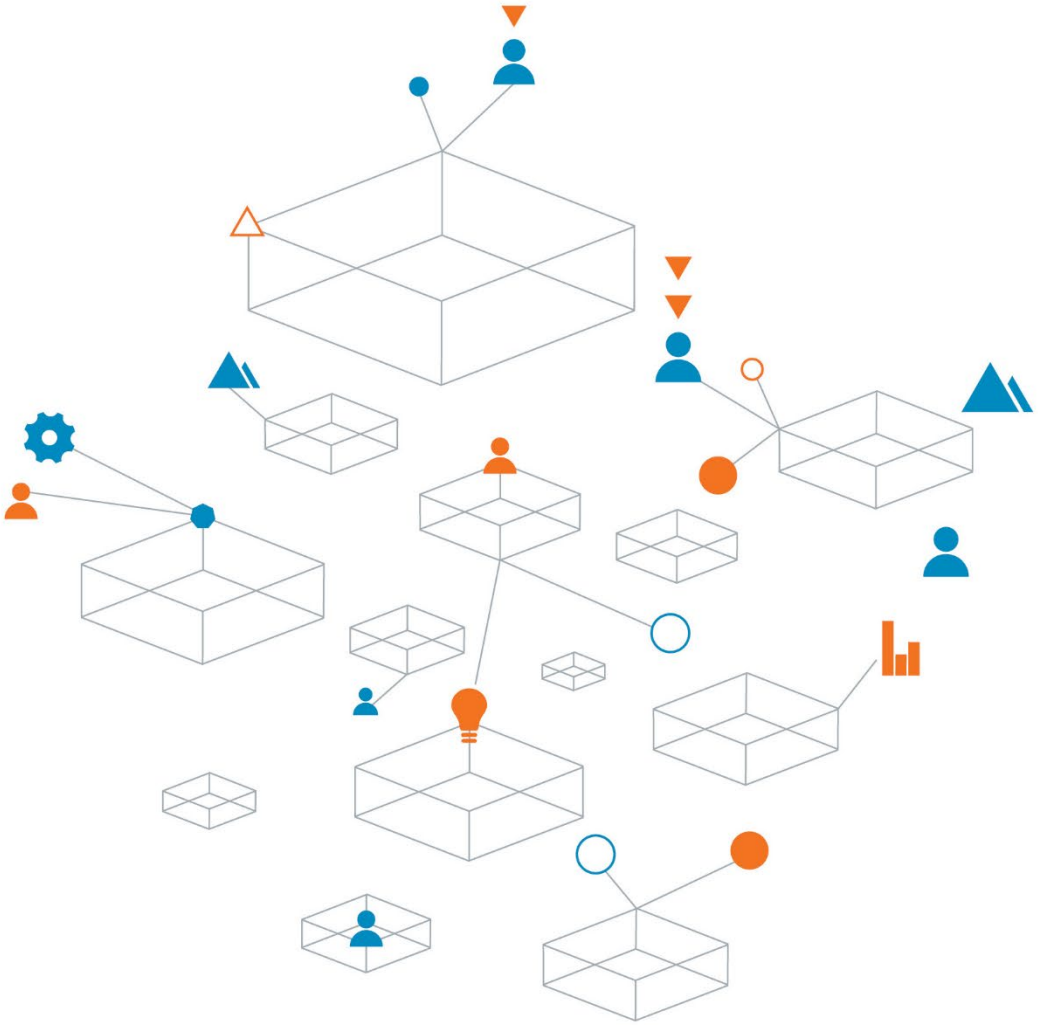
Tract Consultants Pty Ltd

73 - 155 Ash Road, Leopold

Phase 1 & 2 Environmental Site Assessment

11 October 2019



Trust is the cornerstone of all our projects

73 - 155 Ash Road, Leopold

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Phase 1 & 2 Environmental Site Assessment

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1. Introduction

On behalf of South Fyansford Pty Ltd (client), Tract Consultants Pty Ltd (Tract) commissioned Coffey Services Australia Pty Ltd (Coffey) to complete an environmental site investigation for the proposed residential development site, located at 73-155 Ash Road, Leopold, Victoria (the 'site') (as shown on Figure 1).

The site, approximately 30 hectares in size, consists of five different lots that are to be rezoned prior to the commencement of the proposed residential development works. As such, Tract currently have a Planning Scheme Amendment and Planning Permit Application lodged with the City of Greater Geelong (Council), which required the completion of an environmental site assessment by a qualified environmental consultant. In order to satisfy the planning permit application requirements and ensure the site was suitable for the proposed residential development, the completion of a Phase 1 and Phase 2 Environmental Site Assessment (ESA) was required to investigate and document potential contamination issues at the site.

This report details the Phase 1 and Phase 2 ESA investigation work.

1.1. Objectives

The overall objective of the environmental investigation was to gain sufficient knowledge of the previous land uses of the site and to assess the nature and extent of any contamination. The environmental investigation was not intended to provide a full comprehensive assessment of the site.

The specific objectives of the project were to:

- Complete a site history review to identify the potentially contaminating activities which may have been conducted on the site and to summarise existing information regarding potential contamination issues;
- Based on the results of the site history review, conduct a targeted soil investigation in areas of the site where potentially contaminating activities were thought to have taken place;
- Conduct a broad soil investigation across the site to provide a preliminary characterisation of the nature and extent of contamination on the site (if any); and
- Prepare an environmental assessment report which satisfies the planning permit requirements and includes a recommendation as to whether an environmental audit is considered necessary prior to the proposed use of the site as per Ministers Direction No1 under the Planning and Environment Act (1087).

1.2. Scope of works

To achieve the objectives of the project the following scope of works was completed:

- Phase 1 Environmental Site Assessment – Site History Review
- Phase 2 Environmental Site Assessment – Limited Soil Contamination Assessment
- Preparation of Environmental Site Assessment Report

2. Site information

2.1. Site identification

Site identification details are summarised below in **Table 2-1**.

The site for this investigation is shown on Figure 1 in Appendix A.

Table 2-1: Site Identification Details

Site Address	73-155 Ash Road, Leopold, Victoria.
Total Site Area	30 hectares (approx.)
Current Zoning	Farming Zone (FZ)
Planning Overlays	None
Current Site Use	Rural Residential property and grazing
Future Site Use	Residential Development
Surrounding Land Use	North: Residential properties. East: Agricultural land. South: Residential properties and agricultural land. West: Residential properties and agricultural land.

3. Phase 1 Environmental Site Assessment – Site History Investigation

A Phase 1 Environmental Site Assessment (ESA) was undertaken in accordance with the guidance in the National Environmental Protection (Assessment of Site Contamination) Measure (NEPM, 2013).

The Phase 1 ESA included a review of the historical information specific to the site to assess whether the site has previously been used for a potentially contaminating activity and to identify other potential historical sources of contamination to the site. The Phase 1 ESA comprised a review of the following:

- Local geology, hydrogeology and topography maps.
- Historical aerial photographs covering the property and surrounds (1947 to present).
- Planning schemes/ zoning maps.
- Current and land title ownership records.
- Site drainage, sewer and service plans.
- The EPA Victoria Priority Sites Register for the site and surrounds.
- The EPA Victoria register of issued certificates and statements of Environmental Audit for the site and surrounds.
- EPA licensed activities.
- Current and former landfill sites within a 500m radius of the site.
- Acid sulfate soil hazard maps.
- Registered groundwater bore information in the public register.

In addition, a site inspection was conducted on 3 April 2019. A summary of the site history investigation is provided in this section. The Lotsearch site history reports are provided in Appendix C.

3.1. Geology

3.1.1. Regional geology

The geological survey of Victoria, Geelong map sheet (scale 1:63,360) shows the site to be underlain by the Tertiary aged Moorabool Viaduct sands which include calcareous sand, clayey sand, quartzite and ferruginous sand and gravel.

3.1.2. Site-specific geology

The geology encountered at the site during the soil investigation works is summarised below in **Table 3-1**. There were some localised areas where soil stockpiles were present (less than 1% of the site area) which were identified as either reworked natural soils or fill material. These soils have not been included in the site-specific geology section due to their localised nature.

Table 3-1: Site Specific Geology

Depth (mbgs)	Soil Description
0.0 – 0.4	Sandy SILT: Light brown, dry, fine, loose.
0.4 – 1.3	CLAY: Orange brown, dry, high plasticity, stiff to hard.

3.2. Hydrogeology

Based on information from Visualising Victoria's Groundwater website (http://www.vvg.org.au/) and a groundwater resource report, available from the Department of Environment, Land, Water and Planning (DELWP) (http://www.depi.vic.gov.au/water/groundwater/groundwater-resource-reports), groundwater beneath the site is expected to be encountered between 10m and 20m below the surface.

The groundwater salinity in this aquifer is expected to be in the range of 1,001 – 3,500 mg/L Total Dissolved Solids (TDS). The upper tertiary aquifer is underlain by upper mid-tertiary aquitard and bedrock, as summarised in **Table 3-2**.

The inferred groundwater flow direction at the site is considered to be south towards Lake Connewarre.

Table 3-2: Regional Hydrogeology: Groundwater layers [1]

Groundwater Layers	Depth (mbgs)	Groundwater Salinity - Total Dissolved Solids (mg/L)
Upper Tertiary Aquifer (marine) (UTAM): sand	0 – 19	1,001 – 3,500
Upper Mid-Tertiary Aquitard (UMTD): clay, silt, marl (fractured rock) and minor sand	19 - 81	Unknown
Mesozoic and Palaeozoic Bedrock (basement) (BSE) Sedimentary (fractured rock): Sandstone, siltstone, mudstone, shale. Igneous (fractured rock): Volcanics, granites, granodiorites	81 - 281	3,501 – 13,000

[1] Modified from groundwater resource report

3.2.1. Extractive users of groundwater

A groundwater bore search was undertaken to identify potential extractive users of groundwater in the vicinity of the site. This search was undertaken using the Visualising Victoria's Groundwater website (http://www.vvg.org.au/).

The bore search identified 3 registered groundwater bores within a 1 km radius of the site, of which two bores were listed for domestic/stock use and one where the registered use is unknown, as summarised in **Table 3-3**. Given their location, one domestic bore (80123) and one unknown use bore (304472) are considered to be down gradient from the site.

Table 3-3: Summary of registered groundwater bores within 1 km of the site (excluding observation / investigation bores)

Bore ID	Date of Construction	Bore Depth (m)	Screened Interval (m)	Registered Use	Distance from site
80123	19/08/1986	3	Unknown	Domestic, stock	~66 m south
80116	1/11/1977	15.55	7.62 – 15.55	Domestic, stock	~116 m south west
304472	31/12/1933	6.09	Unknown	Unknown	~751 south

3.3. Topography

The majority of the site has been observed to be sloped towards a natural watercourse or drain that runs through site, with the overall site generally sloping to the southeast.

3.4. Surface water

There is an unnamed creek or drainage channel running through the site in a northwest to southeast direction which runs into a dam adjacent to the eastern site boundary. Water overflow from the dam appears to ultimately flow onto Lake Connewarre via a series of unnamed creeks or drains.

3.5. Acid sulfate soils

The Acid Sulfate Soil (ASS) hazard maps for Victoria published by the Department of Primary Industries were reviewed to identify the likelihood of ASS being present at the site. The 1:100 000 map 'Coastal Acid Sulfate Soil Hazard Geelong T7721 Map' (DPI, 2002) and 'Coastal Acid Sulfate Soil Distribution – Map 3 for the Central Coast of Victoria' (Rampant et al, 2003) indicate the presence of coastal ASS close to the shore of Lake Connewarre but that it does not extend to the site.

3.6. Landfill sites within 500m of site

Current and former landfills produce ground gases including methane and carbon dioxide which can potentially migrate and pose a hazard to surrounding land. As detailed in EPA Publication 788.3, where a development site is located within 500m of a current or former putrescible waste landfill EPA requires the responsible Planning Authority to ensure that sufficient information is collected to satisfy them that the proposed new development will not be adversely impacted by its proximity to the landfill site.

As such a search of current and former landfills with a 500m radius of the site and is included in the Lotsearch report in Appendix C. There were no former landfill sites found to be within 500m of the site.

3.7. Historical aerial photograph review

A review of selected historical aerial photographs was undertaken for the site at intervals of approximately 10 years. The earliest historical aerial photograph reviewed was dated 1947 and the most recent dated 2019. There were no aerial photographs of the site prior to 1947 available. The historical aerial photographs reviewed were those provided in the Lotsearch Report (Appendix C).

The historical aerial photographs were reviewed to determine if any activities had occurred on the site (and surrounding area) that may have caused potential contamination at the site. A summary of the key observations from the aerial photograph review is provided in **Table 3-4** below.

Table 3-4: Historical aerial photograph observations

Year	On-site	Off-site
1947	Buildings (farm houses and sheds) present in the north-west and south west corners of the site. Remainder of site appears to be agricultural land.	Site surrounded by agricultural land with some buildings (farm houses and sheds).

Year	On-site	Off-site
1951	No significant changes evident.	Residential development (Leopold) evident to the north-west of the site. No other significant changes evident.
1962	No significant changes evident.	No significant changes evident.
1970	No significant changes evident.	No significant changes evident.
1978	A large dam has been constructed on the eastern side of the site. An area of potential waste machinery appears to be located adjacent to shed in the northern most property	Further residential development (Leopold) evident to the north-west and west of the site.
1984	No significant changes evident.	Further residential development (Leopold) evident to the north-west and west of the site.
1990	Building constructed close to dam. It appears that crop growing (such as potato crops) has been undertaken on the majority of the site.	Further residential development (Leopold) evident to the north-west and west of the site. Crop growing (such as potato crops) appear to have been grown on adjacent properties to the east and west.
2009	Buildings constructed in south-west corner and north-east corner of the site. Objects, suspected soil stockpiles, present in south-east and north-east corners of the site. The rural property on the northern-most area of the site appears to have been demolished and replaced with a residential dwelling (including all agricultural sheds and equipment)	Further residential development (Leopold) evident to immediately to the north of the site.
2013	Unclear if suspected stockpiles are still present in south-east corner. Suspected soil stockpile in north-east corner still visible.	No significant changes evident.
2019	Unclear if suspected stockpiles are still present in south-east or north-east corners.	No significant changes evident.

3.8. EPA priority sites register

The EPA Victoria Priority Sites Register was searched by Lotsearch on the 13 March 2019 to identify any priority contaminated sites within a 1 km radius of the site.

EPA Victoria's priority sites register includes sites for which EPA has issued a Clean Up Notice (CUN) or a Pollutant Abatement Notice (PAN). The priority sites register does not list sites managed by voluntary agreements or site subject to management by planning controls.

No priority sites were identified within a 1 km radius of the site.

3.9. Nearby environmental audits

A search of previous environmental audits conducted within a 1 km radius of the site was undertaken by Lotsearch based on information on the Visualising Victoria's Groundwater website and the Environment Protection Authority (EPA) Victoria Environmental Audits database.

No nearby environmental audits were identified in this search.

3.10. Previous environmental assessments and remediation works

Coffey understands that there have not been any previous environmental assessment or remediation works completed at the site.

3.11. Site inspection observations

A site inspection was undertaken by a Coffey representative on 3 April 2019 whilst the field works were being undertaken. Photographs of the site inspections are included in Appendix G. A summary of the key observations from the site inspections with respect to potential contamination issues is provided below.

73-85 Ash Road

This property was occupied by a single residential dwelling and a small shed. The western portion of the site was occupied by the buildings, and the eastern portion had recently been used for cereal cropping purposes. A large pile of building materials (predominantly timber) was present on the eastern boundary of the site and appeared to have been placed in readiness for a burn-off. The materials within the piles appeared to contain predominantly timber, with some steel, wire, couches, curtains, and garden materials. Inspection of the aerial photographs and the area where the materials were located did not suggest that waste had been buried at the site. No cement sheeting or suspected asbestos containing materials were noted in the piles.

87-101 Ash Road

A residential building was present at the eastern end of the property and several sheds used to store agricultural equipment were present near the house. An area of materials storage was located to the north of the main buildings, and several piles of firewood (both cut and in logs) were present in this area.

During the site walkover the current occupant of the property informed Coffey staff that soil material containing Asbestos Containing Material (ACM) had been placed on a section of his property as topsoil following the installation of underground water infrastructure. The occupant explained that the soil material was subsequently abated to remove the ACM. Two samples of the soil material were collected from this property from within the water pipeline easement and analysed for the presence of ACM with no asbestos detected at the limit of reporting in either sample.

103-127 Ash Road

A residential dwelling and associated sheds were located at the eastern end of this property. Various areas of equipment and other materials were located around the agricultural sheds. No bulk fuel storages were observed at the site, and the equipment appeared to be predominantly agricultural (a small tractor, fencing materials, a water tank, corrugated iron sheeting) as well as a boat and other farming implements. No chemical stores were noted at the site.

129-141 Ash Road

Two residential dwellings were located on the western portion of this property and a carport/shed and two smaller ancillary sheds were associated with the houses. Several vehicles were located around the carport/shed. No obvious signs of filling or waste were observed at the property.

The eastern half of this property had been used for a makeshift motor-cross track, with several dirt mounds constructed. The soils from within these stockpiles appeared to be similar to the natural soils surrounding the mounds. Several small jumps had been constructed from logs in this area too. A small (approximately 1.5m x 1.5m) bon-fire pile of garden materials (predominantly old stumps) and

wood was located in the centre of this area. No obvious signs of waste or contaminating activities were observed in this portion of the site.

143-155 Ash Road

A residential dwelling and adjacent car-port/garage was located on the western portion of this site. Two large sheds (and a smaller shed) were located to the east of the main house, and various vehicles and machinery were associated with these shed (including trailers, cars, and car-parts). Several soil stockpiles were present in the eastern portion of this property, with the majority appearing to be a similar soil type to the natural soils at this site. It appears that several of these soil stockpiles were placed in a way that suggested they may be being made into a further motor-cross track (although the berms and mounds had not been fully formed). Three other areas of soil stockpiles were observed in this portion of the site, all of which had incorporated building materials and other materials (i.e. tyres, concrete etc). These soil stockpiles appeared to have been imported to the site. An inspection of the soil stockpiles was undertaken and no suspect asbestos containing materials were observed.

Cement sheeting fragments (later confirmed to be asbestos containing) were identified at several locations and in stockpiles on the site.

3.12. Summary of potential contamination sources

The site history review and walkover identified the following with regard to the current and previous uses of the site.

- Rural residential with associated small-scale cropping and agricultural uses
- Agricultural uses, including crop growing (cereals and potentially potatoes)

The potential contamination sources identified during the Phase 1 ESA Site History Investigation were:

- Building material piles located in the north-east corner of the site.
- Soil stockpiles with incorporated building materials in the southern portion of the site and the potential for them to contain ACM;
- Contaminants that may have been transported onto site via stormwater in the open water drains present on site (noting that up-gradient land-uses have included residential uses, rural residential uses, and cropping/agricultural uses that may have included potato growing);
- Application of contaminants, including Organochlorine Pesticides (OCPs) and Organophosphate Pesticides (OPPs), as part of farming practices historically conducted at the site. In particular, dieldrin is considered to be a contaminant of potential concern due to its historical use by potato farmers as an insecticide on the Bellarine Peninsula. Dieldrin is an organochloride that is a persistent organic pollutant that has the potential to cause a wide range of health problems in animals, including humans.

4. Phase 2 Environmental Site Assessment

A Phase 2 Environmental Site Assessment (ESA) was undertaken in accordance with the guidance in the National Environmental Protection (Assessment of Site Contamination) Measure (NEPM, 2013). This incorporated an intrusive soil investigation as part of the Phase 2 ESA. It is noted that the Phase 2 ESA works presented in this section were undertaken prior to the demolition of the existing dwellings on the site.

4.1. Timeline of site activities

The Phase 2 environmental investigation works were conducted on 4 April 2019 and included a site walkover and soil sample collection. Following the identification of Asbestos Containing Material (ACM), an additional site walkover was conducted at 153 Ash Rd on 4 June 2019 to assess the accessible surface for the presence and visible extent of ACM. Further investigation of the presence of cement sheeting within the various soil and waste piles at 153 Ash Road was undertaken on 9 October 2019.

Further details of the field works are provided below.

4.2. Soil sampling

An intrusive soil assessment was conducted at the site as part of this investigation to assess both current and historical contamination as guided by the NEPM and Australian Standard AS4482.1 *Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds.*

Broad grid-based sampling was conducted across the site. The Australian Standard AS 4482.1 does not currently provide specific guidance on the number of sampling points for sites greater than five hectares. The Australian Standard currently lists a total of 55 sampling locations for a five-hectare site, which equates to 11 grid-based sampling locations per hectare. Due to the large investigation area (approx. 30 ha) that was historically used for broad-acre agricultural uses, a lower sampling density was adopted with one sample per 2 hectares collected. This density was chosen to evaluate the potential presence of broad-acre contamination, for which a sampling approach designed to detect a localised hot spot is not considered relevant.

In addition to the grid-based soil bores there were also five targeted soil bores advanced onsite. The locations of the targeted soil bores were determined based on the findings of the Phase I investigation and observations made during the site inspection.

