter.
No asbestos detected.

Sample No. 7. ASET80704 / 83884 / 7. 0471390 - TP07-AF.
Approx dimensions 10.0 cm x 10.0 cm x 5.7 cm
Approximate total dry weight of soil = 565.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, wood chips and plant matter.
No asbestos detected.

Sample No. 8. ASET80704 / 83884 / 8. 0471390 - TP08-AF.
Approx dimensions 10.0 cm x 10.0 cm x 7.3 cm
Approximate total dry weight of soil = 730.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, char, wood chips and plant matter.
No asbestos detected.

Sample No. 9. ASET80704 / 83884 / 9. 0471390 - TP09-AF.
Approx dimensions 10.0 cm x 10.0 cm x 5.9 cm
Approximate total dry weight of soil = 585.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, wood chips and plant matter.
No asbestos detected.

Sample No. 10. ASET80704 / 83884 / 10. 0471390 - TP10-AF.
Approx dimensions 10.0 cm x 10.0 cm x 6.4 cm
Approximate total dry weight of soil = 640.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, wood chips and plant matter.
No asbestos detected.

Sample No. 11. ASET80704 / 83884 / 11. 0471390 - TP11-AF.
Approx dimensions 10.0 cm x 10.0 cm x 5.9 cm
Approximate total dry weight of soil = 585.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, wood chips and plant matter.
No asbestos detected.

Sample No. 12. ASET80704 / 83884 / 12. 0471390 - TP12-AF.
Approx dimensions 10.0 cm x 10.0 cm x 6.5 cm
Approximate total dry weight of soil = 650.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, wood chips and plant matter.
No asbestos detected.

Sample No. 13. ASET80704 / 83884 / 13. 0471390 - TP13-AF.
Approx dimensions 10.0 cm x 10.0 cm x 6.1 cm
Approximate total dry weight of soil = 610.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, wood chips and plant matter.
No asbestos detected.

Sample No. 14. ASET80704 / 83884 / 14. 0471390 - SP1-AF.
Approx dimensions 10.0 cm x 10.0 cm x 5.3 cm
Approximate total dry weight of soil = 530.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, cement, shale, char, wood chips and plant matter.
No asbestos detected.

Sample No. 15. ASET80704 / 83884 / 15. 0471390 - SP2-AF.
Approx dimensions 10.0 cm x 10.0 cm x 5.7 cm
Approximate total dry weight of soil = 565.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, brick, cement, glass, char, wood chips and plant matter.
No asbestos detected.

Sample No. 16. ASET80704 / 83884 / 16. 0471390 - SP3-AF.
Approx dimensions 10.0 cm x 10.0 cm x 5.6 cm
Approximate total dry weight of soil = 550.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, brick, cement, bitumen, glass, corroded metal, soft plaster containing synthetic mineral fibres, plastic, wood chips and plant matter.
No asbestos detected.

Sample No. 17. ASET80704 / 83884 / 17. 0471390 - SP4-AF.
Approx dimensions 10.0 cm x 10.0 cm x 6.3 cm
Approximate total dry weight of soil = 630.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, cement, plaster, char, wood chips and plant matter.
No asbestos detected.

Sample No. 18. ASET80704 / 83884 / 18. 0471390 - SP5-AF.
Approx dimensions 10.0 cm x 10.0 cm x 6.8 cm
Approximate total dry weight of soil = 680.0g
The sample consisted of a mixture of clayish sandy soil, synthetic mineral fibres, stones, fragments of sandstone, brick, cement, plastic, glass, plaster, corroded metal, wood chips and plant matter.
No asbestos detected.

Sample No. 19. ASET80704 / 83884 / 19. 0471390 - SP6-1.
Approx dimensions 10.0 cm x 10.0 cm x 5.6 cm
Approximate total dry weight of soil = 560.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, cement, bitumen, glass, char, wood chips and plant matter.
No asbestos detected.

Sample No. 20. ASET80704 / 83884 / 20. 0471390 - SP6-2.
Approx dimensions 10.0 cm x 10.0 cm x 6.1 cm
Approximate total dry weight of soil = 610.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, plaster, char, wood chips and plant matter.
No asbestos detected.

Sample No. 21. ASET80704 / 83884 / 21. 0471390 - SP6-3.
Approx dimensions 10.0 cm x 10.0 cm x 5.4 cm
Approximate total dry weight of soil = 540.0g
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, glass, plaster, char, wood chips and plant matter.
No asbestos detected.

Sample No. 22. ASET80704 / 83884 / 22. 0471390 - SP6-4.
Approx dimensions 10.0 cm x 10.0 cm x 6.8 cm
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, cement, bitumen, glass, plaster, plastic, fibre cement*(AF), wood chips and plant matter.
Chrysotile* (Estimated approximate weight = 0.011g) asbestos detected.
Approximate total dry weight of soil = 675.0g
Approximate estimated weight of asbestos in soil in the form of AF = 0.011g
Approximate w/w percentage of asbestos in soil in the form of AF = 0.002 %.

Sample No. 23. ASET80704 / 83884 / 23. 0471390 - SP6-5.
Approx dimensions 10.0 cm x 10.0 cm x 6.9 cm
The sample consisted of a mixture of clayish sandy soil, stones, fragments of sandstone, brick, cement, glass, fibre cement*(ACM), plaster, paint flakes, wood chips and plant matter.
Chrysotile* (Estimated approximate weight = 0.93g) asbestos and Amosite* (Estimated approximate weight = 0.2g) asbestos detected.
Approximate total dry weight of soil = 690.0g
Approximate estimated weight of asbestos in soil in the form of ACM = 1.13g
Approximate w/w percentage of asbestos in soil in the form of ACM = 0.164 %.

Sample No. 24. ASET80704 / 83884 / 24. 0471390 - SP6-5-ACM.
Approx dimensions 4.0 cm x 3.5 cm x 0.45 cm
The sample consisted of a fragment of a fibre cement*(ACM) material.
Chrysotile* (Estimated approximate weight = 1.84g) asbestos and Amosite* (Estimated approximate weight = 0.39g) asbestos detected.
Approximate total dry weight of fibre cement = 14.42g
Approximate estimated weight of asbestos in the form of ACM = 2.23g
Approximate w/w percentage of asbestos in the form of ACM = 15.46 %.

Reported by,

[redacted]

Mahen De Silva. BSc, MSc, Grad Dip (Occ Hyg)
Occupational Hygienist / Approved Identifier.
Approved Signatory

WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing.

This report is consistent with the analytical procedures and reporting recommendations in the Western Australia Guidelines for the Assessment Remediation and Management of Asbestos contaminated sites in Western Australia and it also satisfies the requirements of the current NEPM Guidelines. NATA Accreditation does not cover the performance of this service.

Disclaimers;

The approx; weights given above can be used only as a guide. They do not represent absolute weights of each kind of asbestos, as it is impossible to extract all loose fibres from soil and other asbestos containing building material samples using this method. However above figures may be used as closest approximations to the exact values in each case. Estimation and/ or reporting of asbestos fibre weights in asbestos containing materials and soil is out of the Scope of the NATA Accreditation. NATA Accreditation only covers the qualitative part of the results reported. This weight disclaimer also covers weight / weight percentages if given.

ACM - Asbestos Containing Material - Products or materials that contain asbestos in an inert bound matrix such as cement or resin. Here taken to be sound material, even as fragments and not fitting through a 7mm X 7 mm sieve.

AF -Includes asbestos free fibres, small fibre bundles and also ACM fragments that pass through a 7mm X 7 mm sieve.

FA -Friable asbestos material such as severely weathered ACM, and asbestos in the form of loose fibrous material such as insulation products.

^ denotes loose fibres of relevant asbestos types detected in soil/dust.
*** denotes asbestos detected in ACM in bonded form.**

 # denotes friable asbestos as soft fibro plaster and/ or highly weathered ACM that will easily crumble.

The results contained in this report relate only to the sample/s submitted for testing. Australian Safer Environment & Technology accepts no responsibility for whether or not the submitted sample/s is/are representative. Results indicating "No asbestos detected" indicates a reporting limit specified in AS4964 -2004 which is 0.1g/ Kg (0.01%). Any amounts detected at assumed lower level than that would be reported, however those assumed lower levels may be treated as "No asbestos detected" as specified and recommended by A4964-2004. Trace / respirable level asbestos will be reported only when detected and trace analysis have been performed on each sample as required by AS4964-2004. When loose asbestos fibres/ fibre bundles are detected and reported that means they are larger handpicked fibres/ fibre bundles, and they do not represent respirable fibres. Dust/soil samples are always subjected to trace analysis except where the amounts involved are extremely minute and trace analysis is not possible to be carried out. When trace analysis is not performed on dust samples it will be indicated in the report that trace analysis has not been carried out due to the volume of the sample being extremely minute.

Estimation of asbestos weights involves the use of following assumptions;
Volume of each kind of Asbestos present in broken edges have been visually estimated and its been assumed that volumes remain similar throughout the binding matrix and those volumes are only approximate and not exact. Material densities have been assumed to be similar to commonly found similar materials and may not be exact.

All samples indicating "No asbestos detected" are assumed to be less than 0.001 % unless the actual approximate weight is given.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2008681**	Page	: 1 of 37
Client	: **ENVIRONMENTAL RESOURCES MANAGEMENT (ERM)**	Laboratory	: Environmental Division Sydney
Contact	: RUSSELL JARMAN	Contact	: Shane Ellis
Address	: Level 15, 309 Kent Street SYDNEY NSW AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	[redacted]	
Project	: 0471390 O'Connell Street, Caddens	Date Samples Received	: 12-Mar-2020 14:30
Order number	: ----	Date Analysis Commenced	: 16-Mar-2020
C-O-C number	: ----	Issue Date	: 20-Mar-2020 08:32
Sampler	: ----		
Site	: AR/JE		
Quote number	: EN/114/19		
No. of samples received	: 49		
No. of samples analysed	: 41		

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.

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, 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.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) 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.
- EP068: Positive results have been confirmed by re-extraction and re-analysis.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP01_0.1	TP01_0.5	TP02_0.1	TP03_0.1	TP04_0.1
			Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit	ES2008681-001	ES2008681-002	ES2008681-003	ES2008681-005	ES2008681-007
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	19.5	21.4	14.7	20.1	17.3
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	10	11	8
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	21	28	20	24	18
Copper	7440-50-8	5	mg/kg	47	34	79	40	30
Lead	7439-92-1	5	mg/kg	31	15	33	21	22
Nickel	7440-02-0	2	mg/kg	28	32	21	20	20
Zinc	7440-66-6	5	mg/kg	90	65	54	42	48
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	<0.05
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 (Matrix: SOIL)				Client sample ID	TP01_0.1	TP01_0.5	TP02_0.1	TP03_0.1	TP04_0.1
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-001	ES2008681-002	ES2008681-003	ES2008681-005	ES2008681-007
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	----	----	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	----	----	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	<0.05
EP068B: Organophosphorus Pesticides (OP)									
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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP01_0.1	TP01_0.5	TP02_0.1	TP03_0.1	TP04_0.1
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-001	ES2008681-002	ES2008681-003	ES2008681-005	ES2008681-007
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP01_0.1	TP01_0.5	TP02_0.1	TP03_0.1	TP04_0.1
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-001	ES2008681-002	ES2008681-003	ES2008681-005	ES2008681-007
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**91.5**	**----**	**----**	**----**	**78.2**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**107**	**----**	**----**	**----**	**81.7**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**107**	**----**	**----**	**----**	**85.7**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**81.7**	**88.0**	**82.2**	**81.2**	**84.6**
2-Chlorophenol-D4	93951-73-6	0.5	%		**92.7**	**94.3**	**88.0**	**90.2**	**94.0**
2.4.6-Tribromophenol	118-79-6	0.5	%		**67.2**	**71.4**	**50.8**	**63.0**	**62.1**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**93.0**	**101**	**97.6**	**95.8**	**101**
Anthracene-d10	1719-06-8	0.5	%		**94.1**	**102**	**98.4**	**98.6**	**100**
4-Terphenyl-d14	1718-51-0	0.5	%		**112**	**111**	**111**	**103**	**98.3**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**87.1**	**91.7**	**90.8**	**94.6**	**92.1**
Toluene-D8	2037-26-5	0.2	%		**100**	**102**	**99.7**	**107**	**103**
4-Bromofluorobenzene	460-00-4	0.2	%		**95.9**	**97.2**	**95.0**	**104**	**98.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP04_0.5	TP05_0.1	TP06_0.1	TP07_0.1	TP07_0.4
			Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit	ES2008681-008	ES2008681-009	ES2008681-011	ES2008681-013	ES2008681-014
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	19.8	20.1	17.4	15.6	24.0
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	28	8	11	10	13
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	27	28	23	22	46
Copper	7440-50-8	5	mg/kg	44	48	24	73	42
Lead	7439-92-1	5	mg/kg	14	30	27	18	18
Nickel	7440-02-0	2	mg/kg	43	36	24	20	63
Zinc	7440-66-6	5	mg/kg	66	59	57	49	111
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	<0.1	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	----	<0.05	----
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 (Matrix: SOIL)				Client sample ID	TP04_0.5	TP05_0.1	TP06_0.1	TP07_0.1	TP07_0.4
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-008	ES2008681-009	ES2008681-011	ES2008681-013	ES2008681-014
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	----	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	----	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	----	<0.2	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	----	<0.05	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	----	<0.05	----
EP068B: Organophosphorus Pesticides (OP)									
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	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP04_0.5	TP05_0.1	TP06_0.1	TP07_0.1	TP07_0.4
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-008	ES2008681-009	ES2008681-011	ES2008681-013	ES2008681-014
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP04_0.5	TP05_0.1	TP06_0.1	TP07_0.1	TP07_0.4
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-008	ES2008681-009	ES2008681-011	ES2008681-013	ES2008681-014
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	96.1	----	94.4	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	85.1	----	116	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	118	----	107	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		88.7	84.4	85.0	93.3	94.2
2-Chlorophenol-D4	93951-73-6	0.5	%		93.7	90.7	90.8	92.4	96.5
2.4.6-Tribromophenol	118-79-6	0.5	%		63.4	55.8	49.2	53.5	63.9
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		101	102	96.7	96.9	102
Anthracene-d10	1719-06-8	0.5	%		104	99.2	100	97.9	95.8
4-Terphenyl-d14	1718-51-0	0.5	%		108	112	112	102	104
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		97.4	89.8	93.1	93.2	88.7
Toluene-D8	2037-26-5	0.2	%		106	94.6	101	100	97.2
4-Bromofluorobenzene	460-00-4	0.2	%		98.3	86.9	95.8	95.6	91.7

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP08_0.1	TP08_0.5	TP09_0.1	TP10_0.1	TP11_0.1
			Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit	ES2008681-015	ES2008681-016	ES2008681-017	ES2008681-019	ES2008681-021
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	17.7	23.5	17.7	18.0	17.1
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	14	17	13	11	12
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	24	30	20	18	19
Copper	7440-50-8	5	mg/kg	55	40	26	48	48
Lead	7439-92-1	5	mg/kg	24	17	14	19	25
Nickel	7440-02-0	2	mg/kg	29	33	14	17	16
Zinc	7440-66-6	5	mg/kg	54	54	33	46	40
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	----	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	----	<0.05
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 (Matrix: SOIL)			Client sample ID	TP08_0.1	TP08_0.5	TP09_0.1	TP10_0.1	TP11_0.1
			Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit	ES2008681-015	ES2008681-016	ES2008681-017	ES2008681-019	ES2008681-021
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
4.4`-DDT	50-29-3	0.2	mg/kg	----	----	<0.2	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	<0.05	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	----	----	<0.2	----	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	----	<0.05	----	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	----	----	<0.05	----	<0.05
EP068B: Organophosphorus Pesticides (OP)								
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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP08_0.1	TP08_0.5	TP09_0.1	TP10_0.1	TP11_0.1
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-015	ES2008681-016	ES2008681-017	ES2008681-019	ES2008681-021
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP08_0.1	TP08_0.5	TP09_0.1	TP10_0.1	TP11_0.1
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-015	ES2008681-016	ES2008681-017	ES2008681-019	ES2008681-021
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	----	108	----	77.2
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	----	118	----	98.0
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	----	124	----	95.4
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		88.8	95.9	103	98.0	98.1
2-Chlorophenol-D4	93951-73-6	0.5	%		91.4	97.8	102	98.3	99.2
2.4.6-Tribromophenol	118-79-6	0.5	%		51.7	55.2	63.3	60.2	56.6
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		100	105	97.9	97.7	98.2
Anthracene-d10	1719-06-8	0.5	%		94.7	97.2	101	95.4	103
4-Terphenyl-d14	1718-51-0	0.5	%		105	107	108	102	108
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		95.8	84.8	92.8	94.1	98.3
Toluene-D8	2037-26-5	0.2	%		103	94.7	99.9	102	100
4-Bromofluorobenzene	460-00-4	0.2	%		99.5	89.3	99.4	93.7	95.0

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	TP11_0.4	TP12_0.1	TP12_0.4	TP13_0.1	20020312_D01
			Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit	ES2008681-022	ES2008681-023	ES2008681-024	ES2008681-025	ES2008681-027
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	22.0	17.4	23.7	16.1	20.0
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	13	9	9	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	31	19	31	21	20
Copper	7440-50-8	5	mg/kg	34	22	39	27	89
Lead	7439-92-1	5	mg/kg	12	24	13	16	43
Nickel	7440-02-0	2	mg/kg	32	19	31	26	28
Zinc	7440-66-6	5	mg/kg	52	48	60	55	97
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	<0.1	----	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
Aldrin	309-00-2	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
Endrin	72-20-8	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	<0.05	<0.05	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	<0.05	<0.05	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP11_0.4	TP12_0.1	TP12_0.4	TP13_0.1	20020312_D01
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-022	ES2008681-023	ES2008681-024	ES2008681-025	ES2008681-027
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
Dimethoate	60-51-5	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Diazinon	333-41-5	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
Malathion	121-75-5	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Fenthion	55-38-9	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Parathion	56-38-2	0.2	mg/kg		----	<0.2	<0.2	----	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Ethion	563-12-2	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		----	<0.05	<0.05	----	<0.05
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**0.9**
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**1.0**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP11_0.4	TP12_0.1	TP12_0.4	TP13_0.1	20020312_D01
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-022	ES2008681-023	ES2008681-024	ES2008681-025	ES2008681-027
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**0.5**
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**0.6**
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**0.5**
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**3.5**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**0.6**
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.9**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	TP11_0.4	TP12_0.1	TP12_0.4	TP13_0.1	20020312_D01
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-022	ES2008681-023	ES2008681-024	ES2008681-025	ES2008681-027
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	78.5	87.4	----	76.6
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	102	121	----	74.1
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	94.3	108	----	82.2
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		89.8	85.6	89.1	82.6	93.4
2-Chlorophenol-D4	93951-73-6	0.5	%		94.3	92.2	92.1	84.4	99.6
2.4.6-Tribromophenol	118-79-6	0.5	%		68.0	59.3	59.9	49.3	70.7
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		98.4	103	97.3	101	98.8
Anthracene-d10	1719-06-8	0.5	%		94.4	97.5	94.2	96.0	97.6
4-Terphenyl-d14	1718-51-0	0.5	%		107	108	107	108	106
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		105	97.2	94.8	101	97.4
Toluene-D8	2037-26-5	0.2	%		109	98.4	106	105	100
4-Bromofluorobenzene	460-00-4	0.2	%		102	91.6	96.9	97.9	95.0

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	20020312_D02	SP1-1	SP1-2	SP2-1	SP2-2
			Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit	ES2008681-028	ES2008681-032	ES2008681-033	ES2008681-034	ES2008681-035
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	20.2	13.6	14.4	17.8	13.2
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	9	9	7	10	7
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	25	22	15	20	15
Copper	7440-50-8	5	mg/kg	40	21	28	22	16
Lead	7439-92-1	5	mg/kg	18	23	21	28	18
Nickel	7440-02-0	2	mg/kg	23	8	9	11	7
Zinc	7440-66-6	5	mg/kg	46	46	58	46	34
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	----	<0.05	<0.05	<0.05	<0.05
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

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	20020312_D02	SP1-1	SP1-2	SP2-1	SP2-2
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-028	ES2008681-032	ES2008681-033	ES2008681-034	ES2008681-035
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	<0.2	<0.2	<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
EP068B: Organophosphorus Pesticides (OP)									
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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	20020312_D02	SP1-1	SP1-2	SP2-1	SP2-2
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-028	ES2008681-032	ES2008681-033	ES2008681-034	ES2008681-035
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	20020312_D02	SP1-1	SP1-2	SP2-1	SP2-2
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-028	ES2008681-032	ES2008681-033	ES2008681-034	ES2008681-035
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		----	86.7	76.5	92.0	92.5
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		----	112	97.3	117	127
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		----	79.4	82.1	95.2	111
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		71.2	77.3	78.0	79.2	77.2
2-Chlorophenol-D4	93951-73-6	0.5	%		78.3	83.7	83.4	84.3	81.9
2.4.6-Tribromophenol	118-79-6	0.5	%		57.0	66.2	65.0	66.0	64.4
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		92.4	96.1	96.2	97.3	94.8
Anthracene-d10	1719-06-8	0.5	%		89.3	93.6	93.5	95.3	93.1
4-Terphenyl-d14	1718-51-0	0.5	%		90.5	93.3	92.5	93.6	90.2
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		92.6	103	107	103	96.4
Toluene-D8	2037-26-5	0.2	%		96.4	103	106	105	97.3
4-Bromofluorobenzene	460-00-4	0.2	%		89.3	96.7	100.0	99.8	89.0

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SP3-1	SP3-2	SP4-1	SP4-2	SP5-1
			Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit	ES2008681-036	ES2008681-037	ES2008681-038	ES2008681-039	ES2008681-040
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	9.5	12.0	12.0	15.2	11.0
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	7	8	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	12	12	15	14	24
Copper	7440-50-8	5	mg/kg	92	14	18	25	20
Lead	7439-92-1	5	mg/kg	25	24	23	21	36
Nickel	7440-02-0	2	mg/kg	10	7	8	12	8
Zinc	7440-66-6	5	mg/kg	44	33	55	64	47
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP3-1	SP3-2	SP4-1	SP4-2	SP5-1
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-036	ES2008681-037	ES2008681-038	ES2008681-039	ES2008681-040
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<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	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP3-1	SP3-2	SP4-1	SP4-2	SP5-1
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-036	ES2008681-037	ES2008681-038	ES2008681-039	ES2008681-040
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	0.6
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP3-1	SP3-2	SP4-1	SP4-2	SP5-1
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-036	ES2008681-037	ES2008681-038	ES2008681-039	ES2008681-040
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		86.3	83.9	88.3	74.4	95.4
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		108	115	118	77.5	113
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		115	124	93.4	88.9	110
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		78.6	81.4	75.8	78.1	75.4
2-Chlorophenol-D4	93951-73-6	0.5	%		82.9	85.2	79.9	82.2	79.8
2.4.6-Tribromophenol	118-79-6	0.5	%		65.2	67.1	62.6	64.1	61.1
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		93.4	94.2	90.3	94.8	93.5
Anthracene-d10	1719-06-8	0.5	%		93.6	92.8	89.3	93.6	90.1
4-Terphenyl-d14	1718-51-0	0.5	%		91.0	91.0	86.6	91.3	87.7
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		103	82.1	79.0	82.9	83.6
Toluene-D8	2037-26-5	0.2	%		107	108	105	106	108
4-Bromofluorobenzene	460-00-4	0.2	%		95.5	99.5	96.0	99.2	98.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SP5-2	SP6-1	SP6-2	SP6-3	SP6-4
			Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit	ES2008681-041	ES2008681-042	ES2008681-043	ES2008681-044	ES2008681-045
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	9.1	12.0	11.4	12.2	13.9
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	6	<5	8	18
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	15	13	14	14	15
Copper	7440-50-8	5	mg/kg	19	18	17	19	27
Lead	7439-92-1	5	mg/kg	27	15	13	19	179
Nickel	7440-02-0	2	mg/kg	7	8	9	7	9
Zinc	7440-66-6	5	mg/kg	46	28	22	35	225
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	0.09
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 (Matrix: SOIL)				Client sample ID	SP5-2	SP6-1	SP6-2	SP6-3	SP6-4
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-041	ES2008681-042	ES2008681-043	ES2008681-044	ES2008681-045
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<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	**0.09**
^ 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	<0.05
EP068B: Organophosphorus Pesticides (OP)									
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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**0.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP5-2	SP6-1	SP6-2	SP6-3	SP6-4
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-041	ES2008681-042	ES2008681-043	ES2008681-044	ES2008681-045
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	**0.5**
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP5-2	SP6-1	SP6-2	SP6-3	SP6-4
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00
Compound	CAS Number	LOR	Unit		ES2008681-041	ES2008681-042	ES2008681-043	ES2008681-044	ES2008681-045
					Result	Result	Result	Result	Result
EP080: BTEXN - Continued									
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		101	93.8	109	100	107
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		135	112	133	130	110
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		103	95.6	119	133	109
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		76.9	77.4	78.6	78.4	78.9
2-Chlorophenol-D4	93951-73-6	0.5	%		81.2	81.9	83.4	83.1	84.1
2.4.6-Tribromophenol	118-79-6	0.5	%		65.0	64.3	65.7	65.4	65.4
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		92.5	93.9	95.6	95.5	96.7
Anthracene-d10	1719-06-8	0.5	%		92.3	92.4	95.3	94.5	95.4
4-Terphenyl-d14	1718-51-0	0.5	%		89.6	90.6	92.9	92.3	94.7
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		81.2	78.7	81.6	90.1	80.9
Toluene-D8	2037-26-5	0.2	%		107	102	104	117	109
4-Bromofluorobenzene	460-00-4	0.2	%		96.6	95.5	96.9	110	101

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	SP6-5	20200312_D03	20200312_D04	----	----
			Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2008681-046	ES2008681-047	ES2008681-048	--------	--------
				Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**12.0**	**11.4**	**10.8**	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**10**	**5**	**6**	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	**10**	**15**	**20**	----	----
Copper	7440-50-8	5	mg/kg	**20**	**22**	**21**	----	----
Lead	7439-92-1	5	mg/kg	**136**	**17**	**22**	----	----
Nickel	7440-02-0	2	mg/kg	**10**	**13**	**12**	----	----
Zinc	7440-66-6	5	mg/kg	**185**	**63**	**45**	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	**0.18**	<0.05	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP6-5	20200312_D03	20200312_D04	----	----
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2008681-046	ES2008681-047	ES2008681-048	--------	--------
					Result	Result	Result	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		**0.18**	<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	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg		**0.5**	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP6-5	20200312_D03	20200312_D04	----	----
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2008681-046	ES2008681-047	ES2008681-048	--------	--------
					Result	Result	Result	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
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		**0.6**	**0.6**	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	SP6-5	20200312_D03	20200312_D04	----	----
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2008681-046	ES2008681-047	ES2008681-048	--------	--------
					Result	Result	Result	----	----
EP080: BTEXN - Continued									
^ **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	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**91.1**	**83.2**	**87.8**	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**92.4**	**98.8**	**115**	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**65.2**	**88.4**	**106**	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**73.7**	**78.1**	**76.5**	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**77.5**	**82.3**	**81.4**	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**56.9**	**58.9**	**59.0**	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**91.6**	**91.9**	**93.6**	----	----
Anthracene-d10	1719-06-8	0.5	%		**88.6**	**90.9**	**92.2**	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**88.2**	**90.5**	**91.3**	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**77.0**	**77.2**	**78.8**	----	----
Toluene-D8	2037-26-5	0.2	%		**103**	**101**	**106**	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**95.4**	**95.6**	**97.6**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	TS	TB	20020312_R01	----	----
			Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2008681-029	ES2008681-030	ES2008681-031	--------	--------
				Result	Result	Result	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	----	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L	----	----	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	----	----	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L	----	----	<0.001	----	----
Lead	7439-92-1	0.001	mg/L	----	----	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L	----	----	<0.005	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	<0.0001	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	----	<20	----	----
C10 - C14 Fraction	----	50	µg/L	----	----	<50	----	----
C15 - C28 Fraction	----	100	µg/L	----	----	<100	----	----
C29 - C36 Fraction	----	50	µg/L	----	----	<50	----	----
^ **C10 - C36 Fraction (sum)**	----	50	µg/L	----	----	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	----	----	<20	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	20	µg/L	----	----	<20	----	----
>C10 - C16 Fraction	----	100	µg/L	----	----	<100	----	----
>C16 - C34 Fraction	----	100	µg/L	----	----	<100	----	----
>C34 - C40 Fraction	----	100	µg/L	----	----	<100	----	----
^ **>C10 - C40 Fraction (sum)**	----	100	µg/L	----	----	<100	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	100	µg/L	----	----	<100	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	----	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	----	----
^ **Total Xylenes**	----	2	µg/L	<2	<2	<2	----	----
^ **Sum of BTEX**	----	1	µg/L	<1	<1	<1	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	TS	TB	20020312_R01	----	----
				Client sampling date / time	12-Mar-2020 00:00	12-Mar-2020 00:00	12-Mar-2020 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2008681-029	ES2008681-030	ES2008681-031	--------	--------
					Result	Result	Result	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		**108**	**109**	**105**	**----**	**----**
Toluene-D8	2037-26-5	2	%		**102**	**107**	**100**	**----**	**----**
4-Bromofluorobenzene	460-00-4	2	%		**96.7**	**100**	**95.0**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2008681**	Page	: 1 of 21
Client	: **ENVIRONMENTAL RESOURCES MANAGEMENT (ERM)**	Laboratory	: Environmental Division Sydney
Contact	: RUSSELL JARMAN	Contact	: Shane Ellis
Address	: Level 15, 309 Kent Street SYDNEY NSW AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	[redacted]	
Project	: 0471390 O'Connell Street, Caddens	Date Samples Received	: 12-Mar-2020
Order number	: ----	Date Analysis Commenced	: 16-Mar-2020
C-O-C number	: ----	Issue Date	: 20-Mar-2020
Sampler	: ----		
Site	: AR/JE		
Quote number	: EN/114/19		
No. of samples received	: 49		
No. of samples analysed	: 41		