The soil sampling locations are identified on Figure 1.

4.2.1. Soil sampling methodology

The soil sampling methodology conducted at the site by Coffey in this assessment is provided in **Table 4-1**.

Soil assessment works were undertaken in general accordance with the following guidelines:

- *Standards Australia 2005, AS4482.1 – 2005 Guide to the investigation and sampling of sites with potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds* (Standards Australia AS4482.1-2005);
- *Standards Australia 1999, 4482.2-1999 Guide to the Sampling and Investigation of Potentially Contaminated Soil. Part 2: Volatile Substances* (Standards Australia AS4482.2-1999);
- *The relevant schedules of the National Environmental Protection (Assessment of Site Contamination) Measure 1999*, as amended in 2013 (NEPM, 2013).

Table 4-1: Summary of Soil Sampling Methodology

Activity	Details / Comments
Date of field activities	Soil sampling works were conducted on 4 April 2019.
Service location	Each soil sampling location was screened for the presence of underground services by an independent contractor using electronic detection equipment prior to any sub-surface works being undertaken. The findings of this survey and Dial Before You Dig (DBYD) plans were reviewed by Coffey prior to the works commencing.
Soil sample collection	Soil bore samples were collected from hand auger and excavator bucket at a range of depths from 0.1 m to 1.3m.
Decontamination of equipment	Decontamination was undertaken on sampling equipment between bores using Decon 90 and de-ionised water. Disposable nitrile gloves were used between each sample collection.
Soil screening	Soil samples were screened using a Photoionisation Detector (PID) calibrated daily to 100ppm iso-butylene calibration gas. The PID readings, together with other field observations, were used to assess which samples should be analysed for volatiles. PID readings are included on the bore logs (Appendix F).
Soil sampling	Sample collection was conducted according to Coffey sampling guidelines. Samples were obtained using a hand auger and mechanical methods (excavator). Dedicated disposable gloves and laboratory supplied containers were used.
Soil logging	The sub-surface conditions were logged by an experienced Environmental Consultant. Bore logs are included in Appendix F.
Sample handling and transportation	Sample collection, storage and transport was conducted according to Coffey Environments Standard Operating Procedures (SOPs). Samples were immediately placed into laboratory supplied glass jars with Teflon lined seals to avoid volatile loss and placed into an esky with ice. The samples were dispatched to NATA accredited laboratories under chain of custody documentation. All laboratory reports are provided in Appendix F.
Disposal of waste	All excavated soil was reinstated within the boreholes from which it was excavated.
Sample preservation	Samples were stored at <4 °C (on ice), in an esky while on site and in transit to the laboratory.
Field QC	Collection of a field duplicate and a field triplicate sample was undertaken at a rate of one per twenty samples. A field rinsate blank and a trip blank were also collected.
Laboratory	Samples were sent to NATA accredited Eurofins-MGT (Eurofins) (Primary) and ALS Environmental Laboratories Pty Ltd (ALS) (Secondary).
Sample analysis	Samples were submitted for one or more of the following analyses: • Total Petroleum Hydrocarbons (TRH) • Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) • Polycyclic Aromatic Hydrocarbons (PAHs) • Metals (As, Cd, Cr, Cu, Pb, Hg, Ni, and Zn) • Organochlorine Pesticides (OCPs) and Organophosphate Pesticides (OPPs) • Sulfate • Physical-chemical soil properties (pH, CEC, clay content, TOC and iron content) and • NEPM 2013 Broad Contaminant Screen analysis.

4.2.2. Field observations

The site-specific geology is summarised below and is based on the soil investigations conducted at the site. Soil bore logs describing the encountered soil are provided in Appendix D.

A layer of sandy silt was encountered across most of the site with a thickness ranging from approximately 0.2 to 0.5 m. This layer was underlain by natural clay across the site which extended past the maximum borehole depth of 1.3 m.

There were no elevated PID readings recorded at any locations with readings ranging from 0.0 to 1.3 ppm. This is considered indicative of background levels.

A fragment of potentially Asbestos Containing Material (ACM) cement sheeting was encountered at the southern end of the site in the middle of the paddock. The fragment of cement sheeting was collected for analysis and the location marked for future inspection and investigation. The location where the cement sheet was identified was not associated with any obvious ground disturbance, wastes or other indications of potential contamination.

4.3. Asbestos sampling

Following the identification of Asbestos Containing Material (ACM) during the initial Phase 2 environmental investigation works, a systematic site walkover was conducted on the paddock area at the rear of 153 Ash Rd on 4 June 2019 to assess the accessible surface for the presence and visible extent of ACM.

4.3.1. Asbestos sampling methodology

Prior to undertaking the walkover, the site was divided into gridded portions of approximately 10 m by 10 m to ensure a thorough assessment of the site surface. Each grid square was subjected to multiple passes with at least one 90-degree directional change.

Where pieces of potential ACM were identified during the walkover, they were logged and the type, size and condition were recorded.

All pieces of suspected ACM were collected as samples and submitted to a NATA accredited laboratory for asbestos identification analysis. The location of the suspected ACM was recorded and marked with a wooden stake.

The above scope is in general accordance with guidance in Section 4 of Schedule B1 and Section 11 of Schedule B2 in the National Environment Protection (Assessment of Site Contamination) Measure (NEPM, 2013) and was been based on the assumption that the asbestos contamination is not widespread and that the ACM was limited to particular areas where it was present on the ground surface.

Further investigation of the stockpiles of soil on the site (153 Ash Road) was undertaken on 9 October 2019. These works involve the segregation of wastes from soils of a large stockpile under careful observation. A detailed site inspection for the potential presence of asbestos cement sheeting was also undertaken.

5. Quality assurance and quality control

We have completed a review of data quality associated with this assessment. The key findings from this review are provided below. Field quality control analytical results are presented in Tables 2 and 3 in Appendix B.

The general acceptance criteria for relative percentage difference (RPD) for field duplicates for this investigation is 30% as per the recommendations in Schedule B3 of the ASC NEPM.

RPDs were reported as exceeding 30% for arsenic, chromium, lead, mercury and nickel in some samples. This variability was attributed to the heterogeneous nature of the soil and is unlikely to affect the outcome of this assessment.

Concentrations in the rinsate and trip blank samples were below the laboratory limit of reporting for all analytes. All samples were received by the laboratories within the required holding times. Overall, the quality of the data is considered to be acceptable for the purposes of this investigation.

6. Assessment criteria

The *State Environment Protection Policy - Prevention and Management of Contamination of Land* ("the Land SEPP") (Victorian Government, 2002) sets out the regulatory framework for the prevention and management of contaminated land within the State of Victoria.

The beneficial uses of land requiring protection, based on the current and/ or proposed land use(s) are shaded in **Table 6-1**.

Table 6-1: Protected Beneficial Uses of Land *

Beneficial Uses	Land Use						
	Parks & Reserves	Agricultural	Sensitive Use		Recreational/ Open Space	Commercial	Industrial
			High Density	Other			
Maintenance of Ecosystems • Natural • Modified • Highly modified	✓ ✓	✓ ✓	✓	✓ ✓	✓ ✓	✓	✓
Human Health	✓	✓	✓	✓	✓	✓	✓
Buildings & Structures	✓	✓	✓	✓	✓	✓	✓
Aesthetics	✓		✓	✓	✓	✓	
Production of Food, Flora & Fibre	✓	✓		✓			

** The above table is a reproduction of Table 1 from the State Environment Protection Policy Prevention and Management of Contamination of Land (Victorian Government, 2002).*

Based on the highlighted relevant beneficial uses from the above table, the adopted criteria associated with each of these beneficial uses are discussed below.

High density sensitive use refers to residential, or other sensitive use, developments with greater than one dwelling per 200 m^2 or a residential building greater than four storeys. Other sensitive land uses are encompasses low density and medium developments. Low density sensitive land use is considered to be one dwelling per 300 m^2 and one dwelling per 4,000 m^2, typically a detached house with substantial access to soil. A medium density sensitive land use is considered to be a density of between one dwelling per 200 m^2 to 300 m^2, with some access to soil (as defined in EPA Publication 759.3).

Where the listed guidelines do not provide criteria for specific analytes, alternative criteria have been adopted. Where applicable, these criteria are discussed and referenced below.

Maintenance of Ecosystems

The protection of the beneficial use of 'Maintenance of Ecosystems' is assessed with reference to the Ecological Investigation Levels (EILs) for metals and provided in Schedule B1 of the *National*

Environmental Protection (Assessment of Site Contamination) Measure 1999, as amended in 2013, including errata updated 30 April 2014 (NEPC, 2013).

These guidelines provide a range of site uses including areas of ecological significance, urban residential/public open space and commercial/ industrial. Given the site is being assessed for use residential housing, urban residential/public open space criteria have been used for comparison with reported soil analytical results.

The NEPM provides an approach for calculating site specific EILs for chromium (III), copper, nickel and zinc based on key physical-chemical soil properties (i.e. pH, cation exchange capacity (CEC), clay content, total organic carbon (TOC) content) and ambient background concentrations. Selected soil samples were analysed for physical-chemical soil properties, the results from this analysis are summarised in **Table 7-1**.

The physical-chemical soil property values adopted for derivation of the site specific EILs are:

- pH: 4.6
- CEC: 1.5 meq/100g
- Clay: 1.3 %
- TOC: 0.5 %

These represent the lowest value recorded during this investigation and are considered to be sufficient to conservatively represent the soil type present in the upper 2 m on the site.

The ambient background concentrations for high traffic areas in Victoria according to Olszowy et al (1995), were adopted.

Unless otherwise stated EILs for aged contamination (> 2 years) have been adopted.

The site-specific EILs have been calculated using the Ecological Investigation Level calculation spreadsheet sourced from the NEPM toolbox.

It is emphasised within the NEPM that EILs are not intended for use as default remediation trigger or remediation target criteria but are intended to prompt an appropriate site-specific assessment when they are exceeded. However, it is considered reasonable in the first instance to use these investigation limits as default acceptance criteria, and only consider impacts more closely in the event of an investigation limit being exceeded.

It has been acknowledged that the low reliability NEPM ESL for benzo(a)pyrene is outdated, as such the more recent high reliability ecological guideline for benzo(a)pyrene as published in CRC CARE Technical Report No. 39 - Risk-based management and remediation guidance for benzo(a)pyrene (CRC CARE, 2017), have been adopted.

In the absence of Australian specific criteria, the following international criteria have been adopted:

- Canadian Soil Quality Guidelines for the Protection of Environmental Health (CCME, 2013)
- US EPA Ecological Soil Screening Levels (ECO-SSLs) (US EPA, 2005)
- US EPA Region 4 Soil Screening Value for Hazardous Waste Sites, Ecological Risk Assessment (US EPA, 2015)

Human Health

The protection of the beneficial use “Human Health” is assessed with reference to the NEPM guidelines. Soil samples were compared to human Health Investigation Levels (HILs) *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended in 2013 (NEPC, 2013).

The Health-based Levels (HILs) provide for a range of site uses including standard residential (exposure Setting A), residential with minimal soil access (exposure Setting B), public open space (exposure Setting C) and commercial/industrial (exposure Setting D).

Given that the site is being assessed for urban residential/public open space, exposure Setting 'A' and 'C' HILs have been used for comparison with reported soil conditions.

The HSLs for vapour intrusion into buildings related to volatile petroleum hydrocarbons, these are specific to soil type and depth to impact. The criteria for coarse textured (i.e. sand) soils have been adopted as a conservative measure based on field observations of some sub angular gravels and large scale nature of the site. The depth range of 0 to <1 m has been conservatively adopted for the screening level assessment of the site.

To indicate the potential risks associated with direct contact with petroleum hydrocarbon impacted soil the Health Screening Levels (HSLs) for direct soil contact have been adopted (CRC CARE, 2011).

It is emphasised within the NEPM that HILs and HSLs are not intended for use as default remediation trigger or remediation target criteria but are intended to prompt an appropriate site-specific assessment when they are exceeded. However, it is considered reasonable in the first instance to use these investigation limits as default acceptance criteria, and only consider impacts more closely in the event of an investigation limit being exceeded.

In the absence of Australian specific criteria the following international criteria have been adopted:

- US EPA Regional Screening Levels for Soils (US EPA, 2016)

Buildings and Structures

The Land SEPP (Victorian Government, 2002) states that "contamination must not cause the land to be corrosive to or adversely affect the integrity of structures or building materials".

Field observations and pH analytical results can be used to assess any extreme conditions (such as acidity) that might undermine or corrode structures/buildings. The Australian Standard AS2159-2009 'Pilling-design and installation' provided assessment criteria to indicate potential corrosivity to buildings and structures based on pH and sulfate, as summarised in **Table 6-2**.

Table 6-2: Adopted assessment criteria for the beneficial use Buildings and Structures

Exposure condition				Exposure Classification	
Sulphates (expressed as SO_4)		pH	Chlorides in groundwater mg/L	Soil conditions A^	Soil conditions B^^
In soil mg/kg	In groundwater mg/L				
<5,000	<1,000	>5.5	<6,000	Mild	Non - Aggressive
5,000 - 10,000	1,000 – 3,000	4.5 - 5.5	6,000 – 12,000	Moderate	Mild
10,000 – 20,000	3,000 – 10,000	4 – 4.5	12,000 – 30,000	Severe	Moderate
>20,000	>10,000	<4	>30,000	Very severe	Severe

Table adopted from AS2159 – 2009 Piling – Design and Installation. Shading indicates soil conditions applicable at the site

^ Soil conditions A - high permeability soils (e.g., sands and gravels) which are in groundwater

^^ Soil conditions B - low permeability soils (e.g., silts and clays) or all soils above groundwater.

Aesthetics

The Land SEPP states that "contamination must not cause the land to be offensive to the senses of human beings". Currently, there are no concentration based aesthetic criteria for soil.

While aesthetic observations are subjective, it is considered that if there is discolouration, noticeable odour from the soil on the site or if there are obvious components of waste, such as rubble, slag, bagged waste or similar, then there is a potential aesthetic concern.

Aesthetic observations made in the field are detailed on the bore logs (Appendix D) and are considered in our discussion.

The TPH Management Limits present in NEPM 2013 have also been applied to assess scenarios that fall outside of other human and ecological health protection criteria. This includes risk of free phase formation, exposure of workers in trenches to petroleum hydrocarbon vapours, risk of explosion, risk to buried infrastructure, aesthetic considerations and technological factors.

7. Results and discussion

7.1. Physico-chemical soil properties

Data on physico-chemical soil properties has been collected to assist with the derivation of soil-specific EILs. Analytical data for cation exchange capacity (CEC), clay content, pH and total organic carbon content (TOC) is presented in Table 1 (Appendix B). Chain of Custody documentation and certified laboratory reports are included in Appendix F. Data on physico-chemical soil properties measured is summarised in Table 7 1.

The physico-chemical properties were measured in samples from a spread of locations across the site consisting of sand and clay. This is considered to be representative of the soil types encountered in the upper 2m of soil on site. It is noted that the predominate geology on site is sand underlain by clay.

The lowest values measured for pH, CEC and clay content have been conservatively adopted to derive soil-specific EILs for metals, as described in Section 6. The pH, CEC and clay content values are generally considered to be sufficiently representative of the soil types present in the upper 2m on the site.

Table 7-1: Summary of key physico-chemical soil properties

Physico-Chemical Soil Property	Range
pH (n = 3)	4.6 – 6.4
Cation Exchange Capacity (CEC) (meq/100g) (n = 3)	1.5 – 8.7
Clay content (%) (n = 3)	1.3 – 15
Total Organic Carbon (%) (n = 3)	0.5 – 1.0

7.2. Soil contamination

Soil analytical results from the sampling completed in April 2019 are presented in Table 1 (Appendix B) and locations are shown on Figure 2 (Appendix A). Chain of Custody documentation and certified laboratory reports are included in Appendix F.

Analytes detected at concentrations above the laboratory limit of reporting are compared against the adopted site assessment criteria in **Table 7-2** and discussed below.

Table 7-2: Soil analytes reported above the laboratory limit of reporting (mg/kg, unless otherwise specified)

Analyte	Number of Primary Samples Analysed	Reported Concentration Range	HILs Residential A	HILs Recreational C	EILs Urban residential and open public spaces (Aged)	Residential Soil HSL A/B for Vapour Intrusion (0 to <1m, Sand)	AS2159-2009 Pilling-design and installation	Locations Exceeding Criteria
Arsenic	19	<LOR – 16	100	300	100	NE	NE	-
Chromium	19	<LOR – 59	100 [4]	300 [4]	210 [5]	NE	NE	-
Copper	19	<LOR - 6.8	6,000	17,000	35 [3]	NE	NE	-
Iron	3	2600 – 23000	NE	NE	NE	NE	NE	-
Lead	19	<LOR – 86	300	600	1,100	NE	NE	-
Manganese	2	16 – 71	3,800	19,000	220 [1]	NE	NE	-
Nickel	19	<LOR – 27	400	1,200	10 [3] (40^)	NE	NE	SP1, SP2, TP3_1.0, TP6_0.5, TP11_0.5
Zinc	19	<LOR – 33	7,400	30,000	95 [3]	NE	NE	-
pH (pH units)	18	4.6 - 7.9	NE	NE	NE	NE	<5.5	BH1_0.1, TP8_0.2, TP9_0.2, TP12_0.2, TP14_0.2
Sulphate	4	<LOR – 51	NE	NE	NE	NE	5,000	-
Benzo(a)pyrene TEQ (medium bound) *	19	0.6 - 0.6	3	3	NE	NE	NE	-
Benzo(a)pyrene TEQ (upper bound) *	19	1.2 - 1.2	3	3	NE	NE	NE	-
Aldrin + Dieldrin	19	<LOR - 0.395	6	10	NE	NE	NE	-
Dieldrin	19	<LOR - 0.37	NE	NE	NE	NE	NE	-
C10 - C40 (Sum of total)	19	<LOR – 110	NE	NE	NE	NE	NE	-
C15 - C28	19	<LOR – 74	4,500 [7]	5,300 [7]	300 [6]	NE	NE	-
C29 - C36	19	<LOR – 82	6,300 [7]	7,400 [7]	2,800 [6]	NE	NE	-
C10 - C36 (Sum of total)	19	<LOR – 156	NE	NE	NE	NE	NE	-

Note: all concentrations are in mg/kg (unless stated otherwise)

1 = US EPA (2015) Region 4 Soil Screening Value for Hazardous Waste Sites, Ecological Risk Assessment Supplement Guidance

2 = CCME 2013 - Canadian Soil Quality Guidelines for the protection of environmental health, residential/ parkland

3 = NEPM 2013 – Ecological Investigation Levels, (pH 4.6, clay 1.3%, CEC 1.5 $cmol_c/kg$, TOC 0.5%, high traffic area of Victoria), aged

4 = NEPM 2013 - Health Investigation Level for Chromium (VI) adopted

5 = NEPM 2013 – Soil specific Ecological Investigation Level for Cr (III) adopted, based on clay content of 1.3 %, aged contamination

6 = NEPM 2013 – Ecological Screening Level

7 = Friebel and Nadebaum (2011) Health Screening Level, Direct soil contact

NE = Guidelines not established

Shading denotes analytical results that exceeded the adopted site criteria.

** Benzo(a)pyrene (TEQ) = Benzo(a)pyrene Toxicity Equivalence refers to the concentration of carcinogenic PAH compounds expressed in relation to potency relative to Benzo(a)pyrene (the most potent carcinogenic PAH)*

^ = Site specific EIL for nickel was recalculated for clay soil types. Exceedances of nickel are further discussed in Section 7.2.1 below.

7.2.1. Metals

Five samples collected at locations TP3 (TP3-1.0), TP6 (TP6_0.5), TP11 (TP11_0.5), SP1 and SP2 reported nickel concentrations above the adopted EIL criteria for residential and recreational open space.

Samples TP3-1.0, TP6_0.5 and TP11_0.5 were collected from the natural clay encountered at those locations. The adopted EIL guideline for nickel was conservatively calculated based on the lowest CEC value reported which was from a gravelly sand. As these samples were collected from the natural clays between 0.5 – 1.0 mbgs, a revised EIL was derived using a CEC of 5 meq/100g for the assessment of these samples. The CEC of 5 meq/100g was conservatively adopted from the NEPM and is considered a conservative approach for deriving a nickel EIL for clay soils. To further support the revised EIL, one clay sample was analysed for CEC and reported a concentration of 8.7 meq/100g, indicating that the revised EIL is conservative in comparison to site conditions. Nickel concentrations in samples TP3-1.0, TP6_0.5 and TP11_0.5 were subsequently reported below the revised EIL of 40 mg/kg and are unlikely to pose a risk.

Samples SP1 and SP2 were collected from stockpiles of gravelly sand material. As such, these samples were assessed against, and exceeded, the original adopted EIL guideline for nickel of 10mg/kg.

All other metals were below the adopted screening criteria.

7.2.2. Petroleum Hydrocarbons

Detectable concentrations of TPH C_{16} - C_{34}, TPH C_{15} - C_{28} and TPH C_{29} – C_{36} were reported in one sample at BH1 (BH1_0.1) but were below the adopted screening criteria.