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 Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	*Position*	*Accreditation Category*
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, 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 (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2916465)									
ES2008681-001	TP01_0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	21	22	0.00	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	28	31	9.44	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	47	46	3.03	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	31	33	6.04	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	90	93	3.24	0% - 50%
ES2008681-015	TP08_0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	24	22	4.70	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	29	27	7.45	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	14	12	8.19	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	55	50	11.1	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	24	23	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	54	51	6.49	0% - 50%
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2916467)									
ES2008681-028	20020312_D02	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	25	26	4.78	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	23	21	7.48	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	9	12	30.3	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	40	45	11.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	18	22	18.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	46	46	0.00	No Limit
ES2008681-041	SP5-2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	15	13	16.7	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	7	9	28.3	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 (%)*
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 2916467) - continued									
ES2008681-041	SP5-2	EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	19	21	6.03	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	27	30	10.6	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	46	70	41.0	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2916471)									
ES2008681-003	TP02_0.1	EA055: Moisture Content	----	0.1	%	14.7	15.0	2.02	0% - 50%
ES2008681-019	TP10_0.1	EA055: Moisture Content	----	0.1	%	18.0	18.0	0.00	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2916472)									
ES2008681-033	SP1-2	EA055: Moisture Content	----	0.1	%	14.4	14.4	0.00	0% - 50%
ES2008681-044	SP6-3	EA055: Moisture Content	----	0.1	%	12.2	12.1	0.00	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2916466)									
ES2008681-001	TP01_0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2008681-015	TP08_0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2916468)									
ES2008681-028	20020312_D02	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2008681-041	SP5-2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2915421)									
ES2008681-001	TP01_0.1	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 2915424)									
ES2008681-032	SP1-1	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES2008681-042	SP6-1	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2915420)									
ES2008681-001	TP01_0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2915420) - continued									
ES2008681-001	TP01_0.1	EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2915425)									
ES2008681-032	SP1-1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
ES2008681-042	SP6-1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2915425) - continued									
ES2008681-042	SP6-1	EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2915420)									
ES2008681-001	TP01_0.1	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
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2915425)									
ES2008681-032	SP1-1	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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2915425) - continued									
ES2008681-032	SP1-1	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
ES2008681-042	SP6-1	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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2915419)									
ES2008681-015	TP08_0.1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2915419) - continued									
ES2008681-015	TP08_0.1	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
ES2008681-001	TP01_0.1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2915423)									
ES2008681-032	SP1-1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	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 (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2915423) - continued									
ES2008681-032	SP1-1	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
ES2008681-042	SP6-1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2915418)									
ES2008681-015	TP08_0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES2008681-001	TP01_0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2915422)									
ES2008681-032	SP1-1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES2008681-042	SP6-1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2915422) - continued									
ES2008681-042	SP6-1	EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2915627)									
ES2008681-001	TP01_0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES2008681-015	TP08_0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2915643)									
ES2008681-028	20020312_D02	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES2008681-041	SP5-2	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2915418)									
ES2008681-015	TP08_0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES2008681-001	TP01_0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2915422)									
ES2008681-032	SP1-1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
ES2008681-042	SP6-1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2915627)									
ES2008681-001	TP01_0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES2008681-015	TP08_0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2915643)									
ES2008681-028	20020312_D02	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES2008681-041	SP5-2	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 2915627)									
ES2008681-001	TP01_0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	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
ES2008681-015	TP08_0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080: BTEXN (QC Lot: 2915627) - continued									
ES2008681-015	TP08_0.1	EP080: meta- & para-Xylene	108-38-3 106-42-3	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
EP080: BTEXN (QC Lot: 2915643)									
ES2008681-028	20020312_D02	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	108-38-3 106-42-3	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
ES2008681-041	SP5-2	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	108-38-3 106-42-3	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

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EG020T: Total Metals by ICP-MS (QC Lot: 2918241)									
ES2008628-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.009	0.009	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.008	0.006	32.3	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.015	0.014	0.00	0% - 50%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.008	0.006	32.0	No Limit
ES2008379-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.418	0.426	1.86	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.004	0.005	26.4	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.035	0.043	20.6	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2918246)									
ES2007150-011	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
ES2008688-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	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 (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2914850)									
ES2008557-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
ES2008745-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2914850)									
ES2008557-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
ES2008745-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.00	No Limit
EP080: BTEXN (QC Lot: 2914850)									
ES2008557-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	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
ES2008745-002	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	108-38-3 106-42-3	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

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 Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2916465)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	114	86.0	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	106	83.0	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	96.6	76.0	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	107	86.0	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	106	80.0	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	107	87.0	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	111	80.0	122
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2916467)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	113	86.0	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	104	83.0	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	99.1	76.0	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	107	86.0	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	105	80.0	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	108	87.0	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	120	80.0	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2916466)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	77.2	70.0	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2916468)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	85.5	70.0	105
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2915421)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	106	62.0	126
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2915424)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	84.2	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 2915420)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	98.7	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	97.7	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	96.6	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	104	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	106	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	93.4	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	94.2	63.0	117

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 2915420) - continued								
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.4	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.4	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	97.9	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	89.7	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	104	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	102	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	98.3	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	102	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	95.6	54.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2915425)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	106	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	95.5	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.6	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.7	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	81.5	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	104	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	107	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.9	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	80.9	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	100.0	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.5	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.6	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	82.5	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.8	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	93.3	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	108	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2915420)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	95.1	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	103	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	77.5	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.5	67.0	119

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2915420) - continued								
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.7	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	103	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	97.7	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	105	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	103	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	96.3	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	103	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	93.3	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	78.6	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	88.9	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	100	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	98.9	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	69.2	41.0	123
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2915425)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	86.2	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	78.0	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	74.0	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	79.0	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	85.5	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	76.7	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	77.8	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	79.1	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	87.0	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.0	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	80.3	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	82.0	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	87.3	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	102	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	75.4	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	102	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	88.7	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	94.5	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	67.5	41.0	123
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2915419)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	95.2	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	96.5	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	92.4	73.0	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
				Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2915419) - continued								
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	96.3	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	96.9	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	97.2	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	97.8	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	97.4	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	93.2	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	93.5	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	91.2	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	89.5	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	92.6	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	94.2	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	92.1	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	94.1	63.0	121
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2915423)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	92.4	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	94.7	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	95.9	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	95.8	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	98.8	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	99.7	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	103	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	103	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	88.6	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	90.5	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	87.7	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	95.4	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	95.1	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	93.4	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	93.1	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	90.2	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2915418)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	111	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	107	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	93.8	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2915422)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	93.8	75.0	129

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2915422) - continued								
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	91.8	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	90.1	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2915627)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	85.2	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2915643)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	78.7	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2915418)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	107	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	104	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	75.4	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2915422)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	91.7	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	91.1	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	94.0	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2915627)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	89.1	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2915643)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	78.6	68.4	128
EP080: BTEXN (QCLot: 2915627)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	93.9	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	81.6	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	83.4	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	85.2	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	87.8	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	87.8	63.0	119
EP080: BTEXN (QCLot: 2915643)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	80.5	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	80.2	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	80.0	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	83.9	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	84.5	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	74.4	63.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EG020T: Total Metals by ICP-MS (QCLot: 2918241)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.0	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	101	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.7	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.8	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	102	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.7	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2918246)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.0	77.0	111
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2914850)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	105	75.0	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2915407)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	71.3	55.8	112
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	102	71.6	113
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	84.5	56.0	121
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2914850)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	106	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2915407)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	85.0	57.9	119
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	81.0	62.5	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	82.0	61.5	121
EP080: BTEXN (QCLot: 2914850)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	103	70.0	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	108	69.0	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	105	70.0	120
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	102	69.0	121
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	101	72.0	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	99.4	70.0	120

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2916465)							

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2916465) - continued							
ES2008681-001	TP01_0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	108	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	107	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	107	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	108	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	105	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	111	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	104	70.0	130
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 2916467)							
ES2008681-028	20020312_D02	EG005T: Arsenic	7440-38-2	50 mg/kg	97.2	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	98.0	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	94.6	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	103	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	99.2	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	93.4	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	98.3	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2916466)							
ES2008681-001	TP01_0.1	EG035T: Mercury	7439-97-6	5 mg/kg	92.1	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2916468)							
ES2008681-028	20020312_D02	EG035T: Mercury	7439-97-6	5 mg/kg	91.8	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2915421)							
ES2008681-001	TP01_0.1	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	103	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 2915424)							
ES2008681-032	SP1-1	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	120	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2915420)							
ES2008681-001	TP01_0.1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	79.1	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	97.5	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	94.5	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	116	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	93.2	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	97.2	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 2915425)							
ES2008681-032	SP1-1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	114	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	101	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	100	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	88.4	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	85.8	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	95.0	70.0	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
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2915420)							
ES2008681-001	TP01_0.1	EP068: Diazinon	333-41-5	0.5 mg/kg	104	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	99.1	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	86.0	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	86.3	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	93.6	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2915425)							
ES2008681-032	SP1-1	EP068: Diazinon	333-41-5	0.5 mg/kg	83.7	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	86.0	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	92.5	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	103	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	106	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2915419)							
ES2008681-001	TP01_0.1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	97.4	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	98.0	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2915423)							
ES2008681-032	SP1-1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	92.8	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	97.9	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2915418)							
ES2008681-001	TP01_0.1	EP071: C10 - C14 Fraction	----	523 mg/kg	101	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	116	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	123	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2915422)							
ES2008681-032	SP1-1	EP071: C10 - C14 Fraction	----	523 mg/kg	92.8	73.0	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	94.0	53.0	131
		EP071: C29 - C36 Fraction	----	1714 mg/kg	98.7	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2915627)							
ES2008681-001	TP01_0.1	EP080: C6 - C9 Fraction	----	32.5 mg/kg	103	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2915643)							
ES2008681-028	20020312_D02	EP080: C6 - C9 Fraction	----	32.5 mg/kg	88.3	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2915418)							
ES2008681-001	TP01_0.1	EP071: >C10 - C16 Fraction	----	860 mg/kg	104	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	114	53.0	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	116	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2915422)							
ES2008681-032	SP1-1	EP071: >C10 - C16 Fraction	----	860 mg/kg	100	73.0	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	95.7	53.0	131

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Recovery Limits (%) Low	Matrix Spike (MS) Report: Recovery Limits (%) High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2915422) - continued							
ES2008681-032	SP1-1	EP071: >C34 - C40 Fraction	----	1058 mg/kg	86.4	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2915627)							
ES2008681-001	TP01_0.1	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	105	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2915643)							
ES2008681-028	20020312_D02	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.0	70.0	130
EP080: BTEXN (QCLot: 2915627)							
ES2008681-001	TP01_0.1	EP080: Benzene	71-43-2	2.5 mg/kg	91.3	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	81.5	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	87.6	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	86.7	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	88.1	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	88.6	70.0	130
EP080: BTEXN (QCLot: 2915643)							
ES2008681-028	20020312_D02	EP080: Benzene	71-43-2	2.5 mg/kg	70.9	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	81.3	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	84.2	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	83.9	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	85.0	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	80.5	70.0	130

Sub-Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	Matrix Spike (MS) Report: SpikeRecovery(%) MS	Matrix Spike (MS) Report: Recovery Limits (%) Low	Matrix Spike (MS) Report: Recovery Limits (%) High
EG020T: Total Metals by ICP-MS (QCLot: 2918241)							
ES2008379-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	93.7	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	99.7	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	100	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	97.4	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	98.4	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	95.0	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2918246)							
ES2008379-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	86.4	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2914850)							
ES2008745-002	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	99.3	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2914850)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2914850) - continued							
ES2008745-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	95.8	70.0	130
EP080: BTEXN (QCLot: 2914850)							
ES2008745-002	Anonymous	EP080: Benzene	71-43-2	25 µg/L	95.0	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	97.4	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	94.3	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	95.6	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	95.5	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	78.1	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2008681**	Page	: 1 of 13
Client	: **ENVIRONMENTAL RESOURCES MANAGEMENT (ERM)**	Laboratory	: Environmental Division Sydney
Contact	: RUSSELL JARMAN	[redacted]	
Project	: 0471390 O'Connell Street, Caddens	Date Samples Received	: 12-Mar-2020
Site	: AR/JE	Issue Date	: 20-Mar-2020
Sampler	: ----	No. of samples received	: 49
Order number	: ----	No. of samples analysed	: 41