During the review of the site history there were no clear onsite sources of petroleum hydrocarbons identified. PID readings recorded for samples across the site were also very low (i.e. equal to or less than 1.0 ppm), as detailed in Section 4.2.2. The source of the above petroleum hydrocarbon concentrations is therefore not clear and is considered unlikely to pose a risk.

7.2.3. Polycyclic aromatic hydrocarbons (PAHs)

All PAH/ phenol concentrations were reported below the laboratory limit of reporting.

7.2.4. Polychlorinated biphenyls (PCBs)

PCBs were analysed for in two samples with concentrations reported below the laboratory LOR.

7.2.5. Organochlorine pesticides (OCP) and organophosphorus pesticides (OPP)

Detectable concentrations of OCPs (dieldrin and aldrin + dieldrin) were reported in four samples at BH1 (BH1_0.1), TP4 (TP4_0.2), TP7 (TP7_0.2) and TP12 (TP12_0.2) but were below the adopted HIL Residential screening criteria.

The remaining OCPs and OPPs reported concentrations below the laboratory LOR.

7.2.6. Sulfate

Sulfate was measured in 4 samples to assess the corrosivity of the soil at the site to buildings and concrete structures. Sulfate concentrations were determined in soils collected across the site at depths ranging from 0.1 mbgs to 0.5 mbgs. Sulfate was detected to be above LOR at two locations

however they were below the assessment criteria of 5,000 mg/kg specified in AS3600-2009 *Concrete Structures*. On this basis, soils at the site are considered unlikely to be corrosive to buildings and structures.

7.2.7. pH

pH was measured to assess the corrosivity of the soil at the site to buildings and concrete structures. pH was determined in soils collected across the site at depths ranging from 0.1 mbgs to 1.0 mbgs. pH was below 5.5 pH units at 5 locations however they were above 4.5 pH units. On this basis, soils at the site are considered to be mildly corrosive to buildings and structures. The low pH measured in soils at the site was considered to be associated with the site's history of agricultural use and the application of ammonium nitrate fertilisers.

7.3. Asbestos

Three samples were collected as part of the initial sampling to assess for the presence of asbestos containing material (ACM) in soils at the site. Results are provided in **Table 7-3** below with Chain of Custody documentation and certified laboratory reports are included in Appendix F.

Table 7-3: Asbestos Results – initial sampling

Sample ID	Sample Date	Sample description	Result
A1	04/04/2019	Brown fine-grained sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.01% w/w. No respirable fibres detected. Organic fibre detected.
A2	04/04/2019	Brown fine-grained sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.01% w/w. No respirable fibres detected. Organic fibre detected.
A3	04/04/2019	Grey compressed fibre cement sheet	Chrysotile asbestos detected.

One sample (A3) reported the presence of chrysotile asbestos in the form of grey compressed fibre cement sheet. The remaining two samples (A1 and A2) did not identify asbestos fibres at the limit of reporting. The location of the sample where the ACM was identified is shown on Figure 2.

Following the confirmation that the piece of cement sheet (sample A3) located on the property at 153 Ash Rd contained asbestos., a systematic site walkover of this property was undertaken to assess the accessible surface for the presence and visible extent of ACM. Five pieces of suspected ACM were identified in close proximity to the location where sample A3 was found. Each of the ACM pieces were noted as being in good condition with minimal degradation or crumbling (that is, the asbestos had not become friable) and were therefore unlikely to represent a significant human health risk.

The five pieces of ACM were collected and submitted to a NATA accredited laboratory for asbestos identification analysis. All samples reported the presence of chrysotile asbestos in the form of grey compressed fibre cement sheet. The results of the analysis are summarised below in **Table 7-4** below with Chain of Custody documentation and certified laboratory reports are included in Appendix F.

Table 7-4: Asbestos Results – additional sampling

Sample ID	Sample Date	Sample description	Result
A4	04/06/2019	Grey compressed fibre cement sheet (74g / 85x70x4mm) Good condition	Chrysotile asbestos detected.
A5	04/06/2019	Grey compressed fibre cement sheet (31g / 40x10x4mm) Good condition	Chrysotile asbestos detected.
A6	04/06/2019	Grey compressed fibre cement sheet (22g / 65x45x4mm) Good condition	Chrysotile asbestos detected.
A7	04/06/2019	Grey compressed fibre cement sheet (20g / 80x40x4mm) Good condition	Chrysotile asbestos detected.
A8	04/06/2019	Grey compressed fibre cement sheet (6g / 40x15x5mm) Good condition	Chrysotile asbestos detected.

No suspected ACM was observed across the remainder of the site during the walkover, although several piles of building rubble that were not accessible were noted to be present during the site walkover.

On 9 October 2019 the building rubble piles were segregated using an excavator. Careful observation of the segregation was undertaken to identify potential cement sheeting fragments. Several pieces of cement sheeting with a similar characteristic and form as the other ACM sheeting observed at the site were identified in several different portions of the (approximately) 200 m^3 waste and soil stockpile.

In addition, a detailed inspection of the property and several newly placed soil stockpiles. Two of the stockpiles contained fragments of cement sheeting, and white fibres could be observed in the fracture face.

Given the presence of asbestos (and likely asbestos containing) materials in the form of cement sheet in at least 5 locations on the site, and the history of soil movements on the site, there is considered to be a potential for asbestos contamination to be present that would require further investigation and remediation.

7.4. Summary of site contamination

The soil investigations conducted have identified concentrations of nickel (and asbestos containing materials) present in soil on the site, indicating a potential risk to human health and ecological receptors, under further redevelopment scenarios.

Concentrations of nickel exceeded the adopted EIL for residential and public open space at a number of locations across the site, indicating a potential risk to plants and soil organisms. The EIL adopted was calculated using the lowest reported CEC (from a gravelly sand sample). Based on the clay soil type noted for the exceeding samples, the EIL for nickel was revised using a conservative CEC typical

of clay soils. It is also noted that the reported CEC for a clay sample at the site was 8.7 meq/100g which is higher than the adopted CEC value of 5 meq/100g. All clay samples were below the revised EIL for clay material and as such nickel is not considered to pose a risk.

Samples collected from stockpiles of gravelly sand material located in the paddock at the rear of the property at 153 Ash Road were assessed against the original adopted EIL guideline for nickel of 10mg/kg with two samples reporting concentrations above the criteria. It is therefore suggested that, based on the elevated nickel concentrations reported for the two stockpile samples, further investigation into the contamination status of the stockpiled soil material be undertaken.

Following the identification of ACM in the paddock area at the rear of the property at 153 Ash Road, a systematic site inspection was completed to determine the extent of ACM contamination at the site, during which five pieces of ACM in the form of compressed cement sheeting were found. All five pieces of ACM were collected as samples and submitted for laboratory identification analysis and were confirmed as containing chrysotile asbestos. Each of the ACM pieces were noted as being in good condition with minimal degradation or crumbling (that is, the asbestos had not become friable) and were therefore unlikely to represent a significant human health risk.

ACM sheeting was also identified in several other soil stockpiles on 153 Ash road and asbestos is considered to be a contaminant of concern on this property.

Based on conversations with the landowner as detailed in Section 3.11, two samples of soil material were also collected from 87-101 Ash Road and analysed for the presence of ACM with no asbestos detected at the limit of reporting in either sample, thus confirming the ACM had been removed.

If ACM is encountered during the proposed site development works, it must be removed and appropriately managed in accordance with Victorian occupational health and safety legislative requirements.

8. Conclusions and recommendations

- A Phase 1 and 2 ESA was completed for the site to investigate and document potential contamination issues at the site. This was undertaken to satisfy a Planning Scheme Amendment and Planning Permit Application lodged with the City of Greater Geelong (Council), which required the completion of an environmental site assessment by a qualified environmental consultant.

- The site history investigation and site walkover identified a number of potential sources of contamination predominantly related to waste and soil stockpiles located in the northeast corner and southern portion of the site.

- The current occupant of the property at 87-101 Ash Road informed Coffey staff during the site walkover that soil material containing Asbestos Containing Material (ACM) had been placed on a section of his property as topsoil following the installation of underground water infrastructure. The occupant explained that the soil material was subsequently sifted to remove the ACM. Two samples of the soil material were collected from this property and analysed for the presence of ACM with no asbestos detected at the limit of reporting in either sample, thus confirming the ACM had been removed.

- Following the identification of ACM in the paddock area at the rear of the property at 153 Ash Road, a systematic site inspection was completed to determine the extent of ACM contamination at the site, during which five pieces of ACM in the form of compressed cement sheeting were found. All five pieces of ACM were collected as samples and submitted for laboratory identification analysis and were confirmed as containing chrysotile asbestos. Each of the ACM pieces were noted as being in good condition with minimal degradation or crumbling (that is, the asbestos had not become friable) and were therefore unlikely to represent a significant human health risk.

- Additional ACM cement sheeting fragments were identified in several stockpiles of soils across the site (153 Ash Road) suggesting that there was a high potential for Asbestos to be present in other soils at the site. Given the history of soil movements at this site, there is a potential for asbestos materials to have been transported to other areas of the site.

- If ACM is encountered during the proposed site development works, it must be removed and appropriately managed in accordance with Victorian occupational health and safety legislative requirements.

Requirement for Environmental Audit

Several of the properties assessed in Ash Road Leopold were considered to have a low potential to be contaminated, which was supported by the results of site history investigation and testing undertaken on these properties. Two of the properties contained areas of wastes and imported soil stockpiles that could compromise the beneficial uses of these properties (aesthetics) for the proposed use. In relation to past agricultural use of the area, Minister's Direction Number 1 pursuant to the Planning and Environment Act 1987 outlines the use history categories which are considered to trigger an environmental audit when a sensitive use is planned to commence, and does not list agricultural use as 'potentially contaminating'. In any case, testing did not identify pesticides associated with agricultural use exceeding tier 1 adopted criteria. A summary of the environmental audit recommendations is listed below.

Property	Recommendation for Audit	Comments
73-85 Ash Road	Not required	A large pile of building debris (predominantly steel and timber) was located in the far eastern area of this site. This material would impact the beneficial use of land of aesthetics under the

		proposed residential land use. However, this material had been placed on the surface of the site and did not appear to contain areas where material was buried, or any potential contaminated materials that would impact on human health or the environment. It is expected that removal of this waste would be similar to the removal of building demolition wastes that is to occur during redevelopment of the site (removal of the residential dwellings), and during residential building construction (removal of excess building material/offcuts), and is not considered to represent a 'potentially contaminating use' or to have resulted in contamination of the site beyond the aesthetic impact consistent with any pile of rubbish/debris.
87-101 Ash Road	Not required	This property has been used for agricultural and rural residential purposes and there is considered to be a low potential for contamination to be present.
103-127 Ash Road	Not Required	This property has been used for agricultural and rural residential purposes and there is considered to be a low potential for contamination to be present.
129-141 Ash Road	Not Required	There is considered to be a low potential for contamination to be present on this site, however the presence of a pile of waste materials potentially impacts the beneficial use of this site (aesthetics). However, the small pile of green waste and logs was placed on the surface of the site and did not appear to contain areas where waste was buried, or any potential contaminated materials that would impact on human health or the environment. It is expected that removal of this waste would be similar to the removal of other green wastes that is to occur during redevelopment of the site (or may occur on any existing residential site) and is not considered to pose a risk of contamination of the site.
143-155 Ash Road	An Environmental Audit is required to be completed should the site be redeveloped for a sensitive use	The presence of several stockpiles of soils intermixed with building wastes presents a potential aesthetic impact to the site under the proposed land use. The aesthetically impaired materials within these stockpiles require removal.

		The presence of asbestos containing materials within several soil stockpiles at the site requires further assessment and remediation prior to the site being redeveloped for a sensitive use. An Environmental Auditor should undertaken a review of the remediation and issue either a certificate or statement of environmental audit indicating that the remediation has been appropriate and that the site is suitable for the proposed residential redevelopment.

Recommendations It is recommended that the piles of largely solid inert waste and soil mixed with solid inert waste are removed for the site.

It is recommended that four of the sites (73-141 Ash Road) do not require an environmental audit (should they be redeveloped).

However, 153 Ash road should be remediated under an environmental audit prior to it being redeveloped for a sensitive use.

9. References

CCME (2013) *Canadian Soil Quality Guidelines for the protection of environmental health, residential/ parkland*. Canadian Council of Ministers of the Environment, Environment Canada.

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Standard Australia (2005) *Guide to the Sampling and Investigation of Potentially Contaminated Soil. Part 1: Non-volatile and semi-volatile compounds, AS 4482.1-2005,* Standard Australia.

State Environment Protection Policy *(Prevention and Management of Contamination of Land). S95*, 4th June 2002.

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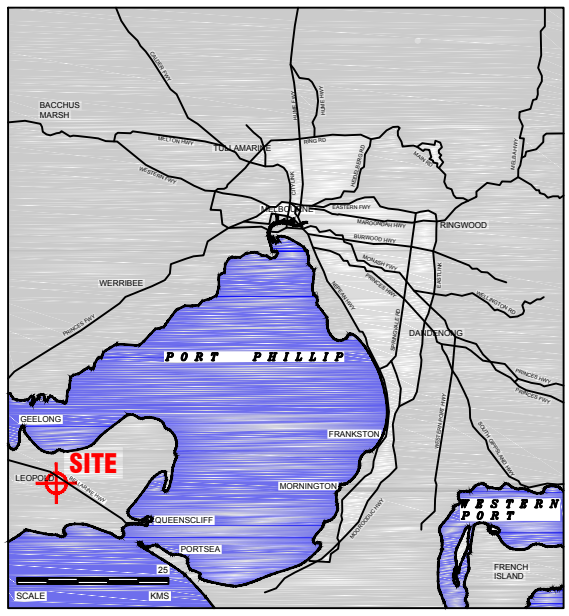
US EPA (2017) *Regional Screening Level for Residential Soil.* US Environmental Protection Agency.

US EPA (2017) *Regional Screening Level for Industrial Soils.* US Environmental Protection Agency.

US EPA (2017) *Toxicological Review of Benzo(a)pyrene, Executive Summary.* US Environmental Protection Agency.

Appendix A – Figures



GENERAL AREA MAP

REGIONAL AREA MAP

© openstreetmap.org, downloaded 10/04/2019

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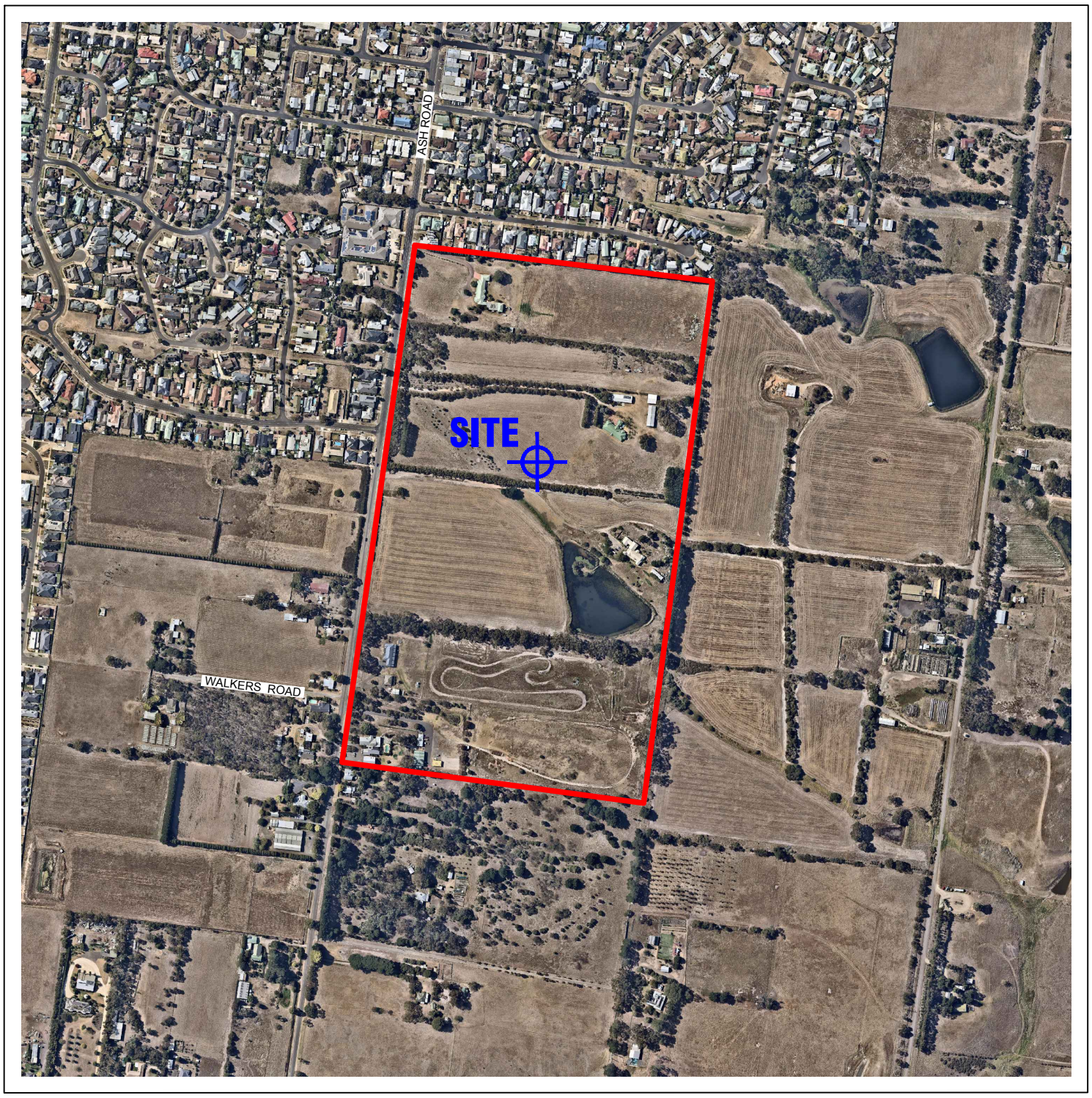
SCALE 1:50000 (A3) KILOMETRES



LOCAL AREA MAP

0 75 150 225 300 375
SCALE 1:7500 (A3) METRES

© nearmap.com (Image captured 25/02/2019)

DRAFT

revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE	CGT	BT	10/10/2019

drawn	CGT
approved	BT
date	10/10/2019
scale	AS SHOWN
original size	A3

coffey
A TETRA TECH COMPANY

client: TRACT CONSULTANTS PTY LTD

project: PHASE 1 AND 2 ENVIRONMENTAL ASSESSMENT
73 - 155 ASH ROAD,
LEOPOLD, VICTORIA

title: SITE LOCALITY PLAN

project no: 754-GEXEN227979-R01-D02 | figure no: FIGURE 1 | rev: A

PLOT DATE: 10/10/2019 1:54:10 PM DWG FILE: F:\ENVIGEELONG JOB FILES\754-GEXEN ELECTRONIC JOB FILES\754-GEXEN227979 - TRACT, 73-155 ASH RD, LEOPOLD, ESA\3.DRAFTING\754-GEXEN227979-R01-D02.DWG

AERIAL IMAGE SOURCE: © nearmap.com (image captured 25/02/2019)

0 25 50 75 100 125
SCALE 1:2500 (A3) METRES

LEGEND

- TP — TEST PIT LOCATIONS (APRIL 2019)
- SP — STOCKPILE SAMPLE LOCATIONS (APRIL 2019)
- A — ASBESTOS SAMPLE LOCATIONS (APRIL 2019)
- CADASTRE
- SITE BOUNDARY

revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE	CGT	BT	10/10/2019

drawn	CGT
approved	BT
date	10/10/2019
scale	AS SHOWN
original size	A3

coffey
A TETRA TECH COMPANY

client:	TRACT CONSULTANTS PTY LTD
project:	PHASE 1 AND 2 ENVIRONMENTAL ASSESSMENT 73 - 155 ASH ROAD, LEOPOLD, VICTORIA
title:	SAMPLING LOCATION PLAN
project no: 754-GEXEN227979-R01-D02	figure no: FIGURE 2 — rev: A

PLOT DATE: 10/10/2019 1:54:12 PM DWG FILE: F:\ENVIGEELONG JOB FILES\754-GEXEN ELECTRONIC JOB FILES\754-GEXEN227979 - TRACT, 73-155 ASH RD, LEOPOLD, ESA\3.DRAFTING\754-GEXEN227979-R01-D02.DWG

STOCKPILE
(CONSISTS OF BRICK,
CONCRETE, TYRES,
STEEL, PVC PIPE & ACM)

FIBROUS CEMENT SHEETING

3 X ACM FRAGMENTS

PINE TREE

ACM

A5

A4

ACM

A1 & A2

ACM

A3

LEGEND

- STOCKPILE LOCATION (SAMPLED SEPTEMBER 2019)
- STOCKPILE LOCATION (NOT SAMPLED)
- A- ASBESTOS SAMPLE LOCATIONS (SEPTEMBER 2019)
- A● ASBESTOS SAMPLE LOCATIONS (APRIL 2019)
- CADASTRE
- SITE BOUNDARY

NOTE: ACM = ASBESTOS-CONTAINING MATERIAL DETECTED

DRAFT

revision no.	description	drawn	approved	date
A	ORIGINAL ISSUE	CGT	BT	10/10/2019

AERIAL IMAGE SOURCE: © nearmap.com (image captured 30/08/2019)

0 7.5 15 22.5 30 37.5
SCALE 1:750 (A3) METRES

drawn	CGT
approved	BT
date	10/10/2019
scale	AS SHOWN
original size	A3

coffey
A TETRA TECH COMPANY

client: TRACT CONSULTANTS PTY LTD

project: PHASE 1 AND 2 ENVIRONMENTAL ASSESSMENT
73 - 155 ASH ROAD,
LEOPOLD, VICTORIA

title: STOCKPILE AND SAMPLING LOCATIONS PLAN
(PRE EXCAVATION WORKS 09/10/2019)

project no: 754-GEXEN227979-R01-D02 | figure no: FIGURE 3A | rev: A

PLOT DATE: 10/10/2019 1:54:14 PM DWG FILE: F:\ENVI\GEELONG JOB FILES\754-GEXEN ELECTRONIC JOB FILES\754-GEXEN227979 - TRACT - 73-155 ASH RD, LEOPOLD, ESA\3.DRAFTING\754-GEXEN227979-R01-D002.DWG

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revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE	CGT	BT	10/10/2019

AERIAL IMAGE SOURCE: © nearmap.com (image captured 30/08/2019)

0 7.5 15 22.5 30 37.5
SCALE 1:750 (A3) METRES

drawn	CGT
approved	BT
date	10/10/2019
scale	AS SHOWN
original size	A3

coffey
A TETRA TECH COMPANY

client: TRACT CONSULTANTS PTY LTD

project: PHASE 1 AND 2 ENVIRONMENTAL ASSESSMENT
73 - 155 ASH ROAD,
LEOPOLD, VICTORIA

title: STOCKPILE LOCATION PLAN AND SITE CONDITIONS
(POST EXCAVATION WORKS 09/10/2019)

project no: 754-GEXEN227979-R01-D02 | figure no: FIGURE 3B | rev: A

Appendix B – Tables

TABLE 1
Soil Analytical Results
73-155 Ash Rd, Leopold

	BTEXN							TPH												Metals																	
	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	C6-C10 less BTEX (F1)	F2-NAPHTHALENE	C6 - C10	C10-C16	C16-C34	C34-C40	C10 - C40 (Sum of total)	C6 - C9	C10 - C14	C15 - C28	C29 - C36	C10 - C36 (Sum of total)	Arsenic	Beryllium	Boron	Cadmium	Chromium (hexavalent)	Chromium	Cobalt	Copper	Iron	Iron (%)	Lead	Manganese	Mercury	Nickel	Selenium	Zinc		
	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	
LOR	0.1	0.1	0.1	0.2	0.1	0.3	0.5	20	50	20	50	100	100	100	20	20	50	50	50	2	2	10	0.4	1	5	5	5	20	0.01	5	5	0.1	5	2	5	
NEPM 2013 HILs Residential A Soil							1,400 [9]		3,300 [9]		3,330 [9]	4,500 [9]	6,300 [9]			3,330 [9]	4,500 [9]	6,300 [9]		100	60	4500	20	100	100 [4]	100	6000			300	3800	40	400	200	7400	
NEPM 2013 HILs Recreational C Soil							1,900 [9]		3,800 [9]		3,800 [9]	5,300 [9]	7,400 [9]			3,800 [9]	5,300 [9]	7,400 [9]		300	90	20000	90	300	300 [4]	300	17000			600	19000	80	1200	700	30000	
NEPM 2013 EILs Urban residential and open public spaces (Aged)							170 [8]				120 [8]	300 [8]	2,800 [8]			120 [8]	300 [8]	2,800 [8]		100		36 [1]	10 [2]		NE [5]	13 [1]	35 [6]			1100	220 [1]	12 [2]	10 [6]		95 [6]	
NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion,	0.5	160	55			40	3	45	110							110																				
AS2159-2009																																					
Field ID	**Location**	**Sample Date**																																			
BH1_0.1	BH1	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	110	<100	110	<20	<20	74	82	156	<2	-	-	<0.4	-	<5	-	<5	-	-	6.1	-	<0.1	<5	-	<5
TP1_0.2	TP1	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	12	-	-	<0.4	-	44	-	<5	-	-	26	-	0.1	5.7	-	<5
TP2_0.5	TP2	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	2.1	-	-	<0.4	-	<5	-	<5	-	-	<5	-	<0.1	<5	-	<5
TP2_1.0	TP2	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23,000	2.3	-	-	-	-	-	-
TP3_1.0	TP3	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	8.2	-	-	<0.4	-	40	-	<5	-	-	10	-	<0.1	13	-	7.2
TP4_0.2	TP4	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	<2	-	-	<0.4	-	<5	-	<5	-	-	<5	-	<0.1	<5	-	<5
TP5_0.2	TP5	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	<2	-	-	<0.4	-	<5	-	<5	-	-	<5	-	<0.1	<5	-	5.3
TP6_0.5	TP6	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	8.8	-	-	<0.4	-	56	-	<5	-	-	13	-	<0.1	22	-	10
TP7_0.2	TP7	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	<2	<2	<10	<0.4	<1	<5	<5	<5	-	-	<5	16	<0.1	<5	<2	7.4
TP8_0.2	TP8	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2600	0.26	-	-	-	-	-	-
TP8_0.5	TP8	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	16	-	-	<0.4	-	38	-	<5	-	-	13	-	<0.1	10	-	8.4
TP9_0.2	TP9	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	5.8	-	-	<0.4	-	12	-	<5	-	-	5.9	-	<0.1	<5	-	<5
TP10_0.2	TP10	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	7	-	-	<0.4	-	30	-	6.8	-	-	86	-	<0.1	5.1	-	33
TP11_0.5	TP11	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	10	-	-	<0.4	-	59	-	<5	-	-	15	-	<0.1	27	-	7
TP12_0.2	TP12	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	<2	-	-	<0.4	-	<5	-	<5	-	-	<5	-	<0.1	<5	-	<5
TP13_0.2	TP13	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	4	-	-	<0.4	-	6.4	-	<5	-	-	<5	-	<0.1	6	-	7
TP13_0.5	TP13	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	<2	-	-	<0.4	-	28	-	<5	-	-	8.8	-	<0.1	9.4	-	5.7
TP14_0.2	TP14	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	<2	-	-	<0.4	-	<5	-	<5	3100	0.31	5.4	-	<0.1	<5	-	<5
TP15_0.5	TP15	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	2.7	-	-	<0.4	-	<5	-	<5	-	-	<5	-	<0.1	<5	-	<5
SP1	Stockpile 1	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	2.9	<2	<10	<0.4	<1	10	<5	<5	-	-	12	71	<0.1	12	<2	25
SP2	Stockpile 2	04-04-19	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<0.5	<20	<50	<20	<50	<100	<100	<100	<20	<20	<50	<50	<50	3.1	-	-	<0.4	-	11	-	6.4	-	-	12	-	<0.1	21	-	31

1 = US EPA (2015) Region 4 Soil Screening Value for Hazardous Waste Sites, Ecological Risk Assessment Supplement Guidance

2 = CCME 2013 - Canadian Soil Quality Guidelines for the protection of environmental health, residential/ parkland

3 = CCME 2013 - Canadian Soil Quality Guidelines for the protection of environmental health, commercial / industrial

4 – NEPM 2013 - Health Investigation Level for Chromium (VI) adopted

5 = NEPM 2013 – Soil specific Ecological Investigation Level for Cr (III) adopted, based on clay content of xx %, aged contamination

6 = NEPM 2013 – Ecological Investigation Levels, (pH 5.1, clay 3.8%, CEC 5.7 $cmol_c/kg$, TOC 0.1%, low traffic area of Victoria), aged

7 = Upper range necessary for satisfactory plant growth (Charman and Murphy, 2010)

8 = NEPM 2013 – Ecological Screening Level

9 = Friebel and Nadebaum (2011) Health Screening Level, Direct soil contact

10 = US EPA (2017) Regional Screening Level for Residential Soil

11 = US EPA (2017) Regional Screening Level for Industrial Soils

12 = CRC CARE (2017) High reliability ecological guideline for fresh B(a)P

13 = NRMMC (2004) Maximum pathogen level for Grade P1 biosolids, Guidelines for Sewerage Systems Biosolids Management

TABLE 1
Soil Analytical Results
73-155 Ash Rd, Leopold

				Inorganics							PAH/ Phenols																											
				CEC	% Clay	Conductivity (1:5 aqueous extract)	Cyanide (Free)	Moisture Content (dried @ 103°C)	pH (aqueous extract)	pH (Lab)	Sulphate	TOC	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bound) *	Benzo(a)pyrene TEQ (medium bound) *	Benzo(a)pyrene TEQ (upper bound) *	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Benzo(b+j)fluoranthene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Total PAHs	Picloram	Mirex	Pirimiphos-methyl	2-methylphenol	3-&4-methylphenol	Pentachlorophenol	Phenol
				MEQ/100G	%	US/cm	mg/kg	%	pH_Units	pH_Units	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
LOR				0.05	1	10	5	1	0.1	0.1	30	0.1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.01	0.2	0.2	0.4	1	0.5
NEPM 2013 HILs Residential A Soil							250											3	3	3											300	4500					100	3000
NEPM 2013 HILs Recreational C Soil							240											3	3	3											300	5700					120	40000
NEPM 2013 EILs Urban residential and open public spaces (Aged)																	33 [12]															20					
NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion,																																					
AS2159-2009									5.5	5.5	5000																											
Field ID	**Location**	**Sample Date**																																				
BH1_0.1	BH1	04-04-19	-	-	-	-	3.3	4.9	-	32	-	<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	<0.5	-	-	<0.2	-	-	-	-
TP1_0.2	TP1	04-04-19	-	-	-	-	4.7	5.4	-	-	-	<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	<0.5	-	-	<0.2	-	-	-	-
TP2_0.5	TP2	04-04-19	-	-	-	-	1.5	6.4	-	<30	-	<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	<0.5	-	-	<0.2	-	-	-	-
TP2_1.0	TP2	04-04-19	8.7	15	77	-	6.6	-	6.4	-	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP3_1.0	TP3	04-04-19	-	-	-	-	15	7	-	-	-	<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	<0.5	-	-	<0.2	-	-	-	-
TP4_0.2	TP4	04-04-19	-	-	-	-	2	5.5	-	-	-	<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	<0.5	-	-	<0.2	-	-	-	-
TP5_0.2	TP5	04-04-19	-	-	-	-	1.4	5.8	-	-	-	<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	<0.5	-	-	<0.2	-	-	-	-
TP6_0.5	TP6	04-04-19	-	-	-	-	18	-	-	-	-	<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	<0.5	-	-	<0.2	-	-	-	-
TP7_0.2	TP7	04-04-19	-	-	-	<5	2.8	-	-	-	-	<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	<0.5	<0.5	<0.01	-	<0.2	<0.4	<1	<0.5
TP8_0.2	TP8	04-04-19	1.90	1.3	140	-	1.3	-	4.9	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP8_0.5	TP8	04-04-19	-	-	-	-	14	6	-	-	-	<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	<0.5	-	-	<0.2	-	-	-	-
TP9_0.2	TP9	04-04-19	-	-	-	-	5.1	5	-	51	-	<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	<0.5	-	-	<0.2	-	-	-	-
TP10_0.2	TP10	04-04-19	-	-	-	-	8.5	5.8	-	-	-	<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	<0.5	-	-	<0.2	-	-	-	-
TP11_0.5	TP11	04-04-19	-	-	-	-	19	6.2	-	-	-	<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	<0.5	-	-	<0.2	-	-	-	-
TP12_0.2	TP12	04-04-19	-	-	-	-	1.7	4.7	-	-	-	<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	<0.5	-	-	<0.2	-	-	-	-
TP13_0.2	TP13	04-04-19	-	-	-	-	3.2	6.7	-	-	-	<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	<0.5	-	-	<0.2	-	-	-	-
TP13_0.5	TP13	04-04-19	-	-	-	-	18	7.9	-	-	-	<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	<0.5	-	-	<0.2	-	-	-	-
TP14_0.2	TP14	04-04-19	1.5	2.5	41	-	1.9	-	4.6	<30	1	<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	<0.5	-	-	<0.2	-	-	-	-
TP15_0.5	TP15	04-04-19	-	-	-	-	1.3	6.7	-	-	-	<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	<0.5	-	-	<0.2	-	-	-	-
SP1	Stockpile 1	04-04-19	-	-	-	<5	3.8	-	-	-	-	<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	<0.5	<0.5	<0.01	-	<0.2	<0.4	<1	<0.5
SP2	Stockpile 2	04-04-19	-	-	-	-	4.7	7.6	-	-	-	<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	<0.5	-	-	<0.2	-	-	-	-

1 = US EPA (2015) Region 4 Soil Screening Value for Hazardous Waste Sites, Ecological Risk Assessment Supplement Guidance

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12 = CRC CARE (2017) High reliability ecological guideline for fresh B(a)P

13 = NRMMC (2004) Maximum pathogen level for Grade P1 biosolids, Guidelines for Sewerage Systems Biosolids Management

TABLE 1
Soil Analytical Results
73-155 Ash Rd, Leopold

			OCP																								
			4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Toxaphene	Vic EPA IWRG 621 OCP (Total)*	Vic EPA IWRG 621 Other OCP (Total)*
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR			0.05	0.05	0.05	0.05	0.05	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	1	0.1	0.1
NEPM 2013 HILs Residential A Soil						6		50				240	6				10				6		10	300	20		
NEPM 2013 HILs Recreational C Soil						10		70				400					20				10		10	400	30		
NEPM 2013 EILs Urban residential and open public spaces (Aged)											180																
NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion,				3																							
AS2159-2009																											
Field ID	**Location**	**Sample Date**																									
BH1_0.1	BH1	04-04-19	<0.05	<0.05	<0.05	0.12	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	0.12	<0.1
TP1_0.2	TP1	04-04-19	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<1	<0.1	<0.1
TP2_0.5	TP2	04-04-19	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<1	<0.1	<0.1
TP2_1.0	TP2	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP3_1.0	TP3	04-04-19	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<1	<0.1	<0.1
TP4_0.2	TP4	04-04-19	<0.05	<0.05	<0.05	0.34	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	0.34	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	0.34	<0.1
TP5_0.2	TP5	04-04-19	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<1	<0.1	<0.1
TP6_0.5	TP6	04-04-19	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<1	<0.1	<0.1
TP7_0.2	TP7	04-04-19	<0.05	-	<0.05	0.395	-	<0.1	-	<0.05	<0.05	<0.15	0.37	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	-	<0.05	<0.05	<1	-	-
TP8_0.2	TP8	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP8_0.5	TP8	04-04-19	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<1	<0.1	<0.1
TP9_0.2	TP9	04-04-19	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<1	<0.1	<0.1
TP10_0.2	TP10	04-04-19	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<1	<0.1	<0.1
TP11_0.5	TP11	04-04-19	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<1	<0.1	<0.1
TP12_0.2	TP12	04-04-19	<0.05	<0.05	<0.05	0.05	<0.05	<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	<1	<0.1	<0.1
TP13_0.2	TP13	04-04-19	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<1	<0.1	<0.1
TP13_0.5	TP13	04-04-19	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<1	<0.1	<0.1
TP14_0.2	TP14	04-04-19	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<1	<0.1	<0.1
TP15_0.5	TP15	04-04-19	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<1	<0.1	<0.1
SP1	Stockpile 1	04-04-19	<0.05	-	<0.05	<0.1	-	<0.1	-	<0.05	<0.05	<0.15	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	-	<0.05	<0.05	<1	-	-
SP2	Stockpile 2	04-04-19	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<1	<0.1	<0.1

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TABLE 1
Soil Analytical Results
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			OPP																														
			Azinophos methyl	Bolstar (Sulprofos)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	Malathion	Merphos	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Naled (Dibrom)	Omethoate	Parathion	Phorate	Pyrazophos	Ronnel	Terbufos	Trichloronate	Tetrachlorvinphos	Tokuthion
			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
LOR			0.2	0.2	0.2	0.2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
NEPM 2013 HILs Residential A Soil						160																												
NEPM 2013 HILs Recreational C Soil						250																												
NEPM 2013 EILs Urban residential and open public spaces (Aged)																																		
NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion,																																		
AS2159-2009																																		
Field ID	**Location**	**Sample Date**																																
BH1_0.1	BH1	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TP1_0.2	TP1	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TP2_0.5	TP2	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TP2_1.0	TP2	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP3_1.0	TP3	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TP4_0.2	TP4	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TP5_0.2	TP5	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TP6_0.5	TP6	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TP7_0.2	TP7	04-04-19	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP8_0.2	TP8	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP8_0.5	TP8	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TP9_0.2	TP9	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TP10_0.2	TP10	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TP11_0.5	TP11	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TP12_0.2	TP12	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TP13_0.2	TP13	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TP13_0.5	TP13	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TP14_0.2	TP14	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TP15_0.5	TP15	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
SP1	Stockpile 1	04-04-19	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP2	Stockpile 2	04-04-19	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

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12 = CRC CARE (2017) High reliability ecological guideline for fresh B(a)P

13 = NRMMC (2004) Maximum pathogen level for Grade P1 biosolids, Guidelines for Sewerage Systems Biosolids Management

TABLE 1
Soil Analytical Results
73-155 Ash Rd, Leopold

	Herbicides						Polychlorinated Biphenyls								SVOCs
	2,4,5-Trichlorophenoxy acetic acid	2,4-Dichlorophenoxy acetic acid	Atrazine	2-Methyl-4-chlorophenoxy acetic acid	2-Methyl-4-Chlorophenoxy butanoic acid	Mecoprop	Arochlor 1221	Arodor 1016	Arodor 1232	Arodor 1242	Arodor 1248	Arodor 1254	Arodor 1260	PCBs (Sum of total)	EPN
	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
LOR	0.5	0.5	0.2	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
NEPM 2013 HILs Residential A Soil	600	900	320	600	600	600								1	
NEPM 2013 HILs Recreational C Soil	800	1300	400	800	800	800								1	
NEPM 2013 EILs Urban residential and open public spaces (Aged)															
NEPM 2013 Residential Soil HSL A/B for Vapour Intrusion,															
AS2159-2009															
Field ID	**Location**	**Sample Date**														
BH1_0.1	BH1	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
TP1_0.2	TP1	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
TP2_0.5	TP2	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
TP2_1.0	TP2	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP3_1.0	TP3	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
TP4_0.2	TP4	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
TP5_0.2	TP5	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
TP6_0.5	TP6	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
TP7_0.2	TP7	04-04-19	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
TP8_0.2	TP8	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP8_0.5	TP8	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
TP9_0.2	TP9	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
TP10_0.2	TP10	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
TP11_0.5	TP11	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
TP12_0.2	TP12	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
TP13_0.2	TP13	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
TP13_0.5	TP13	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
TP14_0.2	TP14	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
TP15_0.5	TP15	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
SP1	Stockpile 1	04-04-19	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
SP2	Stockpile 2	04-04-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2

1 = US EPA (2015) Region 4 Soil Screening Value for Hazardous Waste Sites, Ecological Risk Assessment Supplement Guidance

2 = CCME 2013 - Canadian Soil Quality Guidelines for the protection of environmental health, residential/ parkland

3 = CCME 2013 - Canadian Soil Quality Guidelines for the protection of environmental health, commercial / industrial

4 – NEPM 2013 - Health Investigation Level for Chromium (VI) adopted

5 = NEPM 2013 – Soil specific Ecological Investigation Level for Cr (III) adopted, based on clay content of xx %, aged contamination

6 = NEPM 2013 – Ecological Investigation Levels, (pH 5.1, clay 3.8%, CEC 5.7 $cmol_c/kg$, TOC 0.1%, low traffic area of Victoria), aged

7 = Upper range necessary for satisfactory plant growth (Charman and Murphy, 2010)

8 = NEPM 2013 – Ecological Screening Level

9 = Friebel and Nadebaum (2011) Health Screening Level, Direct soil contact

10 = US EPA (2017) Regional Screening Level for Residential Soil

11 = US EPA (2017) Regional Screening Level for Industrial Soils

12 = CRC CARE (2017) High reliability ecological guideline for fresh B(a)P

13 = NRMMC (2004) Maximum pathogen level for Grade P1 biosolids, Guidelines for Sewerage Systems Biosolids Management

TABLE 2
RPD Results
73-155 Ash Rd, Leopold

Lab Report Number	649548	649548		EM1905152		
Field ID	TP1_0.2	D1	**RPD**	T1		**RPD**
Sampled Date/Time	04-04-19	04-04-19		04-04-19		