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

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
TRH - Semivolatile Fraction	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
TRH - Semivolatile Fraction	0	2	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 / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Evaluation	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
TP01_0.1, TP01_0.5, TP02_0.1, TP03_0.1, TP04_0.1, TP04_0.5, TP05_0.1, TP06_0.1, TP07_0.1, TP07_0.4, TP08_0.1, TP08_0.5, TP09_0.1, TP10_0.1, TP11_0.1, TP11_0.4, TP12_0.1, TP12_0.4, TP13_0.1, 20020312_D01, 20020312_D02, SP1-1, SP1-2, SP2-1, SP2-2, SP3-1, SP3-2, SP4-1, SP4-2, SP5-1, SP5-2, SP6-1, SP6-2, SP6-3, SP6-4, SP6-5, 20200312_D03, 20200312_D04	**12-Mar-2020**	**----**	----	----	**16-Mar-2020**	26-Mar-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
TP01_0.1, TP01_0.5, TP02_0.1, TP03_0.1, TP04_0.1, TP04_0.5, TP05_0.1, TP06_0.1, TP07_0.1, TP07_0.4, TP08_0.1, TP08_0.5, TP09_0.1, TP10_0.1, TP11_0.1, TP11_0.4, TP12_0.1, TP12_0.4, TP13_0.1, 20020312_D01, 20020312_D02, SP1-1, SP1-2, SP2-1, SP2-2, SP3-1, SP3-2, SP4-1, SP4-2, SP5-1, SP5-2, SP6-1, SP6-2, SP6-3, SP6-4, SP6-5, 20200312_D03, 20200312_D04	**12-Mar-2020**	**16-Mar-2020**	08-Sep-2020	✓	**16-Mar-2020**	08-Sep-2020	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
TP01_0.1, TP01_0.5, TP02_0.1, TP03_0.1, TP04_0.1, TP04_0.5, TP05_0.1, TP06_0.1, TP07_0.1, TP07_0.4, TP08_0.1, TP08_0.5, TP09_0.1, TP10_0.1, TP11_0.1, TP11_0.4, TP12_0.1, TP12_0.4, TP13_0.1, 20020312_D01, 20020312_D02, SP1-1, SP1-2, SP2-1, SP2-2, SP3-1, SP3-2, SP4-1, SP4-2, SP5-1, SP5-2, SP6-1, SP6-2, SP6-3, SP6-4, SP6-5, 20200312_D03, 20200312_D04	**12-Mar-2020**	**16-Mar-2020**	09-Apr-2020	✓	**17-Mar-2020**	09-Apr-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
TP01_0.1,	TP04_0.1,	**12-Mar-2020**	**16-Mar-2020**	26-Mar-2020	✓	**17-Mar-2020**	25-Apr-2020	✓
TP05_0.1,	TP07_0.1,							
TP09_0.1,	TP11_0.1,							
TP12_0.1,	TP12_0.4,							
20020312_D01,	SP1-1,							
SP1-2,	SP2-1,							
SP2-2,	SP3-1,							
SP3-2,	SP4-1,							
SP4-2,	SP5-1,							
SP5-2,	SP6-1,							
SP6-2,	SP6-3,							
SP6-4,	SP6-5,							
20200312_D03,	20200312_D04							
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
TP01_0.1,	TP04_0.1,	**12-Mar-2020**	**16-Mar-2020**	26-Mar-2020	✓	**17-Mar-2020**	25-Apr-2020	✓
TP05_0.1,	TP07_0.1,							
TP09_0.1,	TP11_0.1,							
TP12_0.1,	TP12_0.4,							
20020312_D01,	SP1-1,							
SP1-2,	SP2-1,							
SP2-2,	SP3-1,							
SP3-2,	SP4-1,							
SP4-2,	SP5-1,							
SP5-2,	SP6-1,							
SP6-2,	SP6-3,							
SP6-4,	SP6-5,							
20200312_D03,	20200312_D04							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068)								
TP01_0.1,	TP04_0.1,	**12-Mar-2020**	**16-Mar-2020**	26-Mar-2020	✓	**17-Mar-2020**	25-Apr-2020	✓
TP05_0.1,	TP07_0.1,							
TP09_0.1,	TP11_0.1,							
TP12_0.1,	TP12_0.4,							
20020312_D01,	SP1-1,							
SP1-2,	SP2-1,							
SP2-2,	SP3-1,							
SP3-2,	SP4-1,							
SP4-2,	SP5-1,							
SP5-2,	SP6-1,							
SP6-2,	SP6-3,							
SP6-4,	SP6-5,							
20200312_D03,	20200312_D04							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM))								
TP01_0.1,	TP01_0.5,	**12-Mar-2020**	**16-Mar-2020**	26-Mar-2020	✓	**17-Mar-2020**	25-Apr-2020	✓
TP02_0.1,	TP03_0.1,							
TP04_0.1,	TP04_0.5,							
TP05_0.1,	TP06_0.1,							
TP07_0.1,	TP07_0.4,							
TP08_0.1,	TP08_0.5,							
TP09_0.1,	TP10_0.1,							
TP11_0.1,	TP11_0.4,							
TP12_0.1,	TP12_0.4,							
TP13_0.1,	20020312_D01,							
20020312_D02,	SP1-1,							
SP1-2,	SP2-1,							
SP2-2,	SP3-1,							
SP3-2,	SP4-1,							
SP4-2,	SP5-1,							
SP5-2,	SP6-1,							
SP6-2,	SP6-3,							
SP6-4,	SP6-5,							
20200312_D03,	20200312_D04							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
TP01_0.1, TP01_0.5, TP02_0.1, TP03_0.1, TP04_0.1, TP04_0.5, TP05_0.1, TP06_0.1, TP07_0.1, TP07_0.4, TP08_0.1, TP08_0.5, TP09_0.1, TP10_0.1, TP11_0.1, TP11_0.4, TP12_0.1, TP12_0.4, TP13_0.1, 20020312_D01, 20020312_D02, SP1-1, SP1-2, SP2-1, SP2-2, SP3-1, SP3-2, SP4-1, SP4-2, SP5-1, SP5-2, SP6-1, SP6-2, SP6-3, SP6-4, SP6-5, 20200312_D03, 20200312_D04	**12-Mar-2020**	**16-Mar-2020**	26-Mar-2020	✓	**16-Mar-2020**	26-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP071)							
TP01_0.1, TP01_0.5, TP02_0.1, TP03_0.1, TP04_0.1, TP04_0.5, TP05_0.1, TP06_0.1, TP07_0.1, TP07_0.4, TP08_0.1, TP08_0.5, TP09_0.1, TP10_0.1, TP11_0.1, TP11_0.4, TP12_0.1, TP12_0.4, TP13_0.1, 20020312_D01, 20020312_D02, SP1-1, SP1-2, SP2-1, SP2-2, SP3-1, SP3-2, SP4-1, SP4-2, SP5-1, SP5-2, SP6-1, SP6-2, SP6-3, SP6-4, SP6-5, 20200312_D03, 20200312_D04	**12-Mar-2020**	**16-Mar-2020**	26-Mar-2020	✓	**17-Mar-2020**	25-Apr-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
TP01_0.1, TP01_0.5, TP02_0.1, TP03_0.1, TP04_0.1, TP04_0.5, TP05_0.1, TP06_0.1, TP07_0.1, TP07_0.4, TP08_0.1, TP08_0.5, TP09_0.1, TP10_0.1, TP11_0.1, TP11_0.4, TP12_0.1, TP12_0.4, TP13_0.1, 20020312_D01, 20020312_D02, SP1-1, SP1-2, SP2-1, SP2-2, SP3-1, SP3-2, SP4-1, SP4-2, SP5-1, SP5-2, SP6-1, SP6-2, SP6-3, SP6-4, SP6-5, 20200312_D03, 20200312_D04	**12-Mar-2020**	**16-Mar-2020**	26-Mar-2020	✓	**16-Mar-2020**	26-Mar-2020	✓
Soil Glass Jar - Unpreserved (EP071)							
TP01_0.1, TP01_0.5, TP02_0.1, TP03_0.1, TP04_0.1, TP04_0.5, TP05_0.1, TP06_0.1, TP07_0.1, TP07_0.4, TP08_0.1, TP08_0.5, TP09_0.1, TP10_0.1, TP11_0.1, TP11_0.4, TP12_0.1, TP12_0.4, TP13_0.1, 20020312_D01, 20020312_D02, SP1-1, SP1-2, SP2-1, SP2-2, SP3-1, SP3-2, SP4-1, SP4-2, SP5-1, SP5-2, SP6-1, SP6-2, SP6-3, SP6-4, SP6-5, 20200312_D03, 20200312_D04	**12-Mar-2020**	**16-Mar-2020**	26-Mar-2020	✓	**17-Mar-2020**	25-Apr-2020	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
TP01_0.1, TP01_0.5, TP02_0.1, TP03_0.1, TP04_0.1, TP04_0.5, TP05_0.1, TP06_0.1, TP07_0.1, TP07_0.4, TP08_0.1, TP08_0.5, TP09_0.1, TP10_0.1, TP11_0.1, TP11_0.4, TP12_0.1, TP12_0.4, TP13_0.1, 20020312_D01, 20020312_D02, SP1-1, SP1-2, SP2-1, SP2-2, SP3-1, SP3-2, SP4-1, SP4-2, SP5-1, SP5-2, SP6-1, SP6-2, SP6-3, SP6-4, SP6-5, 20200312_D03, 20200312_D04	**12-Mar-2020**	**16-Mar-2020**	26-Mar-2020	✓	**16-Mar-2020**	26-Mar-2020	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)							
20020312_R01	**12-Mar-2020**	**17-Mar-2020**	08-Sep-2020	✓	**17-Mar-2020**	08-Sep-2020	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)							
20020312_R01	**12-Mar-2020**	**----**	----	----	**17-Mar-2020**	09-Apr-2020	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
20020312_R01	**12-Mar-2020**	**16-Mar-2020**	19-Mar-2020	✓	**16-Mar-2020**	25-Apr-2020	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
20020312_R01	**12-Mar-2020**	**16-Mar-2020**	26-Mar-2020	✓	**16-Mar-2020**	26-Mar-2020	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
20020312_R01	**12-Mar-2020**	**16-Mar-2020**	19-Mar-2020	✓	**16-Mar-2020**	25-Apr-2020	✓
Amber VOC Vial - Sulfuric Acid (EP080)							
20020312_R01	**12-Mar-2020**	**16-Mar-2020**	26-Mar-2020	✓	**16-Mar-2020**	26-Mar-2020	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080)							
TS, TB, 20020312_R01	**12-Mar-2020**	**16-Mar-2020**	26-Mar-2020	✓	**16-Mar-2020**	26-Mar-2020	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	3	26	11.54	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	3	26	11.54	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	26	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	26	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	26	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	26	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	26	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	26	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	**0.00**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	2	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
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 6.1 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 (SnCl2) (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 SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 504)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015A The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM (2013) Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510B 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using 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	: **ES2008681**		
Client	: **ENVIRONMENTAL RESOURCES MANAGEMENT (ERM)**	Laboratory	: Environmental Division Sydney
Contact	: RUSSELL JARMAN	Contact	: Shane Ellis
Address	: Level 15, 309 Kent Street SYDNEY NSW AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: russell.jarman@erm.com	[redacted]	
Telephone	: ----		
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 0471390 O'Connell Street, Caddens	Page	: 1 of 4
Order number	: ----	Quote number	: EN2019ENVRES0003 (EN/114/19)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: AR/JE		
Sampler	:		

Dates

Date Samples Received	: 12-Mar-2020 14:30	Issue Date	: 13-Mar-2020
Client Requested Due Date	: 19-Mar-2020	Scheduled Reporting Date	: **19-Mar-2020**

Delivery Details

Mode of Delivery	: Client Drop Off	Security Seal	: Not Available
No. of coolers/boxes	: 2	Temperature	: 6.7 - Ice present
Receipt Detail	:	No. of samples received / analysed	: 49 / 41

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

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	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - S-16 TRH/BTEXN/PAH/OC/OP/PCB/8Metals	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2008681-001	12-Mar-2020 00:00	TP01_0.1		✓	✓	
ES2008681-002	12-Mar-2020 00:00	TP01_0.5		✓		✓
ES2008681-003	12-Mar-2020 00:00	TP02_0.1		✓		✓
ES2008681-004	12-Mar-2020 00:00	TP02_0.6	✓			
ES2008681-005	12-Mar-2020 00:00	TP03_0.1		✓		✓
ES2008681-006	12-Mar-2020 00:00	TP03_0.4	✓			
ES2008681-007	12-Mar-2020 00:00	TP04_0.1		✓	✓	
ES2008681-008	12-Mar-2020 00:00	TP04_0.5		✓		✓
ES2008681-009	12-Mar-2020 00:00	TP05_0.1		✓	✓	
ES2008681-010	12-Mar-2020 00:00	TP05_0.6	✓			
ES2008681-011	12-Mar-2020 00:00	TP06_0.1		✓		✓
ES2008681-012	12-Mar-2020 00:00	TP06_0.5	✓			
ES2008681-013	12-Mar-2020 00:00	TP07_0.1		✓	✓	
ES2008681-014	12-Mar-2020 00:00	TP07_0.4		✓		✓
ES2008681-015	12-Mar-2020 00:00	TP08_0.1		✓		✓
ES2008681-016	12-Mar-2020 00:00	TP08_0.5		✓		✓
ES2008681-017	12-Mar-2020 00:00	TP09_0.1		✓	✓	
ES2008681-018	12-Mar-2020 00:00	TP09_0.4	✓			
ES2008681-019	12-Mar-2020 00:00	TP10_0.1		✓		✓
ES2008681-020	12-Mar-2020 00:00	TP10_0.5	✓			
ES2008681-021	12-Mar-2020 00:00	TP11_0.1		✓	✓	
ES2008681-022	12-Mar-2020 00:00	TP11_0.4		✓		✓
ES2008681-023	12-Mar-2020 00:00	TP12_0.1		✓	✓	
ES2008681-024	12-Mar-2020 00:00	TP12_0.4		✓	✓	
ES2008681-025	12-Mar-2020 00:00	TP13_0.1		✓		✓
ES2008681-026	12-Mar-2020 00:00	TP13_0.6	✓			
ES2008681-027	12-Mar-2020 00:00	20020312_D01		✓	✓	
ES2008681-028	12-Mar-2020 00:00	20020312_D02		✓		✓
ES2008681-032	12-Mar-2020 00:00	SP1-1		✓	✓	
ES2008681-033	12-Mar-2020 00:00	SP1-2		✓	✓	
ES2008681-034	12-Mar-2020 00:00	SP2-1		✓	✓	
ES2008681-035	12-Mar-2020 00:00	SP2-2		✓	✓	
ES2008681-036	12-Mar-2020 00:00	SP3-1		✓	✓	
ES2008681-037	12-Mar-2020 00:00	SP3-2		✓	✓	
ES2008681-038	12-Mar-2020 00:00	SP4-1		✓	✓	

			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - S-16 TRH/BTEXN/PAH/OC/OP/PCB/8Metals	SOIL - S-26 8 metals/TRH/BTEXN/PAH
ES2008681-039	12-Mar-2020 00:00	SP4-2		✓	✓	
ES2008681-040	12-Mar-2020 00:00	SP5-1		✓	✓	
ES2008681-041	12-Mar-2020 00:00	SP5-2		✓	✓	
ES2008681-042	12-Mar-2020 00:00	SP6-1		✓	✓	
ES2008681-043	12-Mar-2020 00:00	SP6-2		✓	✓	
ES2008681-044	12-Mar-2020 00:00	SP6-3		✓	✓	
ES2008681-045	12-Mar-2020 00:00	SP6-4		✓	✓	
ES2008681-046	12-Mar-2020 00:00	SP6-5		✓	✓	
ES2008681-047	12-Mar-2020 00:00	20200312_D03		✓	✓	
ES2008681-048	12-Mar-2020 00:00	20200312_D04		✓	✓	
ES2008681-049	12-Mar-2020 00:00	SP1-3	✓			

Matrix: **WATER**

Laboratory sample ID	*Client sampling date / time*	*Client sample ID*	WATER - EP080 BTEXN	WATER - W-05T TRH/BTEXN/8 Metals (Total)
ES2008681-029	12-Mar-2020 00:00	TS	✓	
ES2008681-030	12-Mar-2020 00:00	TB	✓	
ES2008681-031	12-Mar-2020 00:00	20020312_R01		✓

Proactive Holding Time Report

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

Requested Deliverables

ACCOUNTS PAYABLE		
- A4 - AU Tax Invoice (INV)	Email	au.accounts@erm.com
ANTHONY RICHARD		
- *AU Certificate of Analysis - NATA (COA)	Email	anthony.richard@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	anthony.richard@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	anthony.richard@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	anthony.richard@erm.com
- Chain of Custody (CoC) (COC)	Email	anthony.richard@erm.com
- EDI Format - ENMRG (ENMRG)	Email	anthony.richard@erm.com
- EDI Format - ESDAT (ESDAT)	Email	anthony.richard@erm.com
ERM SYDNEY RESULTS		
- *AU Certificate of Analysis - NATA (COA)	Email	ERM.DLASydneyOfficeMailbox@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	ERM.DLASydneyOfficeMailbox@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	ERM.DLASydneyOfficeMailbox@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	ERM.DLASydneyOfficeMailbox@erm.com
- Chain of Custody (CoC) (COC)	Email	ERM.DLASydneyOfficeMailbox@erm.com
- EDI Format - ENMRG (ENMRG)	Email	ERM.DLASydneyOfficeMailbox@erm.com
- EDI Format - ESDAT (ESDAT)	Email	ERM.DLASydneyOfficeMailbox@erm.com
Jack Emblen		
- *AU Certificate of Analysis - NATA (COA)	Email	jack.emblen@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	jack.emblen@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	jack.emblen@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	jack.emblen@erm.com
- Chain of Custody (CoC) (COC)	Email	jack.emblen@erm.com
- EDI Format - ENMRG (ENMRG)	Email	jack.emblen@erm.com
- EDI Format - ESDAT (ESDAT)	Email	jack.emblen@erm.com
RUSSELL JARMAN		
- *AU Certificate of Analysis - NATA (COA)	Email	russell.jarman@erm.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	russell.jarman@erm.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	russell.jarman@erm.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	russell.jarman@erm.com
- A4 - AU Tax Invoice (INV)	Email	russell.jarman@erm.com
- Chain of Custody (CoC) (COC)	Email	russell.jarman@erm.com
- EDI Format - ENMRG (ENMRG)	Email	russell.jarman@erm.com
- EDI Format - ESDAT (ESDAT)	Email	russell.jarman@erm.com