Chem_Grc	ChemNam	Units	EQL					
BTEX	Benzene	mg/kg	0.1 (Primary): 0.2 (Interlab)	<0.1	<0.1	0	<0.2	0
	Ethylbenze	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.5	0
	Toluene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.5	0
	Xylene (m	mg/kg	0.2 (Primary): 0.5 (Interlab)	<0.2	<0.2	0	<0.5	0
	Xylene (o)	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.5	0
	Xylene Tot	mg/kg	0.3 (Primary): 0.5 (Interlab)	<0.3	<0.3	0	<0.5	0
	C6-C10 les	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<10.0	0
Metals	Arsenic	mg/kg	2 (Primary): 5 (Interlab)	**12**	**6.3**	**62**	**6**	**67**
	Cadmium	mg/kg	0.4 (Primary): 1 (Interlab)	<0.4	<0.4	0	<1.0	0
	Chromium	mg/kg	5 (Primary): 2 (Interlab)	**44**	**28**	**44**	**20**	**75**
	Copper	mg/kg	5	<5.0	<5.0	0	<5.0	0
	Lead	mg/kg	5	**26**	**13**	**67**	17	**42**
	Mercury	mg/kg	0.1	0.1	0.1	0	**0.2**	**67**
	Nickel	mg/kg	5 (Primary): 2 (Interlab)	**5.7**	**8.4**	**38**	5	13
	Zinc	mg/kg	5	<5.0	<5.0	0	<5.0	0
OCP	4,4-DDE	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	a-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	Aldrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	Aldrin + Die	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	b-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	Chlordane	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.05	0
	d-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	DDD	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	DDT	mg/kg	0.05 (Primary): 0.2 (Interlab)	<0.05	<0.05	0	<0.2	0
	DDT+DDE	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	Dieldrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	Endosulfar	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	Endosulfar	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	Endosulfar	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	Endrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	Endrin alde	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	Endrin keto	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	g-BHC (Lin	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	Heptachlor	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	Heptachlor	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	Hexachlorc	mg/kg	0.05	<0.05	<0.05	0	<0.05	0
	Methoxych	mg/kg	0.05 (Primary): 0.2 (Interlab)	<0.05	<0.05	0	<0.2	0
	Toxaphene	mg/kg	1	<1.0	<1.0	0		
	Vic EPA IW	mg/kg	0.1	<0.1	<0.1	0		
	Vic EPA IW	mg/kg	0.1	<0.1	<0.1	0		
OPP	Azinophos	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.05	0
	Bolstar (Su	mg/kg	0.2	<0.2	<0.2	0		
	Chlorfenvir	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.05	0
	Chlorpyrifo	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.05	0
	Chlorpyrifo	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.05	0
	Coumapho	mg/kg	2	<2.0	<2.0	0		
	Demeton-C	mg/kg	0.2	<0.2	<0.2	0		
	Demeton-S	mg/kg	0.2	<0.2	<0.2	0		
	Diazinon	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.05	0
	Dichlorvos	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.05	0
	Dimethoate	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.05	0
	Disulfoton	mg/kg	0.2	<0.2	<0.2	0		
	Ethion	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.05	0
	Ethoprop	mg/kg	0.2	<0.2	<0.2	0		
	Fenitrothio	mg/kg	0.2	<0.2	<0.2	0		
	Fensulfoth	mg/kg	0.2	<0.2	<0.2	0		
	Fenthion	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.05	0
	Malathion	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.05	0
	Merphos	mg/kg	0.2	<0.2	<0.2	0		
	Methyl para	mg/kg	0.2	<0.2	<0.2	0	<0.2	0
	Mevinphos	mg/kg	0.2	<0.2	<0.2	0		
	Monocroto	mg/kg	2 (Primary): 0.2 (Interlab)	<2.0	<2.0	0	<0.2	0
	Naled (Dib	mg/kg	0.2	<0.2	<0.2	0		
	Omethoate	mg/kg	2	<2.0	<2.0	0		
	Parathion	mg/kg	0.2	<0.2	<0.2	0	<0.2	0
	Phorate	mg/kg	0.2	<0.2	<0.2	0		
	Pyrazopho	mg/kg	0.2	<0.2	<0.2	0		
	Ronnel	mg/kg	0.2	<0.2	<0.2	0		
	Terbufos	mg/kg	0.2	<0.2	<0.2	0		
	Trichlorona	mg/kg	0.2	<0.2	<0.2	0		
	Tetrachlorv	mg/kg	0.2	<0.2	<0.2	0		
	Tokuthion	mg/kg	0.2	<0.2	<0.2	0		
PAH	Acenaphth	mg/kg	0.5	<0.5	<0.5	0	<0.5	0
	Acenaphth	mg/kg	0.5	<0.5	<0.5	0	<0.5	0
	Anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	0
	Benzo(a)ar	mg/kg	0.5	<0.5	<0.5	0	<0.5	0
	Benzo(a)py	mg/kg	0.5	<0.5	<0.5	0	<0.5	0
	Benzo(a)py	mg/kg	0.5	<0.5	<0.5	0	<0.5	0
	Benzo(a)py	mg/kg	0.5	0.6	0.6	0	0.6	0
	Benzo(a)py	mg/kg	0.5	1.2	1.2	0	1.2	0
	Benzo(g,h,	mg/kg	0.5	<0.5	<0.5	0	<0.5	0
	Benzo(k)flu	mg/kg	0.5	<0.5	<0.5	0	<0.5	0
	Chrysene	mg/kg	0.5	<0.5	<0.5	0	<0.5	0
	Benzo[b+j]	mg/kg	0.5	<0.5	<0.5	0	<0.5	0

TABLE 2
RPD Results
73-155 Ash Rd, Leopold

	Dibenz(a,h	mg/kg	0.5	<0.5	<0.5	0	<0.5	0
	Fluoranthe	mg/kg	0.5	<0.5	<0.5	0	<0.5	0
	Fluorene	mg/kg	0.5	<0.5	<0.5	0	<0.5	0
	Indeno(1,2	mg/kg	0.5	<0.5	<0.5	0	<0.5	0
	Naphthaler	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	0
	Naphthaler	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	0
	Phenanthre	mg/kg	0.5	<0.5	<0.5	0	<0.5	0
	Pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	0
	Total PAHs	mg/kg	0.5	<0.5	<0.5	0	<0.5	0
Pesticides	Pirimiphos-	mg/kg	0.2	<0.2	<0.2	0		
SVOCs	EPN	mg/kg	0.2	<0.2	<0.2	0		
TPH	F2-NAPHT	mg/kg	50	<50.0	<50.0	0	<50.0	0
	C6 - C9	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<10.0	0
	C10 - C14	mg/kg	20 (Primary): 50 (Interlab)	<20.0	<20.0	0	<50.0	0
	C15 - C28	mg/kg	50 (Primary): 100 (Interlab)	<50.0	<50.0	0	<100.0	0
	C29 - C36	mg/kg	50 (Primary): 100 (Interlab)	<50.0	<50.0	0	<100.0	0
	C10 - C36	mg/kg	50	<50.0	<50.0	0	<50.0	0
	C10 - C40	mg/kg	100 (Primary): 50 (Interlab)	<100.0	<100.0	0	<50.0	0
	C10-C16	mg/kg	50	<50.0	<50.0	0	<50.0	0
	C16-C34	mg/kg	100	<100.0	<100.0	0	<100.0	0
	C34-C40	mg/kg	100	<100.0	<100.0	0	<100.0	0
	C6 - C10	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<10.0	0

*RPDs have only been considered where a concentration is greater than 0 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: 50 (0-10 x EQL); 50 (10-20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

TABLE 3
Field Blank Analytical Results
73-155 Ash Rd, Leopold

Lab Report Number	649548	649548
Field ID	RB1	TB1
Sampled_Date/Time	04-04-19	04-04-19
Sample Type	Rinsate	Trip_B

Chem Group	ChemName	Units	EQL		
BTEX	Benzene	µg/l	1	<1	-
	Ethylbenzene	µg/l	1	<1	-
	Toluene	µg/l	1	<1	-
	Xylene (m & p)	µg/l	2	<2	-
	Xylene (o)	µg/l	1	<1	-
	Xylene Total	µg/l	3	<3	-
	C6-C10 less BTEX (F1)	mg/l	0.02	<0.02	-
Metals	Arsenic (Filtered)	mg/l	0.001	<0.001	-
	Cadmium (Filtered)	mg/l	0.0002	<0.0002	-
	Chromium (Filtered)	mg/l	0.001	<0.001	-
	Copper (Filtered)	mg/l	0.001	<0.001	-
	Lead (Filtered)	mg/l	0.001	<0.001	-
	Nickel (Filtered)	mg/l	0.001	<0.001	-
	Zinc (Filtered)	mg/l	0.005	<0.005	-
PAH	Naphthalene	µg/l	10	<10	-
TPH	F2-NAPHTHALENE	mg/l	0.05	<0.05	-
	C6 - C9	µg/l	20	<20	<20
	C10 - C14	µg/l	50	<50	-
	C15 - C28	µg/l	100	<100	-
	C29 - C36	µg/l	100	<100	-
	C10 - C36 (Sum of total)	µg/l	100	<100	-
	C10 - C40 (Sum of total)	µg/l	100	<100	-
	C10-C16	mg/l	0.05	<0.05	-
	C16-C34	mg/l	0.1	<0.1	-
	C34-C40	mg/l	0.1	<0.1	-
	C6 - C10	mg/l	0.02	<0.02	-

Appendix C – Lotsearch Report

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Address: 73-155 Ash Road, Leopold, VIC 3224

Date: 13 Mar 2019 17:40:31

Reference: LS005419 EP

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Location Confidences

Where Lotsearch has had to georeference features from supplied addresses, a location confidence has been assigned to the data record. This indicates a confidence to the positional accuracy of the feature. Where applicable, a confidence is given under the field heading “LocConf” or “Location Confidence”.

Location Confidence	Description
Premise Match	Georeferenced to the site location / premise or part of site
Area Match	Georeferenced with the confidence of the general/approximate area
Road Match	Georeferenced to the road or rail
Road Intersection	Georeferenced to the road intersection
Buffered Point	Feature is a buffered point
Network of Features	Georeferenced to a network of features

Dataset Listing

Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Topographic and Cadastre data	State Government Victoria - Department of Environment, Land, Water & Planning	07/01/2019	07/01/2019	Quarterly	-	-	-	-
Current EPA Priority Sites	Environment Protection Authority (Vic)	08/02/2019	31/12/2018	Monthly	1000	0	0	0
Former EPA Priority Sites & other Remedial Notices	Environment Protection Authority (Vic)	07/03/2019	25/01/2019	Monthly	1000	0	0	0
EPA PFAS Site Investigations	Environment Protection Authority (Vic)	11/03/2019	13/12/2018	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program	Department of Defence	15/02/2019	15/02/2019	Monthly	2000	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	11/03/2019	16/11/2018	Monthly	2000	0	0	0
EPA Environmental Audit Reports	Environment Protection Authority (Vic)	15/02/2019	15/02/2019	Monthly	1000	0	0	0
EPA Groundwater Zones with Restricted Uses	Environment Protection Authority (Vic)	15/02/2019	15/02/2019	Monthly	1000	0	0	0
Current EPA Licensed Activities	Environment Protection Authority (Vic)	15/02/2019	15/02/2019	Monthly	1000	0	0	0
Former EPA Licensed Activities	Environment Protection Authority (Vic)	15/02/2019	15/02/2019	Monthly	1000	0	0	0
EPA Works Approvals	Environment Protection Authority (Vic)	15/02/2019	15/02/2019	Monthly	1000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	05/02/2019	07/03/2017	Quarterly	1000	0	0	0
Statewide Waste and Resource Recovery Infrastructure Plan Facilities	State Government Victoria - Department of Sustainability	27/11/2014	31/12/2012	None planned	1000	0	0	0
EPA Prescribed Industrial Waste	Environment Protection Authority (Vic)	22/01/2019	22/01/2019	Quarterly	1000	0	0	0
EPA Victorian Landfill Register	Environment Protection Authority (Vic)	03/04/2019	03/04/2019	Quarterly	1000	0	0	0
Former Gasworks	Various historical sources collated by Lotsearch	15/08/2017	15/08/2017	Not required	1000	0	0	0
UBD Business Directory 1970 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1970 (Road & Area Matches)	Hardie Grant			Not required	150	-	5	6
UBD Business Directory 1960-62 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1960-62 (Road & Area Matches)	Hardie Grant			Not required	150	-	9	9
UBD Business Directory 1950 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1950 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
Sands & McDougall's Directory 1945 (Premise & Intersection Matches)	Sands & McDougall, State Library Victoria			Not required	150	0	0	0
Sands & McDougall's Directory 1945 (Road & Area Matches)	Sands & McDougall, State Library Victoria			Not required	150	-	0	0
Sands & McDougall's Directory 1925 (Premise & Intersection Matches)	Sands & McDougall, State Library Victoria			Not required	150	0	0	0
Sands & McDougall's Directory 1925 (Road & Area Matches)	Sands & McDougall, State Library Victoria			Not required	150	-	0	0
Sands & McDougall's Directory 1905 (Premise & Intersection Matches)	Sands & McDougall, State Library Victoria			Not required	150	0	0	0

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Sands & McDougall's Directory 1905 (Road & Area Matches)	Sands & McDougall, State Library Victoria			Not required	150	-	0	0
Business Directory Drycleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant; Sands & McDougall, State Library Victoria			Not required	500	0	0	0
Business Directory Drycleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant; Sands & McDougall, State Library Victoria			Not required	500	-	0	0
Features of Interest	State Government Victoria - Department of Environment, Land, Water & Planning	10/01/2019	31/12/2018	Quarterly	1000	0	3	46
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000	1	1	2
Groundwater Salinity	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	29/08/2012	Unknown	0	1	-	-
Depth to Watertable	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	29/08/2012	Unknown	0	2	-	-
Surface Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	0	1	-	-
Basement Elevation	State Government Victoria - Department of Environment, Land, Water & Planning	14/08/2015	23/09/2013	Unknown	0	1	-	-
Groundwater Boreholes WMIS	State Government Victoria - Department of Environment, Land, Water & Planning	01/02/2019	31/01/2019	Quarterly	2000	0	1	5
Groundwater Boreholes Earth Resources Database	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	27/07/2018	17/02/2010	As required	2000	0	1	8
Groundwater Boreholes Fed Uni	Federation University Australia	21/12/2017	07/01/2014	As required	2000	0	1	12
Historical Mining Activity - Shafts	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	18/10/2018	20/07/2018	As required	1000	0	0	0
Geological Units 1:50,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	1000	1	-	3
Geological Structures 1:50,000	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	1000	0	-	0
Dykes and Marker Beds 50k	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	1000	0	-	0
Shear zones 250k	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	13/01/2015	24/06/2014	Unknown	1000	0	-	0
Atlas of Australian Soils	CSIRO	19/05/2017	17/02/2011	As required	1000	1	1	3
Victorian Soil Type Mapping	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	24/08/2017	21/03/2016	Unknown	1000	1	1	3
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	1	1	2
Coastal Acid Sulfate Soils	State Government Victoria - Department of Economic Development, Jobs, Transport and Resources	28/03/2017	30/03/2011	None planned	1000	0	0	3
Planning Scheme Zones	State Government Victoria - Department of Environment, Land, Water & Planning	05/03/2019	31/12/2018	Monthly	1000	1	7	38
Planning Scheme Overlay	State Government Victoria - Department of Environment, Land, Water & Planning	11/03/2019	06/03/2019	Monthly	1000	0	3	10
Commonwealth Heritage List	Australian Government Department of the Environment and Energy - Heritage Branch	16/01/2019	31/07/2018	Unknown	1000	0	0	0
National Heritage List	Australian Government Department of the Environment and Energy - Heritage Branch	16/01/2019	28/09/2018	Unknown	1000	0	0	0
Victorian Heritage Register	State Government Victoria - Department of Environment, Land, Water & Planning	10/01/2019	31/12/2018	Quarterly	1000	0	0	0
Cultural Heritage Sensitivity	State Government Victoria - Department of Planning and Community Development	10/01/2019	31/12/2018	Quarterly	1000	0	1	11

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Bushfire Prone Area	State Government Victoria - Department of Transport, Planning and Local Infrastructure	10/01/2019	31/12/2018	Quarterly	1000	1	1	1
Fire History	State Government Victoria - Department of Environment, Land, Water & Planning	10/01/2019	31/12/2018	Quarterly	1000	0	0	0
Flood - 1 in 100 Year Modelled Flood Extent	State Government Victoria - Department of Environment, Land, Water & Planning	10/01/2019	31/12/2014	Quarterly	1000	0	0	1
Victorian Coastal Inundation Sea Level Rise	State Government Victoria - Department of Environment, Land, Water & Planning	10/04/2018	24/10/2017	Unknown	1000	0	0	8
Native Vegetation (Modelled 2005 Ecological Vegetation Classes)	State Government Victoria - Department of Environment, Land, Water & Planning	13/01/2015	31/12/2005	None planned	1000	1	1	2
Ramsar Wetland Areas in Victoria	State Government Victoria - Department of Environment, Land, Water & Planning	28/03/2017	24/06/2013	None planned	1000	0	0	1
Groundwater Dependent Ecosystems Atlas	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	2	2	4
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	3	3	6

Aerial Imagery 2019

73-155 Ash Road, Leopold, VIC 3224

Scale:
0 50 100 200
Meters

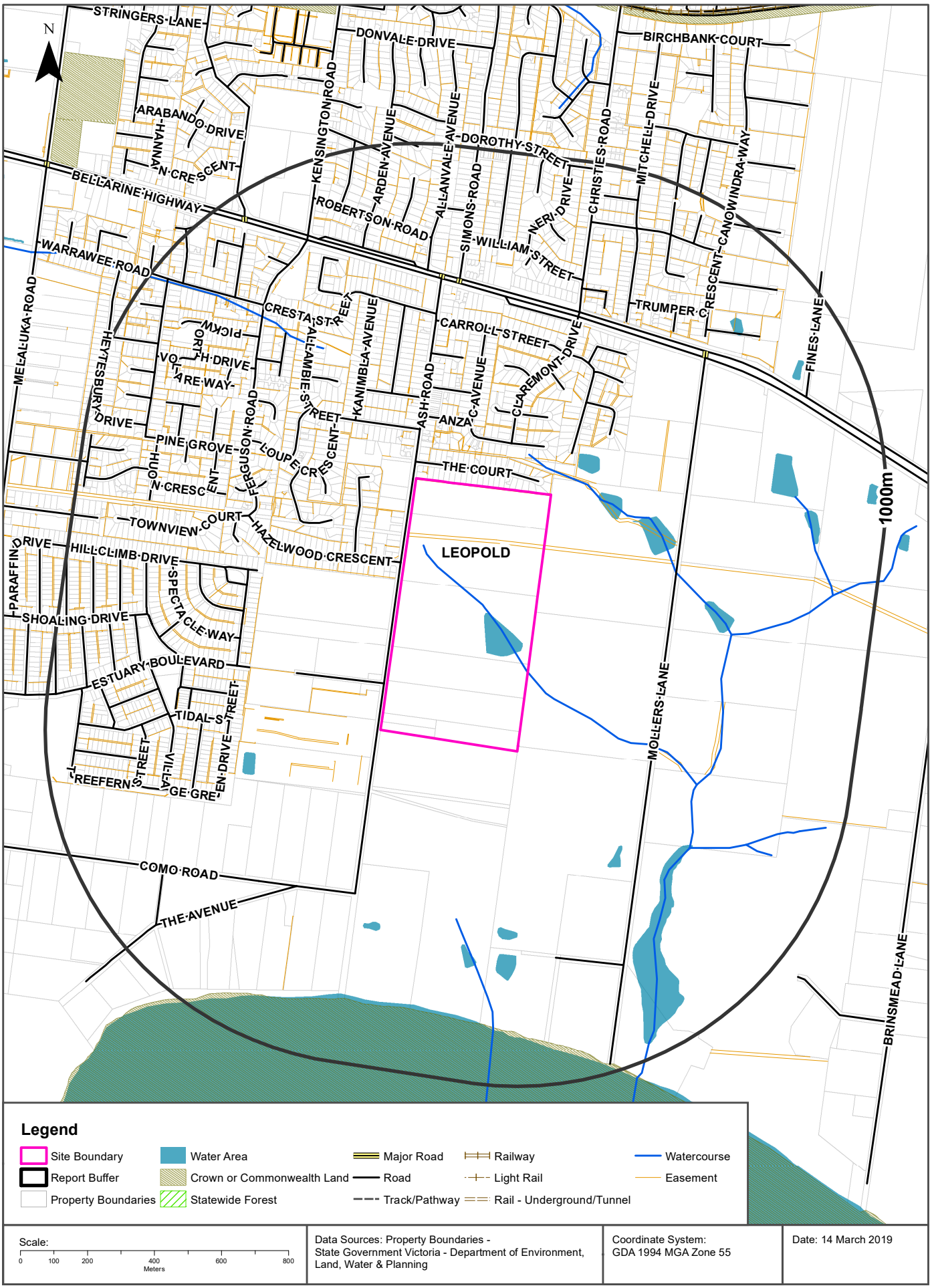
Data Source Aerial Imagery: © 2019 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