CHAIN OF CUSTODY

ALS Laboratory: please tick →

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☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT: ERM	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☐ Standard TAT (List due date):	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: Macquarie Park		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: O'Connell Street, Caddens **PROJECT NO.:** 0471390	**ALS QUOTE NO.:**	**COC SEQUENCE NUMBER (Circle)**	Free ice /Frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: **PURCHASE ORDER NO.:**	**COUNTRY OF ORIGIN:** Australia	COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Russell Jarman **CONTACT PH:**		OF: 1 2 3 4 5 6 7	Other comment: 6-7
SAMPLER: AR/JE **SAMPLER MOBILE:**	**RELINQUISHED BY:** [redacted]	**RELINQUISHED BY:**	**RECEIVED BY:**
COC Emailed to ALS? (YES / NO) **EDD FORMAT (or default):**			
Email Reports: russell.jarman@erm.com; erm.dlasydneyofficemailbox@erm.com; jack.emblen@erm.com; anthony.richard@erm.com	DATE/TIME: 12/03/20	DATE/TIME: 12/3/20 1430	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed):		DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) 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 (refer to codes below)	TOTAL BOTTLES	S-16	S-26	HOLD						Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	TP01_0.1	12.03.2020	Soil			X								
2	TP01_0.5						X							
3	TP02_0.1						X							
4	TP02_0.6							X						
5	TP03_0.1						X							
6	TP03_0.4							X						
7	TP04_0.1					X								
8	TP04_0.5						X							
9	TP05_0.1					X								
10	TP05_0.6							X						
11	TP06_0.1						X							
12	TP06_0.5							X						
				TOTAL										

Environmental Division Sydney
Work Order Reference
ES2008681

Telephone : +61-2-8784 8555

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; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

CHAIN OF CUSTODY

ALS Laboratory: **please tick** →

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CLIENT:	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	☐ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: Macquarie Park		☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
PROJECT: O'Connell Street, Caddens **PROJECT NO.: 0471390**	**ALS QUOTE NO.:**	**COC SEQUENCE NUMBER (Circle)**	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: **PURCHASE ORDER NO.:**	**COUNTRY OF ORIGIN: Australia**	COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: 6.7 °C
PROJECT MANAGER: Russell Jarman **CONTACT PH:**		OF: 1 2 3 4 5 6 7	Other comment:

SAMPLER: AR/JE **SAMPLER MOBILE:**	**RELINQUISHED BY:**	**RECEIVED BY:** [redacted]	**RELINQUISHED BY:**	**RECEIVED BY:**
COC Emailed to ALS? (YES / NO) **EDD FORMAT (or default):**				
Email Reports: russell.jarman@erm.com; erm.dlasydneyofficemailbox@erm.com; jack.emblen@erm.com; anthony.richard@erm.com	DATE/TIME: 12/03/20	DATE/TIME: 12/3/2014 30	DATE/TIME:	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed):				

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) 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 *(refer to codes below)*	TOTAL BOTTLES	S-16	S-26	HOLD						Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
13	TP07_0.1	12.03.2020	Soil			X								
14	TP07_0.4	↓	↓				X							
15	TP08_0.1						X							
16	TP08_0.5						X							
17	TP09_0.1					X								
18	TP09_0.4							X						
19	TP10_0.1						X							
20	TP10_0.5							X						
21	TP11_0.1					X								
22	TP11_0.4						X							
23	TP12_0.1					X								
24	TP12_0.4	↓	↓			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
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Approved Date: 06/02/2014

CHAIN OF CUSTODY

ALS Laboratory: please tick →

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☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 02 4423 2063 E: nowra@alsglobal.com
☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com
☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com
☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT:	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	☐ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: Macquarie Park		☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
PROJECT: O'Connell Street, Caddens **PROJECT NO.: 0471390**	**ALS QUOTE NO.:**	**COC SEQUENCE NUMBER (Circle)**	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: **PURCHASE ORDER NO.:**	**COUNTRY OF ORIGIN: Australia**	COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Russell Jarman **CONTACT PH:**		[redacted] 6 7	Other comment: 6 7
SAMPLER: AR/JE **SAMPLER MOBILE:**	**RELINQUISHED BY:**	**RELINQUISHED BY:**	**RECEIVED BY:**
COC Emailed to ALS? (YES / NO) **EDD FORMAT (or default):**			
Email Reports: russell.jarman@erm.com; erm.dlasydneyofficemailbox@erm.com; jack.emblen@erm.com; anthony.richard@erm.com	DATE/TIME: 12/03/20	DATE/TIME: 13/03/2020	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed):			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) 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 *(refer to codes below)*	TOTAL BOTTLES	516	S-26	HOLD	BTEX	TRH, vTRH, Metals				Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
25	TP13_0.1	12.03.2020	Soil				X							
26	TP13_0.6							X						
27	20020312_D01					X								
28	20020312_D02						X							
29	TS		Water						X					
30	TB								X					
31	20020312_R01									X				
32	SP1-1		Soil			X								
33	SP1-2					X								
34	SP2-1					X								
35	SP2-2					X								
36	SP3-1					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; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 21 Burma Road Pooraka SA 5095 Ph: 08 8359 0890 E: adelaide@alsglobal.com

☐BRISBANE 2 Byth Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Clinton QLD 4680 Ph: 07 7471 5600 E: gladstone@alsglobal.com

☐MACKAY 78 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 E: mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 1/29 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5/585 Maitland Road Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 02 4423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: townesville.environmental@alsglobal.com

☐WOLLONGONG 99 Kenny Street Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT:	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	☐ Standard TAT (List due date):	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: Macquarie Park		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: O'Connell Street, Caddens **PROJECT NO.: 0471390**	**ALS QUOTE NO.:**	**COC SEQUENCE NUMBER (Circle)** COC: 1 2 3 4 5 6 7	Free ice/ frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: **PURCHASE ORDER NO.:**	**COUNTRY OF ORIGIN: Australia**		Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Russell Jarman **CONTACT PH:**		[redacted] 6 7	Other comment: 6.7

SAMPLER: AR/JE **SAMPLER MOBILE:**	**RELINQUISHED BY:**	[redacted]	**RELINQUISHED BY:**	**RECEIVED BY:**
COC Emailed to ALS? (YES / NO) **EDD FORMAT (or default):**				
Email Reports: russell.jarman@erm.com; erm.dlasydneyofficemailbox@erm.com; jack.emblen@erm.com; anthony.richard@erm.com	DATE/TIME: 12/03/20	DATE/TIME: 12/3/20 1430	DATE/TIME:	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed):				

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) 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 *(refer to codes below)*	TOTAL BOTTLES	S-16								Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
37	SP3-2	12.03.2020	Soil			X								
38	SP4-1					X								
39	SP4-2					X								
40	SP5-1					X								
41	SP5-2					X								
42	SP6-1					X								
43	SP6-2					X								
44	SP6-3					X								
45	SP6-4					X								
46	SP6-5					X								
47	20200312_D03					X								
48	20200312_D04					X								
	SP1-3				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; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

APPENDIX D QA/QC

The objective of this data assessment is to evaluate the quality of data gathered during the investigation. This evaluation has been undertaken to assess whether the data is of a suitable standard to be utilised in this report and was completed with in general accordance with Appendix C: Assessment of data quality of Schedule B2: Site Characterisation of the NEPC (NEPC, 2013). The following table presents the degree of QA/QC pertinent to the field investigations.

Table A1. Field QA/QC Assessment

QA/QC CRITERION	COMMENTS
Number of samples collected	During the course of the validation assessment, a total of 53 soil samples were collected, consisting of 34 primary chemical and 19 asbestos samples.
Collection and analysis of replicate samples	Replicate samples comprised four intra-laboratory and four inter-laboratory sample for chemical analysis. Due to the discrete nature of asbestos fibres within a soil matrix (individual particles not chemical contamination hence asbestos contamination in soils is heterogeneous rather than homogenous in nature) field duplicate samples are not considered to be a true representation of the accuracy of sampling techniques or laboratory precision. Laboratory assessment of the samples (by ASET) involves the entire soil sample being analysed rather than a sub sample which ensures a satisfactory degree of precision and prevention of false negative results.
Assessment of all relevant media	Only soil samples were collected as part of the validation assessment. Groundwater was not encountered during remediation works and therefore was not sampled as part of this assessment. This approach is considered appropriate for the purposes of validation.
Appropriateness of sampling strategy	The sampling strategy was designed based on the Sampling Design Guidelines (NSW EPA, 1995) and the Waste Classification Guidelines (NSW EPA, 2014), and is considered appropriate for the purposes of remediation and validation.
Sample collection, handling and transportation procedures	Samples were collected, handled and transported in accordance with the sampling plan and following ERM's standard operating procedures. Samples were placed in laboratory supplied sample containers and stored in a chilled cooler. All samples were forwarded to the NATA accredited laboratories under chain of custody conditions. The methods used to collect the samples, the types of sample containers, preservation techniques and custody protocols were documented appropriately.
Sampling is representative of site conditions	The number and type of samples collected as part of the validation assessment is considered to be representative of the areas of concern.

Table A2. Field QA/QC Plan Assessment

QA/QC CRITERION	COMMENTS
Sampling method	Soil samples were collected by hand directly from the centre of the excavator bucket, soil surface or from stockpiled soil. All sampling was conducted by suitably trained field staff wearing protective clothing and nitrile gloves.
Decontamination	Decontamination procedures were implemented between the collection of samples for any non-dedicated equipment. Nitrile gloves were changed prior to collecting each sample.
Chain of custody information	Chain of custody information is provided in **Appendix C** as part of the laboratory documentation.
Sample splitting techniques	Replicate samples were split in the field by incrementally filling two sample containers with equal portions of sample material.

QA/QC CRITERION	COMMENTS
Duplicate frequency for intra- and inter-laboratory duplicate samples and results	The following duplicate sampling frequencies were achieved: • Intra-laboratory duplicates: 1 in 8.5 samples • Inter-laboratory duplicates: 1 in 8.5 samples The noted RPD exceedances are all related to differences between the laboratory LOR, or for results with one sample within five times the laboratory LOR and/or results with a difference of less than 5% of the relevant HIL/HSL criteria. Considering that the majority of duplicate pairs were within the adopted limits and the effects of confidence intervals with low concentrations, the heterogeneity observed in the duplicate samples is not significant enough to diminish the confidence in sampling technique or laboratory results. Full details including RPDs are presented in **Appendix B**.
Laboratory prepared trip spike results	Given that volatile compounds were not considered a contaminant of concern within the site area, the collection of trip spikes during all sampling events was not considered necessary.
Field instrument calibration	Field instruments requiring calibration were not used as part of the validation assessment.

The following tables present the degree of QA/QC pertinent to the laboratory program.

Table A3. Laboratory QA/QC Assessment

QA/QC CRITERION	COMMENTS
Appropriate methodologies used for sample analysis	The laboratories used for the investigation were accredited by the National Association of Testing Authorities (NATA) as follows: • SGS Australia (primary and intra-laboratory duplicate samples) • Envirolab Australia (inter-laboratory duplicate samples) • Australian Safer Environment and Technology Pty Ltd (asbestos samples) All laboratory reports were NATA stamped and signed by a NATA-accredited signatory. All methodologies were considered appropriate for the identified contaminants of concern in the matrix. Statistical data presented in the laboratory QA/QC report was considered adequate in demonstrating the precision and accuracy of the methods used to analyse field samples.
Appropriate Limit of Reporting (LOR)	The LORs for each analyte were below the screening levels adopted for this investigation. LORs for each analyte are presented in the laboratory reports. Details regarding the LOR has been supplied in the Data Summary Table – Refer to **Appendix B**
Laboratory QA/QC plan	Refer to **Appendix C**.

Table A4. Laboratory QA/QC Plan Assessment

QA/QC CRITERION	COMMENTS
Signed chain of custody forms	Scanned copies of signed chain of custody forms were returned by the laboratory.
Record of holding times	All samples were received and analysed within specified laboratory holding times. Confirmation is provided on the certified laboratory reports presented in **Appendix C**.
Analytical methods	The analytical methods used were NATA approved as documented on the laboratory reports.
Laboratory accreditation	The analytical methods were NATA accredited.

QA/QC CRITERION	COMMENTS
Laboratory performance in inter-laboratory trials	As laboratories participate in inter-laboratory trials to maintain their NATA accreditation, it is presumed that being NATA accredited indicates satisfactory performance in said trials.

The following table presents an overall assessment of the precision, accuracy, representativeness, comparability and completeness data quality indicators.

Table A5. Overall Sampling and Analysis Methodology Assessment

FIELD CONSIDERATIONS	LABORATORY CONSIDERATIONS
PRECISION REQUIREMENTS	
Sampling plan appropriate and complied with	Analysis of the following were reported: • Laboratory duplicates; • Field duplicates • Trip spike • Trip blank • Rinsate
PRECISION COMMENTS	
The number of field intra-laboratory and inter-laboratory duplicate pairs collected during validation works did meet the required rate, and are considered acceptable for the purposes of this validation assessment.	
ACCURACY REQUIREMENTS	
SOP appropriate and complied with	Analysis of the following were reported: • Matrix spikes; • Matrix spike duplicates; • Surrogate spikes; • Reference materials; • Laboratory control samples; • Laboratory prepared spikes.
ACCURACY COMMENTS	
No significant variations from the sampling plan were noted. Any laboratory outliers are not considered to affect the accuracy of the data or the conclusions of the assessment.	
REPRESENTATIVENESS REQUIREMENTS	
Appropriate media sampled. All media sampled.	All samples were analysed according to the sampling plan.
REPRESENTATIVENESS COMMENTS	
All samples were analysed according to the sampling plan.	
COMPARABILITY REQUIREMENTS	
The same SOPs were used during each sampling event. All sampling was conducted by an appropriately qualified and experienced sampler. Impacts of climatic conditions on sample integrity were minimised by storing and transporting samples in a chilled cooler. The types of samples collected were consistent. Results of field screening comparable with laboratory analysis.	Analytical methods suitable for the target media were used. The LORs used to report analyte concentrations were less than the adopted validation acceptance criteria. The same laboratories were used to analyse primary samples. The same units were used to report analyte concentrations. Results of laboratory analysis comparable with field screening results.

COMPARABILITY COMMENTS

SOPs were followed during sampling at all locations and therefore the methods used are comparable.

COMPLETENESS REQUIREMENTS

All critical locations were sampled.

The investigation was conducted following ERM SOPs and any variations from these procedures were documented.

All sampling was conducted by an appropriately qualified and experienced sampler.

Documentation of field works was provided.

All critical samples were analysed according to sampling plan.

All analytes were analysed according to the sampling plan. Appropriate analysis methods and LORs were used.

Sample documentation was provided.

Samples were analysed within the required holding times for the analyses performed.

COMPLETENESS COMMENTS

No significant non-conformances were noted to impact on the overall reliability of the dataset.

APPENDIX E BORELOGS

BORE LOG ID TP01

Client: GDS	**Drilling Method:**	**Elevation (Ground):**
Project No: 0471390 - P06	**Hole Diam./Width (mm):**	**Elevation (Case):**
Project Name: GDS - ESA	**Surface Completion:**	**Easting (MGA):** 290216
Site Address: 46-66 O'Connell St, Caddens	**Final Water Level (m bgl):**	**Northing (MGA):** 6261340
Drilling Date: 12/03/2020 - 12/03/2020		

Comments:

Log By: JE & AR
Checked By:

Material Description	Symbol	Well Diagram	Depth (m)	% Recovery	Sample Type	Analysed	PID	Samples	Additional Observations
SILTY CLAY: Silty Clay - Dark brown, slightly moist, moderate plasticity (Natural)			0.2			Y	0.0	TP01_0.1	
CLAY: Clay - Light brown, plastic clay (Natural)			0.4			Y		TP01_0.5	
Termination Depth at:0.6 m			0.6						
			0.8						
			1						
			1.2						
			1.4						
			1.6						
			1.8						
			2						
			2.2						
			2.4						
			2.6						
			2.8						

Disclaimer This log is intended for environmental not geotechnical purposes.

BORE LOG ID TP02

Client: GDS	**Drilling Method:**	**Elevation (Ground):**
Project No: 0471390 - P06	**Hole Diam./Width (mm):**	**Elevation (Case):**
Project Name: GDS - ESA	**Surface Completion:**	**Easting (MGA):** 290272
Site Address: 46-66 O'Connell St, Caddens	**Final Water Level (m bgl):**	**Northing (MGA):** 6261418
Drilling Date: 12/03/2020 - 12/03/2020		

Comments:

Log By: JE & AR
Checked By:

Material Description	Symbol	Well Diagram	Depth (m)	% Recovery	Sample Type	Analysed	PID	Samples	Additional Observations
SILTY CLAY: Silty Clay - Light brown (Natural)			0.2			Y	0.0	TP02_0.1	
CLAY: Clay - Red, plastic clay (Natural)			0.4						
Termination Depth at:0.6 m			0.6						
			0.8						
			1						
			1.2						
			1.4						
			1.6						
			1.8						
			2						
			2.2						
			2.4						
			2.6						
			2.8						

Disclaimer This log is intended for environmental not geotechnical purposes.

BORE LOG ID TP03

Client: GDS	**Drilling Method:**	**Elevation (Ground):**
Project No: 0471390 - P06	**Hole Diam./Width (mm):**	**Elevation (Case):**
Project Name: GDS - ESA	**Surface Completion:**	**Easting (MGA):** 290381
Site Address: 46-66 O'Connell St, Caddens	**Final Water Level (m bgl):**	**Northing (MGA):** 6261374
Drilling Date: 12/03/2020 - 12/03/2020		

Comments:

Log By: JE & AR
Checked By:

Material Description	Symbol	Well Diagram	Depth (m)	% Recovery	Sample Type	Analysed	PID	Samples	Additional Observations
SILTY CLAY: Silty Clay - Light brown, medium plasticity (Natural)						Y	0.0	TP03_0.1	
CLAY: Clay - Red, plastic clay (Natural)			0.2						
BEDROCK: Bedrock - Yellow Rock			0.4						
Termination Depth at:0.7 m			0.6						
			0.8						
			1						
			1.2						
			1.4						
			1.6						
			1.8						
			2						
			2.2						
			2.4						
			2.6						
			2.8						

Disclaimer This log is intended for environmental not geotechnical purposes.

BORE LOG ID TP04

Client: GDS	**Drilling Method:**	**Elevation (Ground):**
Project No: 0471390 - P06	**Hole Diam./Width (mm):**	**Elevation (Case):**
Project Name: GDS - ESA	**Surface Completion:**	**Easting (MGA):** 290482
Site Address: 46-66 O'Connell St, Caddens	**Final Water Level (m bgl):**	**Northing (MGA):** 6261375
Drilling Date: 12/03/2020 - 12/03/2020		

Comments:

Log By: JE & AR
Checked By:

Material Description	Symbol	Well Diagram	Depth (m)	% Recovery	Sample Type	Analysed	PID	Samples	Additional Observations
SILTY CLAY: Silty Clay - Brown, moderate plasticity, moist (Natural)						Y		TP04_0.1	
CLAY: Clay - Red, plastic clay (Natural)			0.2						
CLAY: Clay - Tan brown, dark brown mottles, plastic clay (Natural)			0.4			Y		TP04_0.5	
Termination Depth at:0.6 m			0.6						
			0.8						
			1						
			1.2						
			1.4						
			1.6						
			1.8						
			2						
			2.2						
			2.4						
			2.6						
			2.8						

Disclaimer This log is intended for environmental not geotechnical purposes.

BORE LOG ID TP05

Client: GDS	**Drilling Method:**	**Elevation (Ground):**
Project No: 0471390 - P06	**Hole Diam./Width (mm):**	**Elevation (Case):**
Project Name: GDS - ESA	**Surface Completion:**	**Easting (MGA):** 290363
Site Address: 46-66 O'Connell St, Caddens	**Final Water Level (m bgl):**	**Northing (MGA):** 6261311
Drilling Date: 12/03/2020 - 12/03/2020		

Comments:

Log By: JE & AR
Checked By:

Material Description	Symbol	Well Diagram	Depth (m)	% Recovery	Sample Type	Analysed	PID	Samples	Additional Observations
SILTY CLAY: Silty Clay - Dark brown (Natural)						Y	0.0	TP05_0.1	
SILTY CLAY: Silty Clay - Brown (Natural)			0.2 0.4						
Termination Depth at:0.6 m			0.6 0.8 1 1.2 1.4 1.6 1.8 2 2.2 2.4 2.6 2.8						

Disclaimer This log is intended for environmental not geotechnical purposes.

BORE LOG ID TP06

Client: GDS	**Drilling Method:**	**Elevation (Ground):**
Project No: 0471390 - P06	**Hole Diam./Width (mm):**	**Elevation (Case):**
Project Name: GDS - ESA	**Surface Completion:**	**Easting (MGA):** 290471
Site Address: 46-66 O'Connell St, Caddens	**Final Water Level (m bgl):**	**Northing (MGA):** 6261258
Drilling Date: 12/03/2020 - 12/03/2020		

Comments:

Log By: JE & AR
Checked By:

Material Description	Symbol	Well Diagram	Depth (m)	% Recovery	Sample Type	Analysed	PID	Samples	Additional Observations
SILTY CLAY: Silty Clay - Light brown, moderate plasticity (Natural)						Y	0.0	TP06_0.1	
CLAY: Clay - Red, plastic clay (Natural)			0.2						
CLAY: Clay - Tan brown, plastic clay (Natural)			0.4						
Termination Depth at:0.6 m			0.6						
			0.8						
			1						
			1.2						
			1.4						
			1.6						
			1.8						
			2						
			2.2						
			2.4						
			2.6						
			2.8						

Disclaimer This log is intended for environmental not geotechnical purposes.

BORE LOG ID TP07

Client: GDS
Project No: 0471390 - P06
Project Name: GDS - ESA
Site Address: 46-66 O'Connell St, Caddens
Drilling Date: 12/03/2020 - 12/03/2020

Drilling Method:
Hole Diam./Width (mm):
Surface Completion:
Final Water Level (m bgl):

Elevation (Ground):
Elevation (Case):
Easting (MGA): 290559
Northing (MGA): 6261330

Comments:

Log By: JE & AR
Checked By:

Material Description	Symbol	Well Diagram	Depth (m)	% Recovery	Sample Type	Analysed	PID	Samples	Additional Observations
SILTY CLAY: Silty Clay - Light brown (Natural)						Y	0.0	TP07_0.1	
CLAY: Clay - Red, plastic clay, minor amounts of charcoal or shale (Natural)			0.2						
CLAY: Clay - Tan brown with charcoal/shale inclusions (Natural)			0.4			Y		TP07_0.4	
Termination Depth at:0.6 m			0.6						
			0.8						
			1						
			1.2						
			1.4						
			1.6						
			1.8						
			2						
			2.2						
			2.4						
			2.6						
			2.8						

Disclaimer This log is intended for environmental not geotechnical purposes.

BORE LOG ID TP08

Client: GDS	**Drilling Method:**	**Elevation (Ground):**
Project No: 0471390 - P06	**Hole Diam./Width (mm):**	**Elevation (Case):**
Project Name: GDS - ESA	**Surface Completion:**	**Easting (MGA):** 290647
Site Address: 46-66 O'Connell St, Caddens	**Final Water Level (m bgl):**	**Northing (MGA):** 6261330
Drilling Date: 12/03/2020 - 12/03/2020		

Comments:

Log By: JE & AR
Checked By:

Material Description	Symbol	Well Diagram	Depth (m)	% Recovery	Sample Type	Analysed	PID	Samples	Additional Observations
SILTY CLAY: Silty Clay - Light brown, moderate plasticity (Natural)			0.2			Y	0.0	TP08_0.1	
CLAY: Clay - Red, plastic clay with charcoal (Natural)			0.4			Y		TP08_0.5	
Termination Depth at:0.6 m			0.6						
			0.8						
			1						
			1.2						
			1.4						
			1.6						
			1.8						
			2						
			2.2						
			2.4						
			2.6						
			2.8						

Disclaimer This log is intended for environmental not geotechnical purposes.

BORE LOG ID TP09

Client: GDS
Project No: 0471390 - P06
Project Name: GDS - ESA
Site Address: 46-66 O'Connell St, Caddens
Drilling Date: 12/03/2020 - 12/03/2020

Drilling Method:
Hole Diam./Width (mm):
Surface Completion:
Final Water Level (m bgl):

Elevation (Ground):
Elevation (Case):
Easting (MGA): 290659
Northing (MGA): 6261249

Comments:

Log By: JE & AR
Checked By:

Material Description	Symbol	Well Diagram	Depth (m)	% Recovery	Sample Type	Analysed	PID	Samples	Additional Observations
SILTY CLAY: Silty Clay - Brown, moderate plasticity (Natural)						Y	0.0	TP09_0.1	
CLAY: Clay - Red, plastic clay (Natural)			0.2						
CLAY: Clay - Tan brown, plastic clay (Natural)			0.4						
Termination Depth at:0.5 m			0.6						
			0.8						
			1						
			1.2						
			1.4						
			1.6						
			1.8						
			2						
			2.2						
			2.4						
			2.6						
			2.8						

BORE LOG ID TP10

Client: GDS	**Drilling Method:**	**Elevation (Ground):**
Project No: 0471390 - P06	**Hole Diam./Width (mm):**	**Elevation (Case):**
Project Name: GDS - ESA	**Surface Completion:**	**Easting (MGA):** 290662
Site Address: 46-66 O'Connell St, Caddens	**Final Water Level (m bgl):**	**Northing (MGA):** 6261187
Drilling Date: 12/03/2020 - 12/03/2020		

Comments:

Log By: JE & AR
Checked By:

Material Description	Symbol	Well Diagram	Depth (m)	% Recovery	Sample Type	Analysed	PID	Samples	Additional Observations
SILTY CLAY: Silty Clay - Brown silty plastic clay (Natural)			0.2			Y	0.0	TP10_0.1	
CLAY: Clay - Tan brown, plastic clay (Natural)			0.4						
			0.6						
Termination Depth at:0.7 m			0.8						
			1						
			1.2						
			1.4						
			1.6						
			1.8						
			2						
			2.2						
			2.4						
			2.6						
			2.8						

Disclaimer This log is intended for environmental not geotechnical purposes.

BORE LOG ID TP11

Client: GDS
Project No: 0471390 - P06
Project Name: GDS - ESA
Site Address: 46-66 O'Connell St, Caddens
Drilling Date: 12/03/2020 - 12/03/2020

Drilling Method:
Hole Diam./Width (mm):
Surface Completion:
Final Water Level (m bgl):

Elevation (Ground):
Elevation (Case):
Easting (MGA): 290583
Northing (MGA): 6261192

Comments:

Log By: JE & AR
Checked By:

Material Description	Symbol	Well Diagram	Depth (m)	% Recovery	Sample Type	Analysed	PID	Samples	Additional Observations
SILTY CLAY: Silty Clay - Brown, moderate plasticity (Natural)						Y		TP11_0.1	Surface vegetation containing more reeds. Indication of different moisture/nutrient conditions
CLAY: Clay - Red, plastic clay (Natural)			0.2						
			0.4			Y		TP11_0.4	
Termination Depth at:0.6 m			0.6						
			0.8						
			1						
			1.2						
			1.4						
			1.6						
			1.8						
			2						
			2.2						
			2.4						
			2.6						
			2.8						

Disclaimer This log is intended for environmental not geotechnical purposes.

BORE LOG ID TP12

Client: GDS	**Drilling Method:**	**Elevation (Ground):**
Project No: 0471390 - P06	**Hole Diam./Width (mm):**	**Elevation (Case):**
Project Name: GDS - ESA	**Surface Completion:**	**Easting (MGA):** 290403
Site Address: 46-66 O'Connell St, Caddens	**Final Water Level (m bgl):**	**Northing (MGA):** 6261222
Drilling Date: 12/03/2020 - 12/03/2020		

Comments:

Log By: JE & AR
Checked By:

Material Description	Symbol	Well Diagram	Depth (m)	% Recovery	Sample Type	Analysed	PID	Samples	Additional Observations
SILTY CLAY: Silty Clay - Brown, moderate plasticity (Natural)			0.2			Y	0.0	TP12_0.1	
CLAY: Clay - Red, plastic clay (Natural)			0.4			Y		TP12_0.4	
Termination Depth at:0.6 m			0.6						
			0.8						
			1						
			1.2						
			1.4						
			1.6						
			1.8						
			2						
			2.2						
			2.4						
			2.6						
			2.8						

Disclaimer This log is intended for environmental not geotechnical purposes.

BORE LOG ID TP13

Client: GDS	**Drilling Method:**	**Elevation (Ground):**
Project No: 0471390 - P06	**Hole Diam./Width (mm):**	**Elevation (Case):**
Project Name: GDS - ESA	**Surface Completion:**	**Easting (MGA):** 290224
Site Address: 46-66 O'Connell St, Caddens	**Final Water Level (m bgl):**	**Northing (MGA):** 6261274
Drilling Date: 12/03/2020 - 12/03/2020		

Comments:

Log By: JE & AR
Checked By:

Material Description	Symbol	Well Diagram	Depth (m)	% Recovery	Sample Type	Analysed	PID	Samples	Additional Observations
SILTY CLAY: Silty Clay - Dark brown, moderate plasticity, (Natural)			0.2			Y		TP13_0.1	
CLAY: Clay - Red, plastic clay, (Natural)			0.4						
Termination Depth at:0.6 m			0.6						
			0.8						
			1						
			1.2						
			1.4						
			1.6						
			1.8						
			2						
			2.2						
			2.4						
			2.6						
			2.8						

Disclaimer This log is intended for environmental not geotechnical purposes.