Coordinate System:
GDA 1994 MGA Zone 55

Date: 13 March 2019

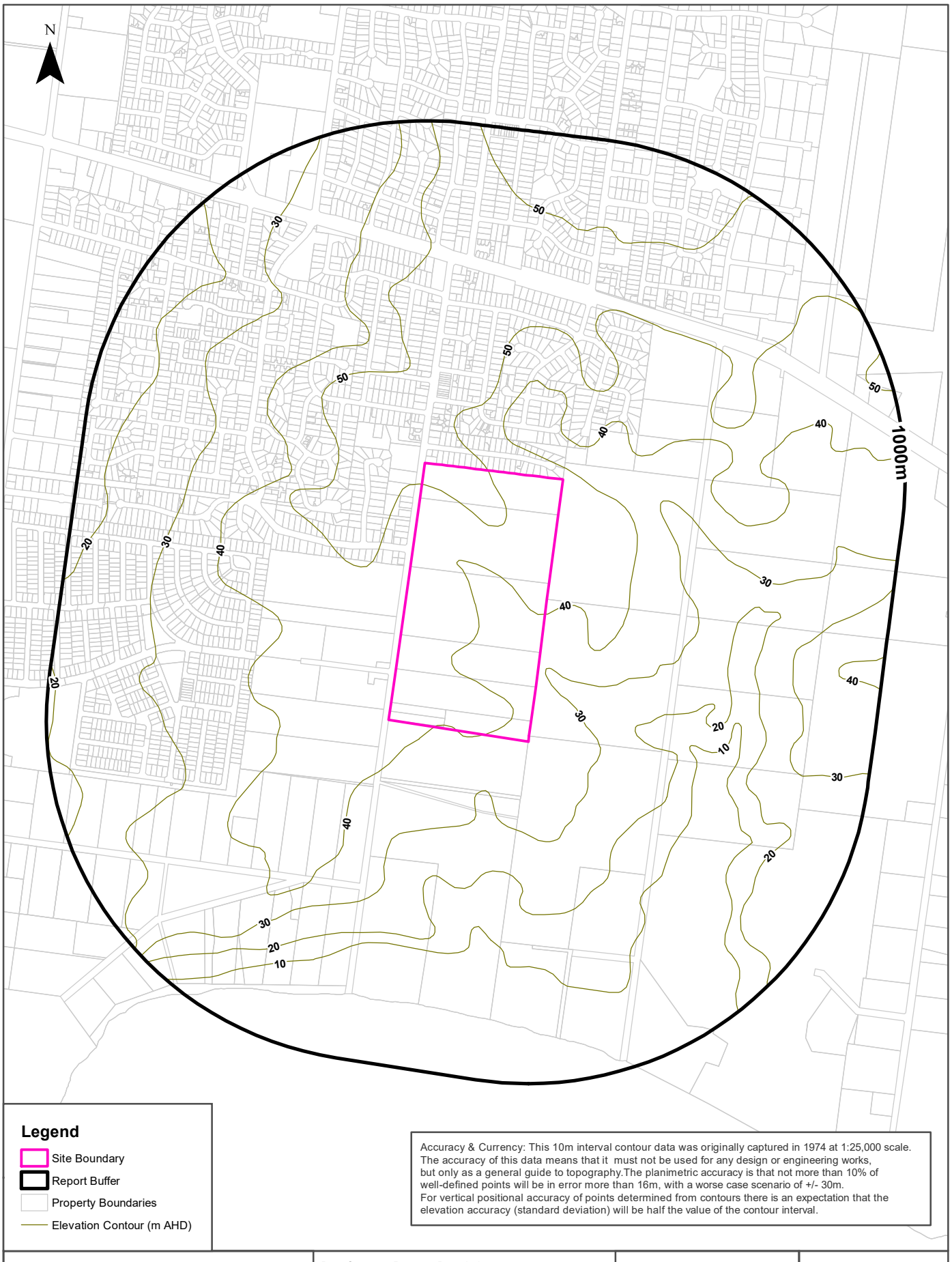
Topographic Data

73-155 Ash Road, Leopold, VIC 3224



Elevation Contours (m AHD) 10m Interval at 1:25,000

73-155 Ash Road, Leopold, VIC 3224



Legend

- Site Boundary
- Report Buffer
- Property Boundaries
- Elevation Contour (m AHD)

Accuracy & Currency: This 10m interval contour data was originally captured in 1974 at 1:25,000 scale. The accuracy of this data means that it must not be used for any design or engineering works, but only as a general guide to topography.The planimetric accuracy is that not more than 10% of well-defined points will be in error more than 16m, with a worse case scenario of +/- 30m. For vertical positional accuracy of points determined from contours there is an expectation that the elevation accuracy (standard deviation) will be half the value of the contour interval.

Scale:	Data Sources: Property Boundaries - State Government Victoria - Department of Environment, Land, Water & Planning	Coordinate System: GDA 1994 MGA Zone 55	Date: 13 March 2019

0 100 200 400 600 800
Meters

EPA Records

73-155 Ash Road, Leopold, VIC 3224

Current EPA Priority Sites Register

Sites on the current EPA priority sites register that exist within the dataset buffer:

Notice No	Address	Suburb	Issue	Loc Conf	Dist (m)	Direction
N/A	No records in buffer					

Priority Sites Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

Former EPA Priority Sites & Other Pollution Notices

Sites within the dataset buffer that have been issued a Pollution Notice:
Note. Due to pollution notices being revoked and removed from published lists this is not an exhaustive list of all past pollution notices.

Notice No	Notice Type	Company	Address	Suburb	Status	Issue	Date Issued	Loc Conf	Dist	Dir
N/A	No records in buffer									

Pollution Notice Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

PFAS Investigation Sites

73-155 Ash Road, Leopold, VIC 3224

EPA PFAS Site Investigations

Sites being investigated by the EPA for PFAS contamination within the dataset buffer:

Map ID	Site Name	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

EPA PFAS Site Investigations Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

Defence PFAS Investigation & Management Program

Sites being investigated or managed by the Department of Defence for PFAS contamination within the dataset buffer:

Defence Property ID	Base Name	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

Defence PFAS Investigation & Management Program Data Custodian: Department of Defence, Australian Government

Airservices Australia National PFAS Management Program

Sites being investigated or managed by Airservices Australia for PFAS contamination within the dataset buffer:

Map ID	Site Name	Impacts	Loc Conf	Dist	Dir
N/A	No records in buffer				

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

EPA Records

73-155 Ash Road, Leopold, VIC 3224

EPA Environmental Audits

EPA environmental audit records that exist within the dataset buffer:
Note. Please click on CARMS No. to activate a hyperlink to online documentation. If link does not work, documentation may still be accessible via the EPA Interaction Portal.

CARMS No	Transaction No	Site	Address	Suburb	Date Complete	Loc Conf	Distance	Direction
N/A	No records in buffer							

Environmental Audit Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

EPA Records

73-155 Ash Road, Leopold, VIC 3224

EPA Groundwater Zones with Restricted Uses

EPA GQRUZ records that exist within the dataset buffer:
Note. Please click on CARMS No. to activate a hyperlink to online documentation.

CARMS No	EPA Id	Site History	Site Address	Restricted Uses	Loc Conf	Distance	Direction
N/A	No records in buffer						

Environmental GQRUZ Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

EPA Records

73-155 Ash Road, Leopold, VIC 3224

EPA Licensed Activities

EPA licensed activities that exist within the dataset buffer:

Trans No	Licence No	Licence Type	Organisation	Premise Ref	Premise Address 1	Premise Address 2	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer									

Licensed Activity Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

Former EPA Licensed Activities

Former EPA licensed activities that exist within the dataset buffer:

Licence No	Organisation	Premise Address	Suburb	Activities	Loc Conf	Dist (m)	Direction
N/A	No records in buffer						

Former Licensed Activity Data Custodian: State Government Victoria - Environmental Protection Authority (EPA)

EPA Works Approvals

EPA works approvals that exist within the dataset buffer:

Transaction No	Status	Approval No	Organisation	Premise Address	Suburb	Scheduled Categories	Loc Conf	Dist (m)	Direction
N/A	No records in buffer								

Works Approvals Data Custodian: State Government Victoria - Environment Protection Authority (EPA)

Waste Management Facilities & Landfills

73-155 Ash Road, Leopold, VIC 3224

National Waste Management Site Database

Sites on the National Waste Management Site Database within the dataset buffer:

Site Id	Owner	Name	Address	Suburb	Class	Landfill	Reprocess	Transfer	Comments	Loc Conf	Dist (m)	Direction
N/A	No records in buffer											

Waste Management Facilities Data Source: Australian Government Geoscience Australia

Statewide Waste and Resource Recovery Infrastructure Plan Facilities

Statewide Waste and Resource Recovery Infrastructure Plan Facilities within the dataset buffer:

Map Id	Owner	Site Name	Address	Suburb	Category	Sub Category	Loc Conf	Distance	Direction
N/A	No records in buffer								

SWRRIPF Data Source: State Government Victoria - Department of Sustainability

EPA Prescribed Industrial Waste

EPA Prescribed Industrial Waste treaters, disposers and permitted transporters within the dataset buffer:

Map Id	Company Name	Address	Suburb	Treatment /Disposal	Transport	Accredited Agent	EPA List Status	Loc Conf	Dist' (m)	Direct
N/A	No records in buffer									

Prescribed Industrial Waste Data Source: State Government Victoria - Environment Protection Authority (EPA)

EPA Victorian Landfill Register

EPA Victorian Landfill Register sites within the dataset buffer:

Landfill Register No.	Site	Address	Operating Status	Est. Year Of Closure	Waste type	Loc Conf	Dist' (m)	Direction
No records in buffer								

EPA Victorian Landfill Register Data Source: State Government Victoria - Environment Protection Authority (EPA)

Former Gasworks

73-155 Ash Road, Leopold, VIC 3224

Former Gasworks

Former Gasworks identified from various historical sources within the dataset buffer:
Note - As this is a dataset collated from various historical sources, it is not an exhaustive list of all former Gasworks

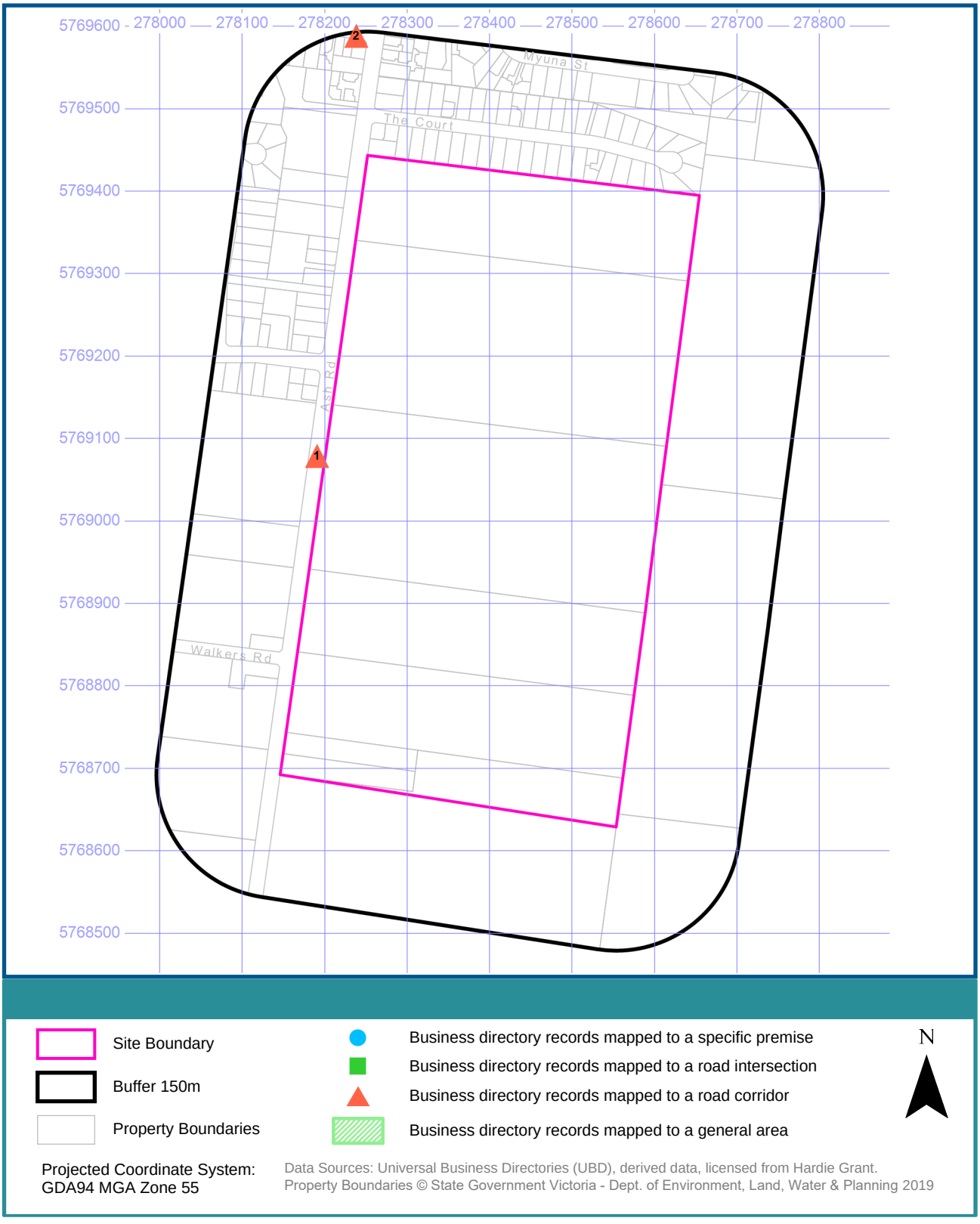
Map Id	Site Name	Date Opened	Year Closed	Location Confidence	Distance	Direction
N/A	No records in buffer					

Former Gasworks Data Source: Collated from various historical sources

Historical Business Directories

73-155 Ash Road, Leopold, VIC 3224

1970 Business Directory Records



Historical Business Directories

73-155 Ash Road, Leopold, VIC 3224

1970 Business Directory Records
Premise or Road Intersection Matches

Records from the 1970 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer					

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1970 Business Directory Records
Road or Area Matches

Records from the 1970 UBD Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

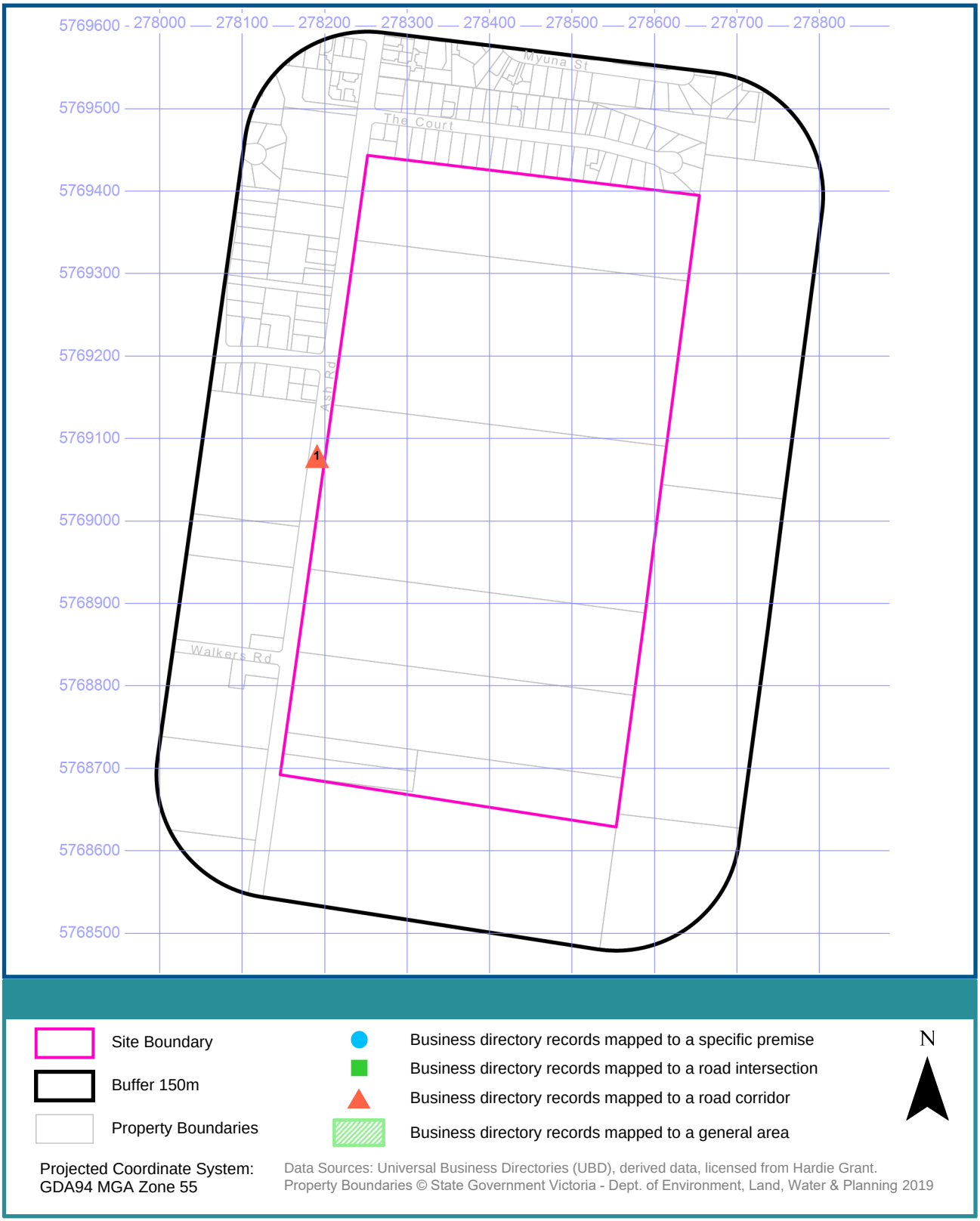
Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
1	BUTCHERS	Humphrey. W. J . F. M & W. P.,Ash Rd Leopold	5618	Road Match	0m
	GROCERS & GENERAL STOREKEEPERS	Timms. A & E,.,Ash Rd Leopold	5626	Road Match	0m
	TIMBER MERCHANTS & SAWMILLERS	Walker. F. J., Ash Rd Leopold	4492	Road Match	0m
	BUILDERS & BUILDING CONTRACTORS	Warren & McMahon.,Ash Rd Leopold	5616	Road Match	0m
	BUILDERS AND BUILDING CONTRACTORS	Warren & McMahon.,Ash Rd Leopold	591	Road Match	0m
2	BUILDERS & BUILDING CONTRACTORS	Ash. L. G .,Allambie St Leopold	5613	Road Match	136m

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

73-155 Ash Road, Leopold, VIC 3224

1960-62 Business Directory Records



Historical Business Directories

73-155 Ash Road, Leopold, VIC 3224

1960-62 Business Directory Records
Premise or Road Intersection Matches

Records from the 1960-62 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer					

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1960-62 Business Directory Records
Road or Area Matches

Records from the 1960-62 UBD Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
1	GROCERS & GENERAL STOREKEEPERS	Carroll, L. P., Ash Rd., Leopold.	156050	Road Match	0m
	BUTCHERS	Humphrey, W. J. & W. P., Ash Rd., Leopold.	156043	Road Match	0m
	BUILDERS' SUPPLIES.	Leopold Joinery, Timber & Hardware Suplies, Ash Rd., Leopold.	156041	Road Match	0m
	JOINERY MANUFACTURERS	Leopold Joinery, Timber & Hardware Suplies, Ash Rd., Leopold.	156053	Road Match	0m
	TIMBER MERCHANTS	Leopold Joinery, Timber & Hardware Suplies, Ash Rd., Leopold.	156060	Road Match	0m
	BUILDER SUPPLIERS	Leopold Joinery, Timber & Hardware Supplies Ash Rd. Leopold , Geelong.	138575	Road Match	0m
	TIMBER MERCHANTS & SAWMILLERS	Leopold Joinery, Timber & Hardware Supplies, Ash Rd., Leopold , Geelong.	141847	Road Match	0m
	BUILDERS & BUILDING CONTRACTORS	Warren & McMahon, Ash Rd. Leopold,.	138550	Road Match	0m
	BUILDERS & BUILDING CONTRACTORS	Warren & Mcmahon, Ash Rd., Leopold.	156040	Road Match	0m

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

73-155 Ash Road, Leopold, VIC 3224

1950 Business Directory Records
Premise or Road Intersection Matches

Records from the 1950 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer					

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1950 Business Directory Records
Road or Area Matches

Records from the 1950 UBD Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

73-155 Ash Road, Leopold, VIC 3224

1945 Business Directory Records
Premise or Road Intersection Matches

Records from the 1945 Sands & McDougall's Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer					

Business Directory Content derived from Sands & McDougall's Directory of Victoria and Canberra ACT
Digitised by State Library Victoria

1945 Business Directory Records
Road or Area Matches

Records from the 1945 Sands & McDougall's Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
	No records in buffer				

Business Directory Content derived from Sands & McDougall's Directory of Victoria and Canberra ACT
- Digitised by State Library Victoria

Historical Business Directories

73-155 Ash Road, Leopold, VIC 3224

1925 Business Directory Records
Premise or Road Intersection Matches

Records from the 1925 Sands & McDougall's Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer					

Business Directory Content derived from Sands & McDougall's Directory of Victoria - Digitised by State Library Victoria

1925 Business Directory Records
Road or Area Matches

Records from the 1925 Sands & McDougall's Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
	No records in buffer				