APPENDIX F SUBDIVISION PLAN

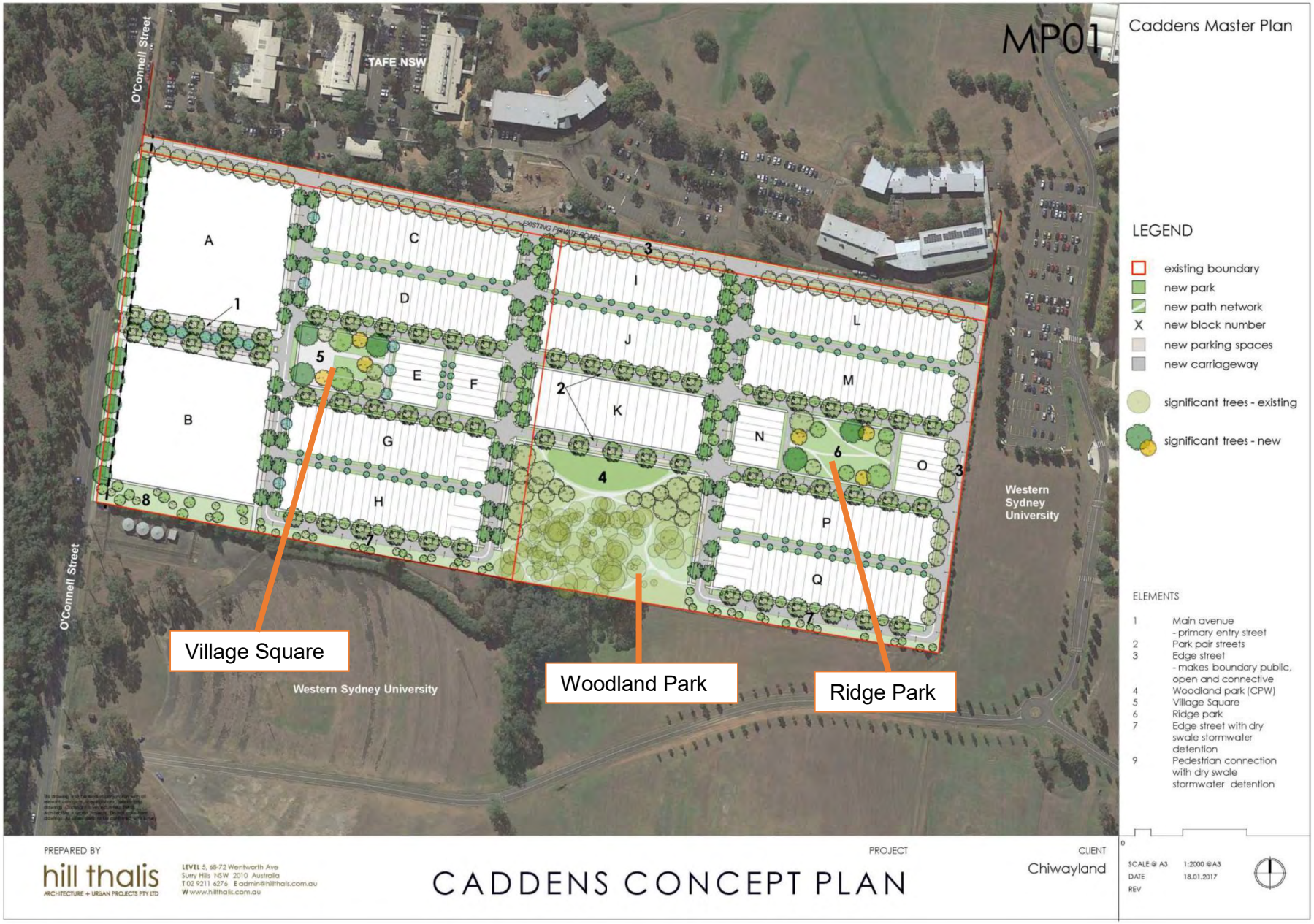

Figure 1 – Proposed development

APPENDIX G SITE SURVEY

SCHEDULE OF CONTROL MARKS

No.	M.G.A CO-ORDINATES		A.H.D.	CODE	DESCRIPTION
	EASTING	NORTHING	R.L.		
1	290420.865	6261356.177	65.554	ST330	STAR PICKET IN CONCRETE
2	290368.764	6261186.617	51.785	ST331	STAR PICKET IN CONCRETE
3	290612.978	6261115.409	63.109	ST358	STAR PICKET IN CONCRETE
4	290700.153	6261219.525	63.792	ST375	STAR PICKET IN CONCRETE
5	290718.033	6261376.058	61.499	ST388	PEG
6	290149.370	6261370.499	51.334	PM41913	STAINLESS STEEL SPIKE
7	290198.345	6261602.076	45.299	PM41912	STAINLESS STEEL SPIKE
8	290149.231	6261222.197	46.110	DHW	DRILL HOLE & WING

ORIGIN OF CO-ORDINATES ~ PM 41912
ORIGIN OF LEVELS ~ PM 41912 AND PM 41914 RL 45.153 FOUND APRIL 2008 NOW GONE

MGA
TN
APPROX 10.0°

SHEET 2

CREEK

BM NAIL IN PATH
RL45.78 (AHD)

No.7
PM41912

O'CONNELL STREET

1
DP 866081
WESTERN SYDNEY INSTITUTE
NEPEAN COLLEGE (TAFE)

BRICK BUILDING

102°00'15"
269.91

2 DP 1217434

2 STOREY
BRICK & CONCRETE
BUILDING

100°51'45"
270.51

No.5
ST388

SHEET 5

SHEET 3

SHEET 4

No.1
ST330

SINGLE STOREY
FIBRO & METAL
BUILDING

No.6
PM41913

2 STOREY
BRICK BUILDING
TILE ROOF

SINGLE STOREY
FIBRO BUILDING
METAL ROOF

232.095
179°21'30"

PT 3
DP 1103503

6
DP 593628

202.3
188°09'40"

No.4
ST375

100
DP 1194481

WESTERN SYDNEY UNIVERSITY
(WERRINGTON SOUTH CAMPUS)

SHEET 8

SHEET 7

SHEET 9

SEE NOTE 11

No.2
ST331

No.8
DHW

152.72
280°40'20"

112.94
280°29'45"

271.44
279°41'

17.8
181°13'25"

8°43'20"
0.35

PT 3
DP 1103503
(POSSIBLE CLAIM OF
ADVERSE POSSESSION BY ANSU)

No.3
ST358

WESTERN SYDNEY UNIVERSITY

STREET

CREEK

SHEET 6

BM NAIL IN
RIM OF SMH
RL44.08 (AHD)

LEGEND

CONTROL MARK	▲	GAS (DBYD)	G
OPTICAL FIBRE PIT	OPIT	TELSTRA (DBYD)	T
TELSTRA POLE	TP	WATER (DBYD)	W
COMMS PIT	COM	STORMWATER	SW
TELSTRA PIT	TEL	ELECTRICITY (OVERHEAD)	P
ELECTRIC LIGHT POLE	ELP	ELECTRICITY (U'GROUND) (DBYD)	E
POWER POLE	PP	OPTICAL FIBRE CONDUIT	OF
STREET SIGN	SS	TELSTRA (DETECTED)	T(D)
SECURITY CAMERA	SECAM	OPTICAL FIBRE (DETECTED)	OF(D)
PARKING METER	PM	WATER (DETECTED)	W(D)
SEWER MANHOLE	SMH	KERB INLET PIT	KIP
STOP VALVE	SV	GRATED INLET PIT	GIP
HYDRANT	HYD	GAS VALVE	GAS
WATER METER	WM		

NOTES

1. THE BOUNDARIES HAVE NOT BEEN MARKED
2. ALL AREAS AND DIMENSIONS HAVE BEEN COMPILED FROM PLANS MADE AVAILABLE BY THE OFFICE of LAND & PROPERTY INFORMATION (NSW) AND ARE SUBJECT TO FINAL SURVEY
3. ORIGIN OF LEVELS ON A.H.D. IS TAKEN FROM **PM 41912** R.L. **45.299** (A.H.D.) IN O'CONNELL STREET
4. CONTOUR INTERVAL **1.0 m**
5. CONTOURS ARE INDICATIVE ONLY. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION
6. KERB LEVELS ARE TO THE TOP OF KERB UNLESS SHOWN OTHERWISE
7. NO INVESTIGATION OF UNDERGROUND SERVICES HAS BEEN MADE. SERVICES HAVE BEEN PLOTTED FROM RELEVANT AUTHORITIES INFORMATION AND HAVE NOT BEEN SURVEYED. ALL RELEVANT AUTHORITIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION ON OR NEAR THE SITE
8. 8/.4/7 DENOTES TREE SPREAD OF 8m, TRUNK DIAMETER OF 0.4m & APPROX HEIGHT OF 7m
9. SHOWS APPROXIMATE POSITION OF ROAD LINEMARKING AND IS INDICATIVE ONLY
10. BEARINGS SHOWN ARE MGA (MAP GRID OF AUSTRALIA) ADD APPROX. 1°00' FOR TRUE NORTH
11. TREES IN THIS GROUP BY "SURVEY PLUS". TREES AT THE EXTREMITY OF THIS GROUP HAVE BEEN CHECKED BY LTS.

DIAL BEFORE YOU DIG www.1100.com.au

REFER TO NOTES AND LEGEND

0 20 30 40 60 80 100
SCALE 1: 1000 @ A1

Document Set ID: 9580899
Version: 1, Version Date: 02/09/2021

Revision	Date	Description	Reference
D	00/00/00	-	00
C	00/00/00	-	00
B	00/00/00	-	00
A	14/12/16	EXTRA DETAIL & LEVELS ADDED. SHEETS ADDED & RENUMBERED	44079

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

.....
Registered Surveyor NSW

LTS LOCKLEY
Registered Surveyors NSW
www.ltsl.com.au
Suite 1, Level 1
810 Pacific Highway
Gordon NSW 2072
Locked Bag 5
Gordon NSW 2072
P 1300 587 000
F 02 9499 7760

Client CHIWAYLAND AUSTRALIA

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 3 IN DP 1103503, LOT 6 IN DP 593628 AND LOT 2 IN DP 1217434 KNOWN AS 46-66 O'CONNELL STREET, CADDENS

datum	project number	reference number
AHD	43677	43677DT
site Area	scale	date of survey
12.147ha	1:1000 @A1	31/08/2016
LGA	SHEET	
PENRITH	OF 9 SHEETS	1

MGA

TN

APPROX 28½°

NOT TO SCALE

WATER LEVEL AT TIME OF SURVEY RL36.5

CREEK

TOP OF BANK

CLUMP OF SMALL TREES

CLUMP OF SMALL TREES

BM NAIL IN PATH RL45.78 (AHD)

PATH

BITUMEN

Ø375 RCP IL 42.88

KIP ~ BOUNDARY 200m

O'CONNELL STREET

EDGE OF TOP

EDGE OF OLD

METAL

KERB

FENCE

POST & WIRE

232.095

72°24'30"

SHEET 3

CONTINUED

SHEET 5

CONTINUED

SEE SHEET 1 FOR LEGEND & NOTES

SCALE 1:300 @ A1

0 6 9 12 18 24 30

DIAL BEFORE YOU DIG www.1100.com.au

Revision	Date	Description	Reference
D	00/00/00	-	00
C	00/00/00	-	00
B	00/00/00	-	00
A	14/12/16	EXTRA DETAIL & LEVELS ADDED. SHEETS ADDED & RENUMBERED	44079

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Registered Surveyor NSW

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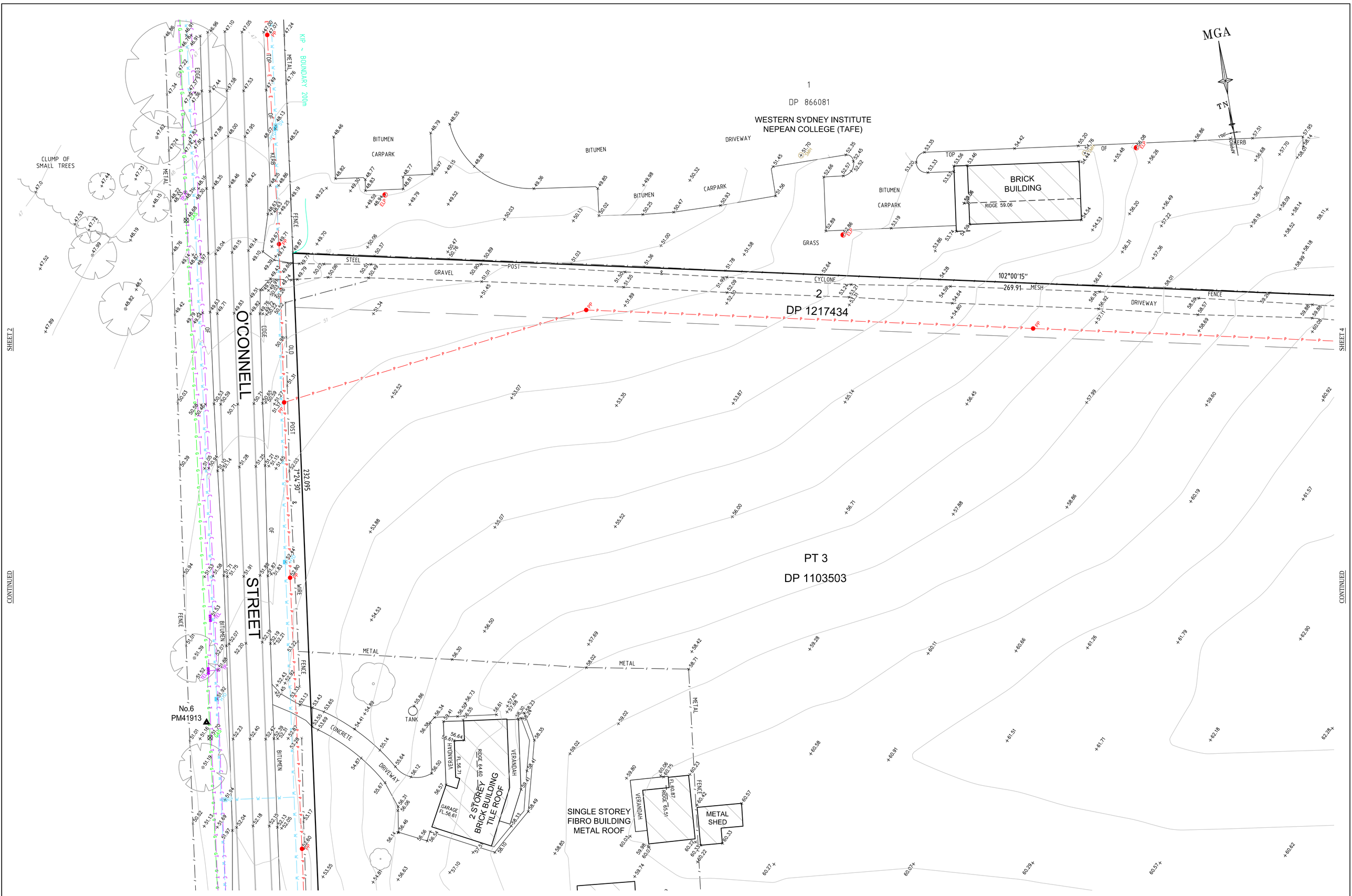
Client CHIWAYLAND AUSTRALIA

Drawing title

PLAN OF DETAIL AND LEVELS OVER LOT 3 IN DP 1103503, LOT 6 IN DP 593628 AND LOT 2 IN DP 1217434 KNOWN AS 46-66 O'CONNELL STREET, CADDENS

datum	AHD	project number	43677
site Area	12.147ha	scale	1:300 @A1
LGA	PENRITH	date of survey	31/08/2016
		reference number	43677DT
		SHEET	2
		OF	9 SHEETS



SCALE 1: 300 @ A1

0 6 9 12 18 24 30

Document Set ID: 9580899
Version: 1, Version Date: 02/08/2027

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SEE SHEET 1 FOR LEGEND & NOTES

CONTINUED

SHEET 7

Revision	Date	Description	Reference
D	00/00/00	-	00
C	00/00/00	-	00
B	00/00/00	-	00
A	14/12/16	EXTRA DETAIL & LEVELS ADDED. SHEETS ADDED & RENUMBERED	44079

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Registered Surveyor NSW

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F 02 9499 7760

Client CHIWAYLAND AUSTRALIA

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 3 IN DP 1103503, LOT 6 IN DP 593628 AND LOT 2 IN DP 1217434 KNOWN AS 46-66 O'CONNELL STREET, CADDENS

datum	project number	reference number
AHD	43677	43677DT
site Area	scale	date of survey
12.147ha	1:300 @A1	31/08/2016
LGA	SHEET	
PENRITH	OF 9 SHEETS	3

MGA

TN

APPROX

1

DP 866081

WESTERN SYDNEY INSTITUTE
NEPEAN COLLEGE (TAFE)

2

DP 1217434

PT 3

DP 1103503

6

DP 593628

No.1
ST330

BITUMEN

DRIVEWAY

TOP OF KERB

STEEL

GRAVEL

POST

WIRE

FENCE

CYCLONE

MESH

CARPARK

TANK

METAL SHED

FIBRO SHED

VERANDAH

RIDGE 70.96 FL 67.08

SINGLE STOREY FIBRO & METAL BUILDING

102°00'15"
269.91

100°51'45"
270.51

SHEET 3

SHEET 5

CONTINUED

CONTINUED

SHEET 8

SEE SHEET 1 FOR LEGEND & NOTES

DIAL BEFORE YOU DIG www.1100.com.au

SCALE 1: 300 @ A1

0 6 9 12 18 24 30

Document Set ID: 9580989
Version: 1, Version Date: 02/09/2027

Revision	Date	Description	Reference
D	00/00/00	-	00
C	00/00/00	-	00
B	00/00/00	-	00
A	14/12/16	EXTRA DETAIL & LEVELS ADDED, SHEETS ADDED & RENUMBERED	44079

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

.....

Registered Surveyor NSW

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810 Pacific Highway
Gordon NSW 2072
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Client CHIWAYLAND AUSTRALIA

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 3 IN DP 1103503, LOT 6 IN DP 593628 AND LOT 2 IN DP 1217434 KNOWN AS 46-66 O'CONNELL STREET, CADDENS

datum AHD
site Area 12.147ha
LGA PENRITH

project number 43677
scale 1:300 @A1
reference number 43677DT
date of survey 31/08/2016

SHEET 4 OF 9 SHEETS

MGA

TN

APPROX 1001

1

DP 866081

WESTERN SYDNEY INSTITUTE
NEPEAN COLLEGE (TAFE)

2 STOREY
BRICK & CONCRETE
BUILDING

No.5
ST388

SHEET 4

CONTINUED

2

DP 1217434

100°51'45"
& 270.51

6

DP 593628

& 202.3
188°09'40"

100

DP 1194481

WESTERN SYDNEY UNIVERSITY
(WERRINGTON SOUTH CAMPUS)

NOTE:-
ALL STORMWATER DRAINAGE
FLOWS INTO UNIVERSITY DAM
APPROX. 170m EAST OF THIS PIT

SCALE 1: 300 @ A1

0 6 9 12 18 24 30

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SEE SHEET 1 FOR LEGEND & NOTES

CONTINUED

SHEET 9

Revision	Date	Description	Reference
D	00/00/00	-	00
C	00/00/00	-	00
B	00/00/00	-	00
A	14/12/16	EXTRA DETAIL & LEVELS ADDED. SHEETS ADDED & RENUMBERED	44079

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

.....
Registered Surveyor NSW

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Gordon NSW 2072
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F 02 9499 7760

Client CHIWAYLAND AUSTRALIA

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 3 IN DP 1103503, LOT 6 IN DP 593628 AND LOT 2 IN DP 1217434 KNOWN AS 46-66 O'CONNELL STREET, CADDENS

datum	project number	reference number
AHD	43677	43677DT
site Area	scale	date of survey
12.147ha	1:300 @A1	31/08/2016
LGA	SHEET	
PENRITH	OF 9 SHEETS	5

MGA

TN

APPROX 30.0°

STREET

FENCE

KERB

STEEL POST

CONCRETE BLOCK

No.8 DHW

CONCRETE

CONCRETE WATER TANK

CONCRETE WATER TANK

CONCRETE WATER TANK

BRICK SHED

BITUMEN

BITUMEN

FENCE

CONCRETE DRAIN

DSH

TOP

TOP

WATER LEVEL AT TIME OF SURVEY RL41.5

CREEK

TOP

BANK

BASE OF BANK INACCESSIBLE

BANK

WIRE

MESH

FENCE

BM NAIL IN RIM OF SMH RL44.08 (AHD)

IL40.19

IL41.44

IL42.40

IL42.58

Ø1200 SW

DIRECTION OF OVERLAND FLOW

CONTINUED

SHEET 7

SEE SHEET 1 FOR LEGEND & NOTES

SCALE 1:300 @ A1

0 6 9 12 18 24 30

Document Set ID: 9580888
Version: 1, Version Date: 02/08/2021

DIAL BEFORE YOU DIG www.1100.com.au

Revision	Date	Description	Reference
D	00/00/00	-	00
C	00/00/00	-	00
B	00/00/00	-	00
A	14/12/16	EXTRA DETAIL & LEVELS ADDED. SHEETS ADDED & RENUMBERED	44079

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.....

Registered Surveyor NSW

LOCKLEY
Registered Surveyors NSW
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Locked Bag 5
Gordon NSW 2072
P 1300 587 000
F 02 9499 7760

Client CHIWAYLAND AUSTRALIA

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 3 IN DP 1103503, LOT 6 IN DP 593628 AND LOT 2 IN DP 1217434 KNOWN AS 46-66 O'CONNELL STREET, CADDENS

datum	AHD	project number	43677
site Area	12.147ha	scale	1:300 @A1
LGA	PENRITH	date of survey	31/08/2016
reference number	43677DT	SHEET	6 OF 9 SHEETS

CONTINUED

SHEET 3

SHEET 6

SHEET 8

CONTINUED

CONTINUED

MGA

TN

PROPOSED LOT 1

METAL SHED

FENCE

METAL

O'CONNELL STREET

232.595

274°30"

EDGE

TOP

POST

WIRE

DO

KERB

DRAIN

DISH

BITUMEN

CONCRETE

STEEL

POST

CONCRETE BLOCK RETAINING WALL

CYCLONE MESH FENCE

152.72

280°40'20"

112.94

280°29'45"

PT 3

DP 1103503

STORMWATER CHANNEL

(POSSIBLE CLAIM OF ADVERSE POSSESSION BY ANSU)

TOP OF BANK

BASE OF BANK

CONCRETE WATER TANK

CONCRETE WATER TANK

CONCRETE WATER TANK

BRICK SHED

No.8 DHW

100

DP 1194481

WESTERN SYDNEY UNIVERSITY

AT TIME RL41.5

0 6 9 12 18 24 30

SCALE 1:300 @ A1

Document Set ID: 9588989
Version: 1, Version Date: 02/08/2027

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SEE SHEET 1 FOR LEGEND & NOTES

Revision	Date	Description	Reference
D	00/00/00	-	00
C	00/00/00	-	00
B	00/00/00	-	00
A	14/12/16	EXTRA DETAIL & LEVELS ADDED. SHEETS ADDED & RENUMBERED	44079

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Registered Surveyor NSW

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Gordon NSW 2072
Locked Bag 5
Gordon NSW 2072
P 1300 587 000
F 02 9499 7760

Client CHIWAYLAND AUSTRALIA

Drawing title

PLAN OF DETAIL AND LEVELS OVER LOT 3 IN DP 1103503, LOT 6 IN DP 593628 AND LOT 2 IN DP 1217434 KNOWN AS 46-66 O'CONNELL STREET, CADDENS

datum	project number	reference number
AHD	43677	43677DT
site Area	scale	date of survey
12.147ha	1:300 @A1	31/08/2016
LGA	SHEET	
PENRITH	OF 9 SHEETS	7

CONTINUED

SHEET 4

SHEET 7

SHEET 9

CONTINUED

MGA

TN

APPROX 7DEC

PT 3
DP 1103503

6
DP 593628

FENCE

WIRE

POST

OLD

SEE NOTE 11

No.2
ST331

112.94
280°29'45" CYCLONE
PT 3
DP 1103503
(POSSIBLE CLAIM OF
ADVERSE POSSESSION BY ANSU)

0.35
81°32'00"

271.44
279°41'

STEEL POST & MESH FENCE (30YRS)

OLD POST & WIRE FENCE (50YRS)

CONCRETE EDGE

STORMWATER CHANNEL

REMAINS OF BITUMEN CARPARK

BITUMEN

100
DP 1194481
WESTERN SYDNEY UNIVERSITY

0 6 9 12 18 24 30
SCALE 1: 300 @ A1

Document Set ID: 9586989
Version: 1, Version Date: 31/08/2027

DIAL BEFORE YOU DIG www.1100.com.au

SEE SHEET 1 FOR LEGEND & NOTES

Revision	Date	Description	Reference
D	00/00/00	-	00
C	00/00/00	-	00
B	00/00/00	-	00
A	14/12/16	EXTRA DETAIL & LEVELS ADDED. SHEETS ADDED & RENUMBERED	44079

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

.....
Registered Surveyor NSW

LTS LOCKLEY
Registered Surveyors NSW
www.ltsl.com.au
Suite 1, Level 1
810 Pacific Highway
Gordon NSW 2072
Locked Bag 5
Gordon NSW 2072
P 1300 587 000
F 02 9499 7760

Client CHIWAYLAND AUSTRALIA

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 3 IN DP 1103503, LOT 6 IN DP 593628 AND LOT 2 IN DP 1217434 KNOWN AS 46-66 O'CONNELL STREET, CADDENS

datum	project number	reference number
AHD	43677	43677DT
site Area	scale	date of survey
12.147ha	1:300 @A1	31/08/2016
LGA	SHEET	
PENRITH	OF 9 SHEETS	8

CONTINUED

SHEET 5

SHEET 6

CONTINUED

MGA

TN

100

DP 1194481

WESTERN SYDNEY UNIVERSITY
(WERRINGTON SOUTH CAMPUS)

6

DP 593628

No.4
ST375

No.3
ST358

SEE DIAGRAM

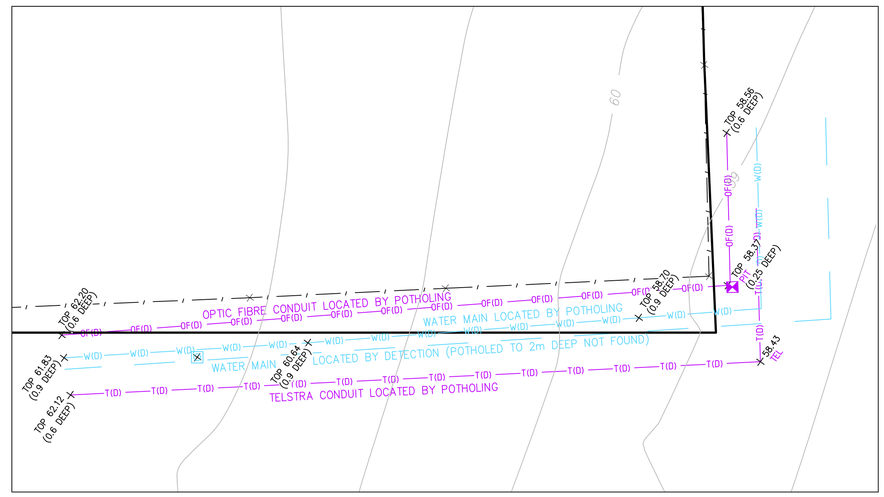

DIAGRAM - POTHOLED SERVICES
SCALE 1:200

"TOP 61.83" DENOTES TOP OF EXPOSED CONDUIT

SCALE 1: 300 @ A1

DIAL BEFORE YOU DIG www.1100.com.au

SEE SHEET 1 FOR LEGEND & NOTES

Revision	Date	Description	Reference
D	00/00/00	-	00
C	00/00/00	-	00
B	00/00/00	-	00
A	14/12/16	EXTRA DETAIL & LEVELS ADDED. SHEETS ADDED & RENUMBERED	44079

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:

.....
Registered Surveyor NSW

LTS LOCKLEY
Registered Surveyors NSW
www.ltsl.com.au
Suite 1, Level 1
810 Pacific Highway
Gordon NSW 2072
Locked Bag 5
Gordon NSW 2072
P 1300 587 000
F 02 9499 7760

Client CHIWAYLAND AUSTRALIA

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 3 IN DP 1103503, LOT 6 IN DP 593628 AND LOT 2 IN DP 1217434 KNOWN AS 46-66 O'CONNELL STREET, CADDENS

datum	project number	reference number
AHD	43677	43677DT
site Area	scale	date of survey
12.147ha	1:300 @A1	31/08/2016
LGA	SHEET	
PENRITH	OF 9 SHEETS	9

APPENDIX H PID CALIBRATION CERTIFICATE

airmet
Work with Confidence

Calibration Certificate

AirMet Scientific P/L
Level 3, 18-26 Dickson Avenue
Artarmon
NSW 2064, Australia
Tel: 02 8425 8300
Fax: 02 8425 8399

This document certifies that the instrument detailed has been calibrated to the parameters

Certificate Print Date: 16-Sep-2019
Calibration Date: 16-Sep-2019
Next Calibration Due: 17-Mar-2020

Call ID / Order No: 239282
Job No / Pack No: S2392820001

Customer: ERM Australia - Bris-ID 407088 **Serial No:** T-108866
Description: PhoCheck Tiger

Calibration Summary

Frequency: 183 Days **Temp:** 22°C **As Found:** Out of Tolerance **Result:** Pass
Humidity: 45% **Certificate:** S2392820001

Desc	As Found Actual	As Found Result	As Left (Cal Status) Actual	As Left (Cal Status) Result
ISOBUTYLENE 100ppm	92.4	Fail	99.6	Pass
ISOBUTYLENE 1000ppm	1095.6	Fail	1012.1	Pass

Standard Used

Equip ID	Description	Valid Until	Cert
SY235	ISOBUTYLENE 1000PPM, AIR BALANCE	02-11-2021	BU70910-072518
SY274	Zero Grade Air 20.9%VOL O2, N2 Balance	31-07-2024	400284707
SY276	ISOBUTYLENE 100PPM AIR Balance	03-07-2024	400284906

Completed By: Jason Cheng

Signed [redacted]

eDoc V1R0

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