Business Directory Content derived from Sands & McDougall's Directory of Victoria - Digitised by State Library Victoria

Historical Business Directories

73-155 Ash Road, Leopold, VIC 3224

1905 Business Directory Records
Premise or Road Intersection Matches

Records from the 1905 Sands & McDougall's Directory, mapped to a premise or road intersection, within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer					

Business Directory Content derived from Sands & McDougall's Melbourne, Suburban, and Country Directory Digitised by State Library Victoria

1905 Business Directory Records
Road or Area Matches

Records from the 1905 Sands & McDougall's Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
	No records in buffer				

Business Directory Content derived from Sands & McDougall's Melbourne, Suburban, and Country Directory Digitised by State Library Victoria

Historical Business Directories

73-155 Ash Road, Leopold, VIC 3224

Dry Cleaners, Motor Garages & Service Stations Premise or Road Intersection Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories and Sands & McDougall's Directories, mapped to a premise or road intersection, within the dataset buffer.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	No records in buffer						

Business Directory Content Derived from Sands & McDougall's Directory of Victoria (Digitised by State Library Victoria) and Universal Business Directories (Licensed from Hardie Grant)

Dry Cleaners, Motor Garages & Service Stations Road or Area Matches

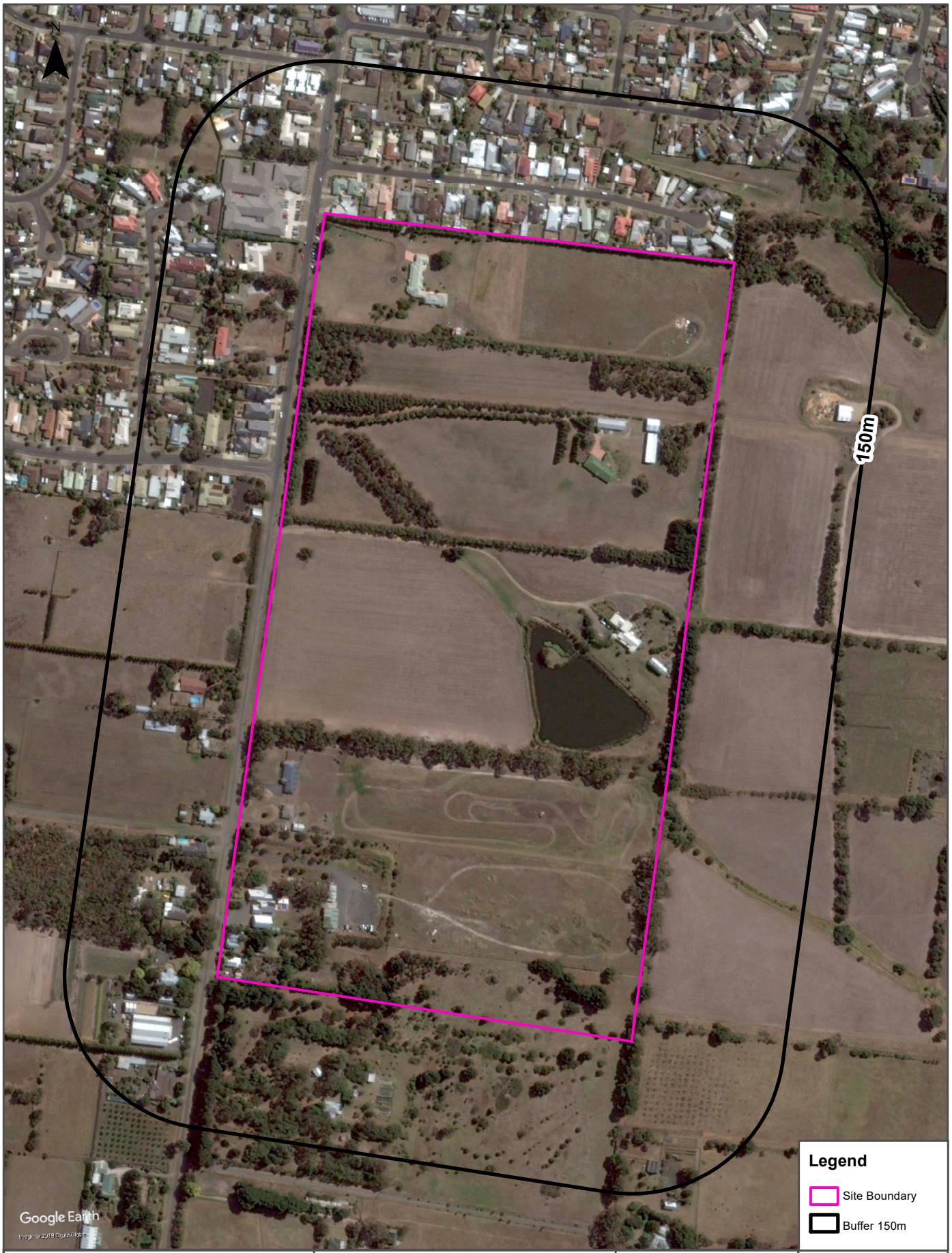
Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories and Sands & McDougall's Directories, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
	No records in buffer					

Business Directory Content Derived from Sands & McDougall's Directory of Victoria (Digitised by State Library Victoria) and Universal Business Directories (Licensed from Hardie Grant)

Aerial Imagery 2013

73-155 Ash Road, Leopold, VIC 3224



Scale:
0 50 100 200
Meters

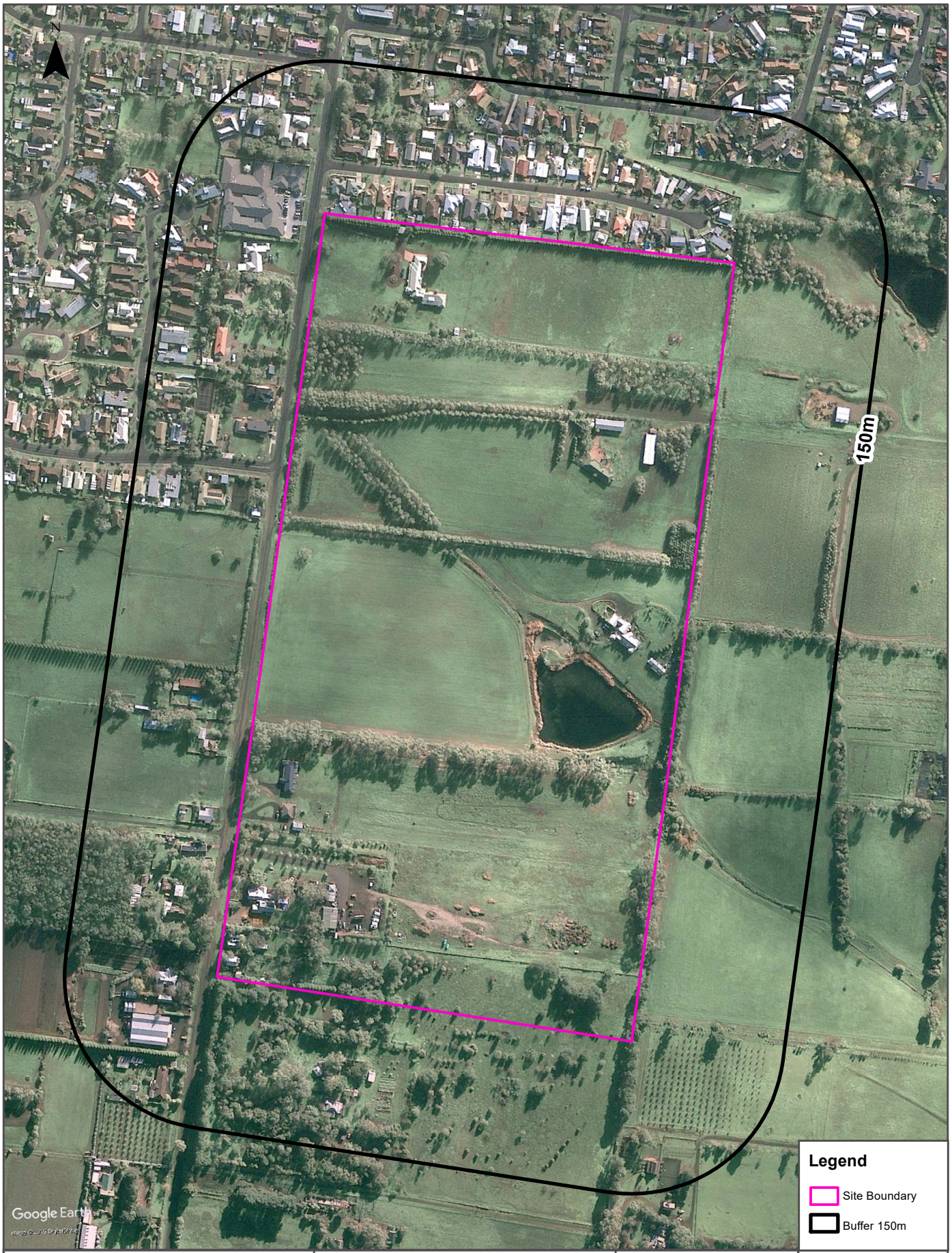
Data Source Aerial Imagery: © 2019 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

Coordinate System:
GDA 1994 MGA Zone 55

Date: 13 March 2019

Aerial Imagery 2009

73-155 Ash Road, Leopold, VIC 3224



Scale:
0 50 100 200
Meters

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Coordinate System:
GDA 1994 MGA Zone 55

Date: 13 March 2019

Aerial Imagery 1990

73-155 Ash Road, Leopold, VIC 3224

Aerial Imagery 1984

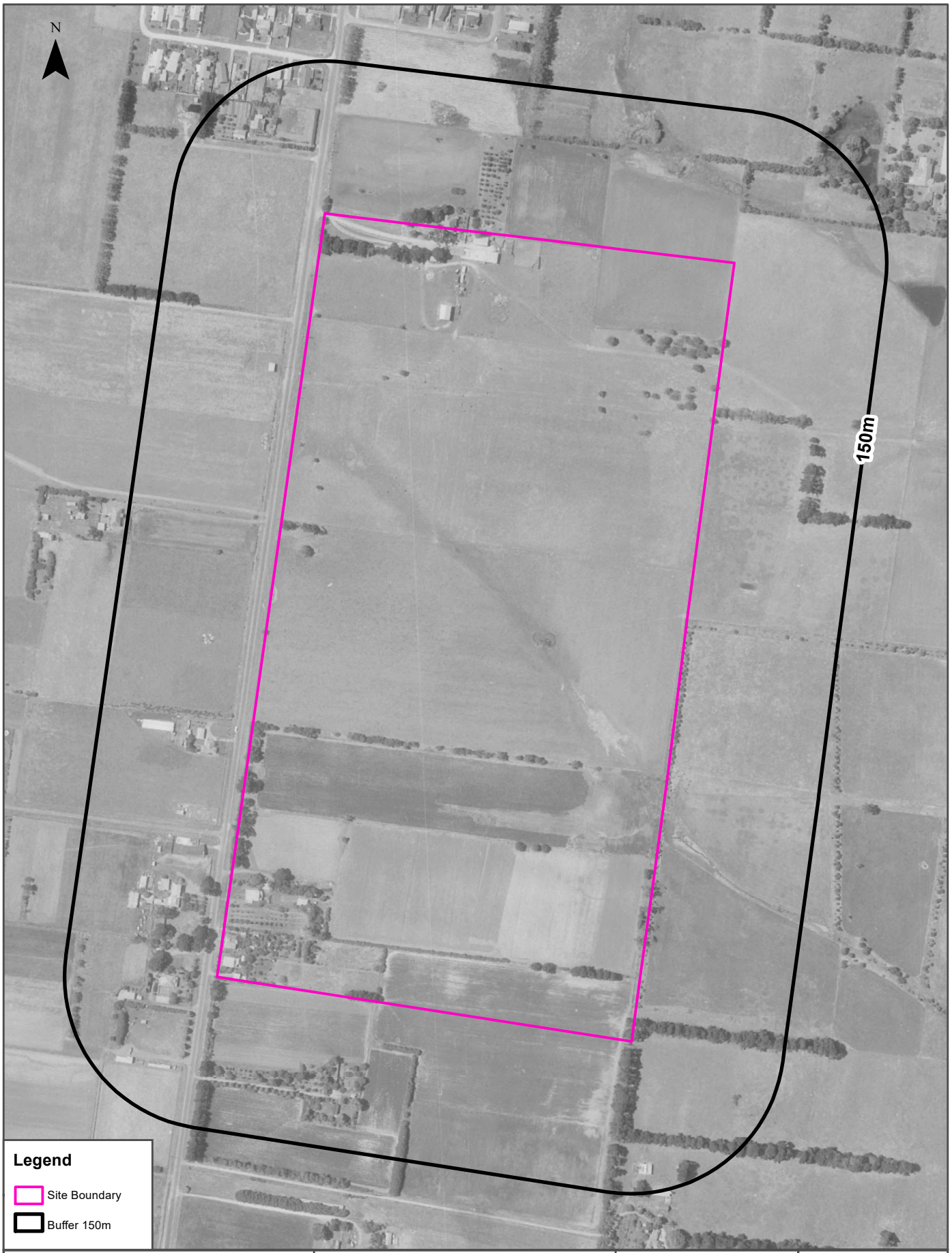
73-155 Ash Road, Leopold, VIC 3224

Aerial Imagery 1978

73-155 Ash Road, Leopold, VIC 3224

Aerial Imagery 1970

73-155 Ash Road, Leopold, VIC 3224



Aerial Imagery 1962

73-155 Ash Road, Leopold, VIC 3224

Aerial Imagery 1951

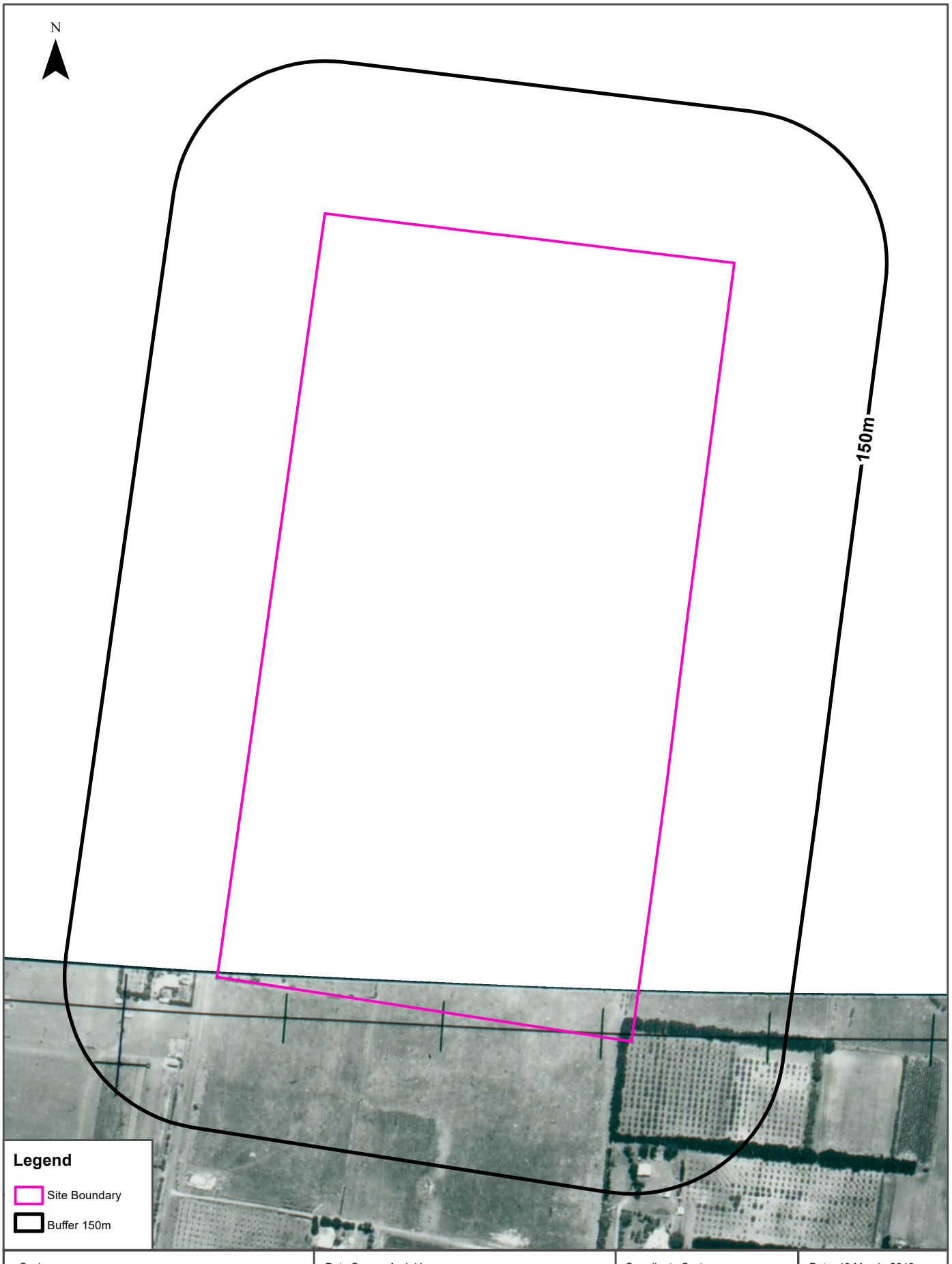
73-155 Ash Road, Leopold, VIC 3224

Aerial Imagery 1947

73-155 Ash Road, Leopold, VIC 3224

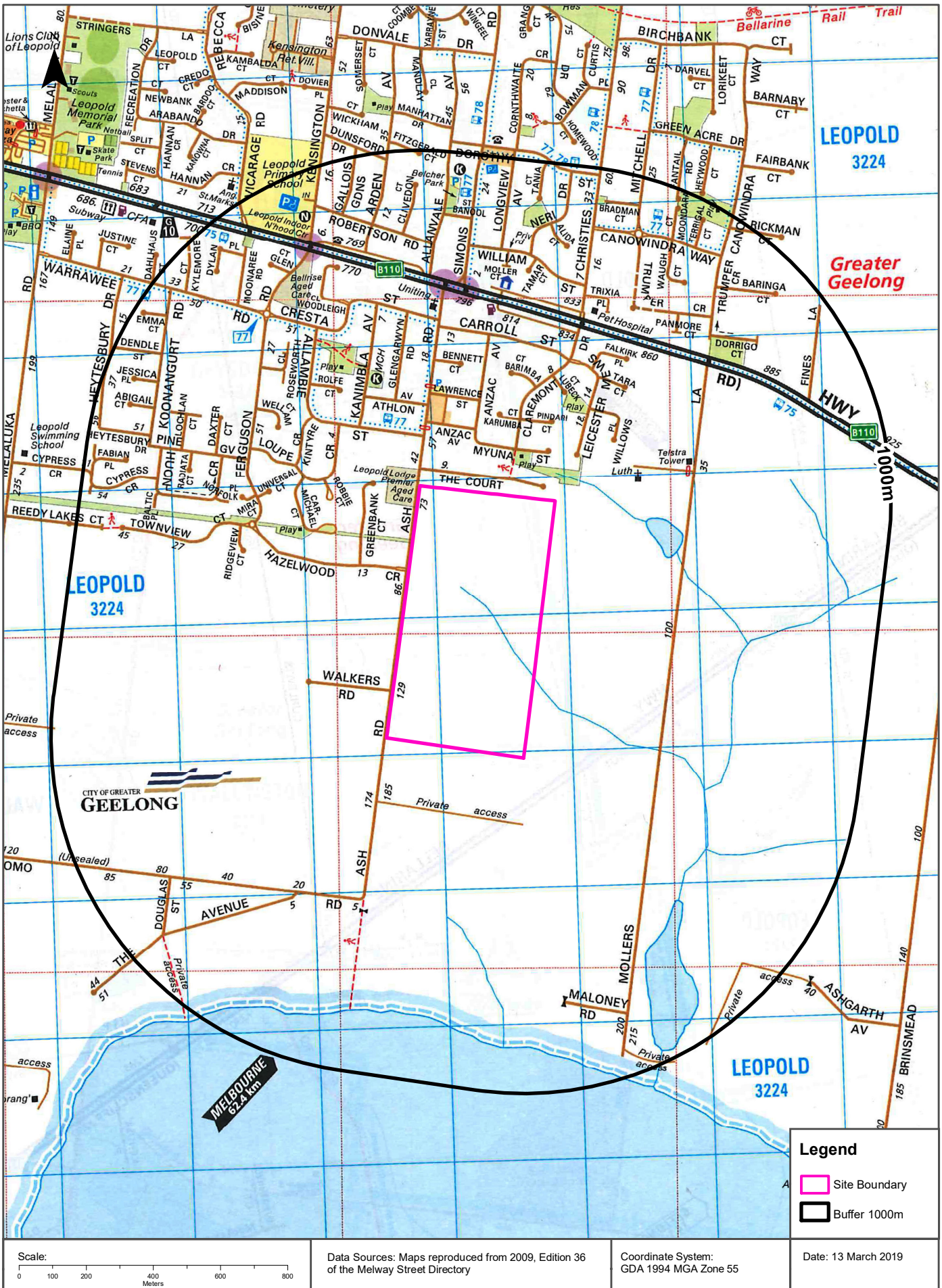
Aerial Imagery 1947

73-155 Ash Road, Leopold, VIC 3224



Historical Map 2009

73-155 Ash Road, Leopold, VIC 3224



Historical Map 1975

73-155 Ash Road, Leopold, VIC 3224

Historical Map c.1955

73-155 Ash Road, Leopold, VIC 3224

Scale: 0 200 400 800 1,200 Meters

Data Sources: Australia 1:63360
Prepared by Commonwealth Section Imperial General Staff

Coordinate System:
GDA 1994 MGA Zone 55

Date: 13 March 2019

Historical Map c.1928

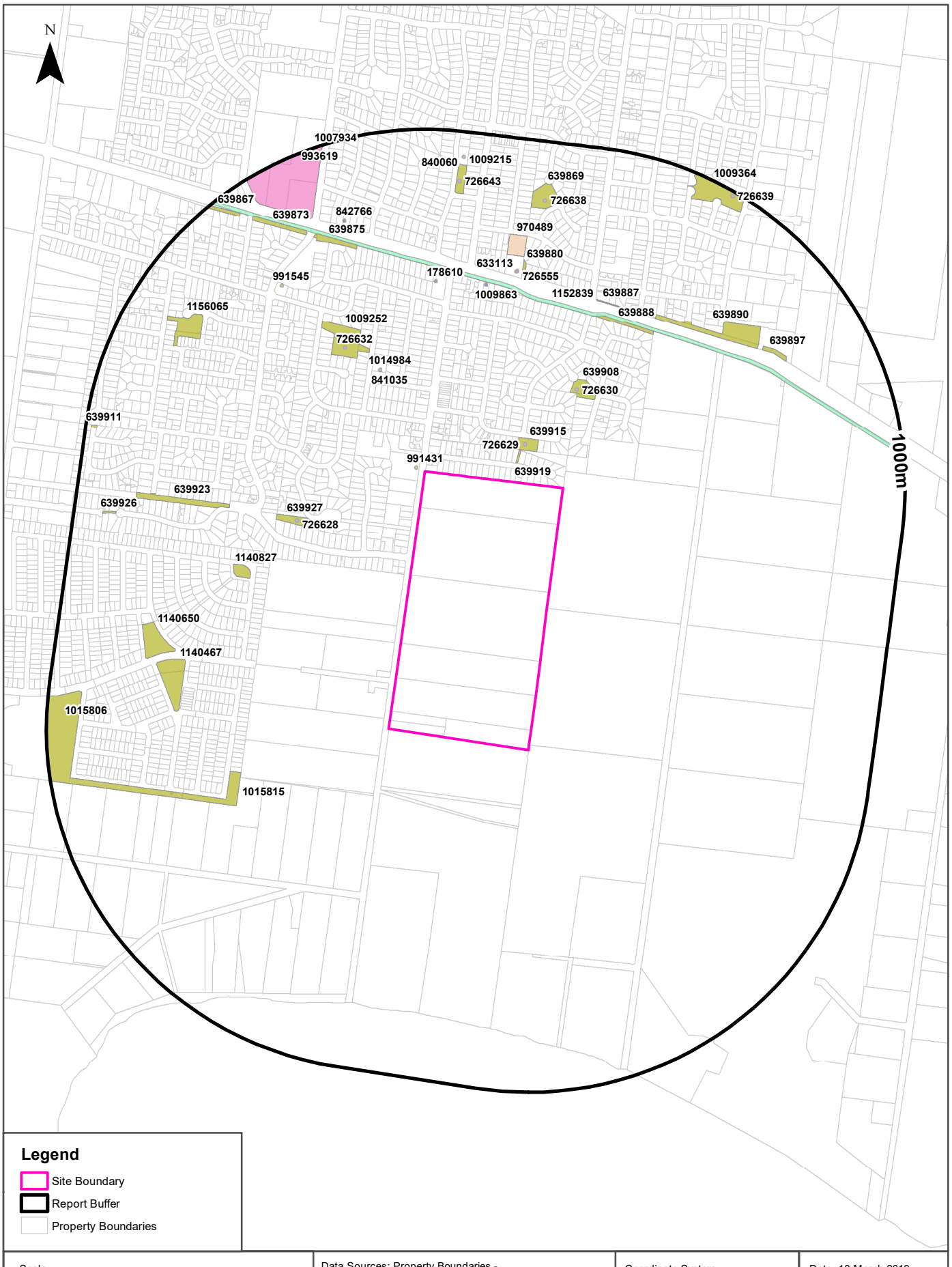
73-155 Ash Road, Leopold, VIC 3224

Historical Map c.1914

73-155 Ash Road, Leopold, VIC 3224

Features of Interest

73-155 Ash Road, Leopold, VIC 3224



Features of Interest

73-155 Ash Road, Leopold, VIC 3224

Features of Interest

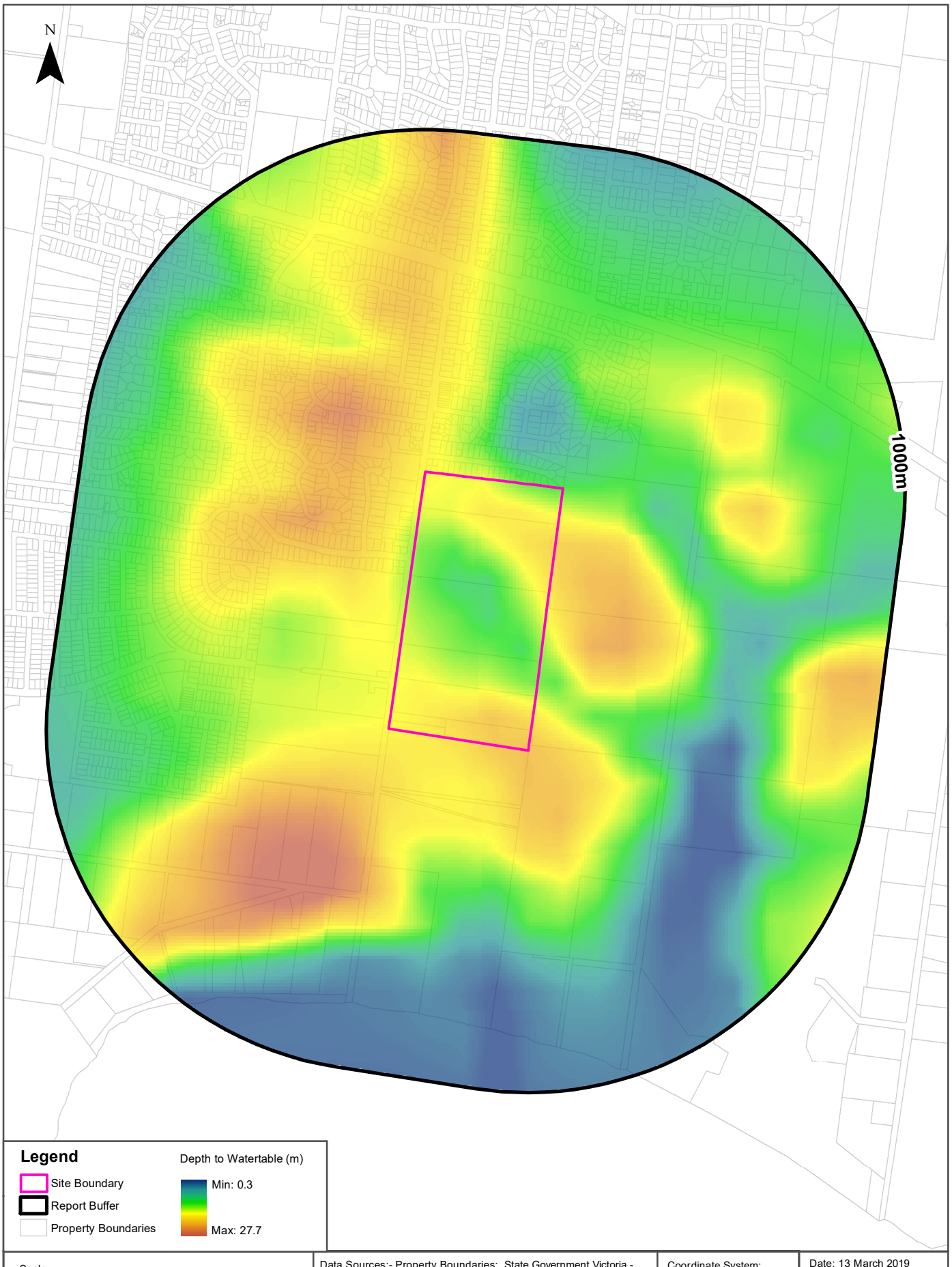
Features of Interest within the dataset buffer:

Feature Id	Feature Type	Feature Sub Type	Name	Distance	Direction
991431	care facility	aged care	Estia Health Leopold	24m	North West
639919	reserve	park		57m	North
639915	reserve	park	Myuna Reserve	97m	North
726629	recreational resource	playground		109m	North
639908	reserve	park	Lubeck Reserve	271m	North East
726630	recreational resource	playground		287m	North East
639927	reserve	park	Carmichael Reserve	308m	North West
841035	care facility	child care	Leopold Kindergarten	320m	North
1014984	health facility	maternal/child health centre	Leopold Maternal And Child Health Centre	321m	North
726628	recreational resource	playground		347m	North West
1009252	reserve	park	Kanimbla Reserve	384m	North West
726632	recreational resource	playground		426m	North West
1015815	reserve	park		451m	West
1140827	reserve	park		464m	West
639888	reserve	park		508m	North East
1152839	power line	power sub transmission		511m	North East
178610	place of worship	church		553m	North
639923	reserve	park		553m	West
639887	reserve	park		554m	North East
1009863	emergency facility	ambulance station	Leopold Ambulance Station	559m	North
639890	reserve	park		565m	North East
639880	reserve	park		605m	North
633113	community venue	hall	Leopold Hall	608m	North
726555	community venue	senior citizens	Leopold Senior Citizens Club	609m	North
1140467	reserve	park		616m	West
1140650	reserve	park		650m	West
970489	residential building	retirement village	Leopold Lions Village	658m	North
639875	reserve	park		681m	North
991545	care facility	aged care	Kensington Grange	682m	North West
639897	reserve	park		708m	North East
842766	communication service	telephone exchange	Leopold Telephone Exchange	764m	North

Feature Id	Feature Type	Feature Sub Type	Name	Distance	Direction
1156065	reserve	park		764m	North West
639873	reserve	park		774m	North West
639869	reserve	park	Jaycees Park	805m	North
1007934	education centre	education complex		811m	North West
1009215	reserve	park	Belcher Park	819m	North
726638	recreational resource	playground		824m	North
726643	recreational resource	playground		850m	North
639926	reserve	park		877m	West
840060	care facility	child care	Allanvale Preschool	921m	North
639867	reserve	park		922m	North West
1009364	reserve	park	Canowindra Reserve	926m	North East
1015806	sport facility	sports ground		927m	West
639911	reserve	park		968m	North West
726639	recreational resource	playground		982m	North East
993619	care facility	child care	Leopold Primary Outside School Hours Care Program	995m	North

Depth to Watertable

73-155 Ash Road, Leopold, VIC 3224



Data Sources:- Property Boundaries: State Government Victoria - Department of Environment, Land, Water & Planning; Depth to Watertable: The State of Victoria, Department of Environment, Land, Water & Planning. Resampled (bilinear) to 10m.

Coordinate System: GDA 1994 MGA Zone 55

Date: 13 March 2019

Hydrogeology & Groundwater

73-155 Ash Road, Leopold, VIC 3224

Hydrogeology

Description of aquifers within the dataset buffer:

Description	Distance	Direction
Porous, extensive aquifers of low to moderate productivity	0m	Onsite
Fractured or fissured, extensive aquifers of low to moderate productivity	611m	

Groundwater Salinity

On-site Groundwater Salinity:

Groundwater Salinity	Percent Of Site Area
1,000 - 3,500 mg/l	100

Depth to Watertable

On-site Depth to Watertable:

Depth to Watertable	Percent Of Site Area
10 to 20 metres	86
5 to 10 metres	13

Surface Elevation

Approximate on-site Surface Elevation:

Surface Elevation
32 AHDm to 50 AHDm

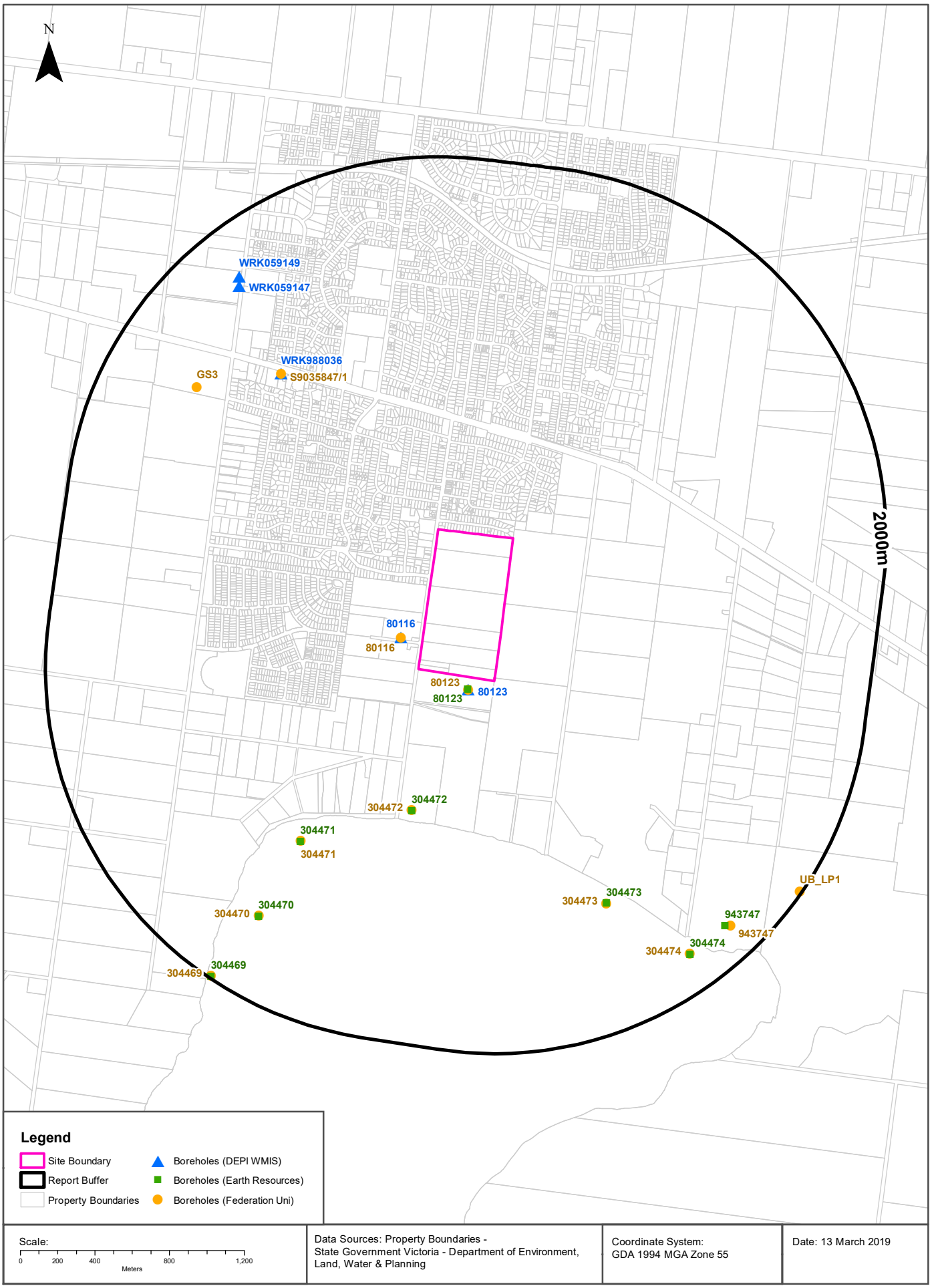
Basement Elevation

Approximate on-site Basement Elevation:

Basement Elevation - Basement Rocks comprise Lower Palaeozoic basement rocks that form the highlands and the crystalline basement; and Mesozoic rocks of the Otway and Gippsland basins both outcropping and subsurface
-33 AHDm to -23 AHDm

Groundwater Boreholes

73-155 Ash Road, Leopold, VIC 3224



Groundwater Boreholes

73-155 Ash Road, Leopold, VIC 3224

Boreholes (DEPI WMIS)

Boreholes from the Department of Environment and Primary Industries' Water Measurement Information System, within the dataset buffer:

Bore Id	Use Type	Drillers Log	Construction	Latest Water Levels	Geology	Completed Date	Dist (m)	Dir
80123	Domestic, Stock	0.00m-1.22m SANDY LOAM 1.22m-3.00m ORANGE CLAY				1986-08-19	66	South
80116	Domestic, Stock	0.00m-0.30m TOP SOIL 0.30m-7.62m SANDY CLAY AND GRAVEL 7.62m-9.14m MOTTLED CLAY 9.14m-70.10m BLUE/GREY CLAY 70.10m-75.12m SANDSTONE AND CLAY	0.61m-75.00m INNER LINING - CASING = Mild Steel 7.62m-15.55m INNER LINING - SCREEN = Mild Steel			1977-11-01	116	South West
WRK988036							1185	North West
WRK059147	Observation					2010-11-01	1687	North West
WRK059149	Observation					2010-11-01	1726	North West

Groundwater Boreholes

73-155 Ash Road, Leopold, VIC 3224

Boreholes (Earth Resources Database)

Boreholes from the Earth Resources dataset, within the dataset buffer:

Bore Id	Bore Type	Company	Usage	Method	Status	Drill Date	Depth	Elevation	Accuracy (m)	Dist (m)	Direct
80123		Private Individual/Corporation	Domestic water supply	Hand Auger		19/08/1986	3.00		100	64	South
304472		Private Individual/Corporation		Hand Auger		31/12/1933	6.09		300	751	South
304471		Private Individual/Corporation		Hand Auger		31/12/1933	6.41		300	1116	South West
304473		Private Individual/Corporation		Hand Auger		31/12/1933	1.52		300	1333	South East
304470		Private Individual/Corporation		Hand Auger		31/12/1933	6.41		300	1575	South West
304474		Private Individual/Corporation		Hand Auger		31/12/1933	5.79		300	1798	South East
943747		Esso Mineral Co of Australia		Rotary (diamond/drag bit)	Completed	02/03/1967	32.00	30.48		1799	South East
304469		Private Individual/Corporation		Hand Auger		31/12/1933	3.96		300	1985	South West

Boreholes (Federation University)

Boreholes from the Federation University Australia dataset, within the dataset buffer:

Bore Id	Authority	Type	Uses	Initial TD	Log	Dist (m)	Direct
80123	Private Landholders Bore	Groundwater	Domestic Stock		D: 0.000m-1.220m Sandy Loam D: 1.220m-3.000m Orange Clay	66	South
80116	Private Landholders Bore	Groundwater	Domestic Stock		D: 0.000m-0.300m Top Soil D: 0.300m-7.620m Sandy Clay And Gravel D: 7.620m-9.140m Mottled Clay D: 9.140m-70.100m Blue/Grey Clay D: 70.100m-75.120m Sandstone And Clay	116	South West
304472	Department of Manufacturing and Industry Development (1990 - 1992)				G: 0.000m-6.090m Silt	752	South
304471	Department of Manufacturing and Industry Development (1990 - 1992)				G: 0.000m-0.300m Water G: 0.300m-6.410m Silt	1116	South West
S9035847/1		Groundwater				1185	North West

Bore Id	Authority	Type	Uses	Initial TD	Log	Dist (m)	Direct
304473	Department of Manufacturing and Industry Development (1990 - 1992)				G: 0.000m-1.210m Silt G: 1.210m-1.520m Sandy Clay	1334	South East
GS3	City of Greater Geelong	Groundwater	Observation Groundwater Investigation			1501	North West
304470	Department of Manufacturing and Industry Development (1990 - 1992)				G: 0.000m-0.300m Water G: 0.300m-6.410m Silt	1575	South West
304474	Department of Manufacturing and Industry Development (1990 - 1992)				G: 0.000m-0.300m Water G: 0.300m-5.790m Silt	1799	South East
943747	Exploration Company - Minerals and Petroleum	Mineral Exploration	Non Groundwater			1822	South East
304469	Department of Manufacturing and Industry Development (1990 - 1992)				G: 0.000m-0.300m Water G: 0.300m-3.950m Silt G: 3.950m-3.960m Clay Base	1985	South West
UB_LP1	Federation University Australia	Groundwater	Observation Groundwater Investigation		G: 0.000m-1.500m Dark Brown Sandy Clay, Mottled Orange, Sand Becomes Coarser With Depth G: 1.500m-3.000m Brown, Mottled Orange, Clayey Sand Ot Sandy Clay	1987	South East

Historical Mining Activity - Shafts

73-155 Ash Road, Leopold, VIC 3224

Historical Mining Activity - Shafts

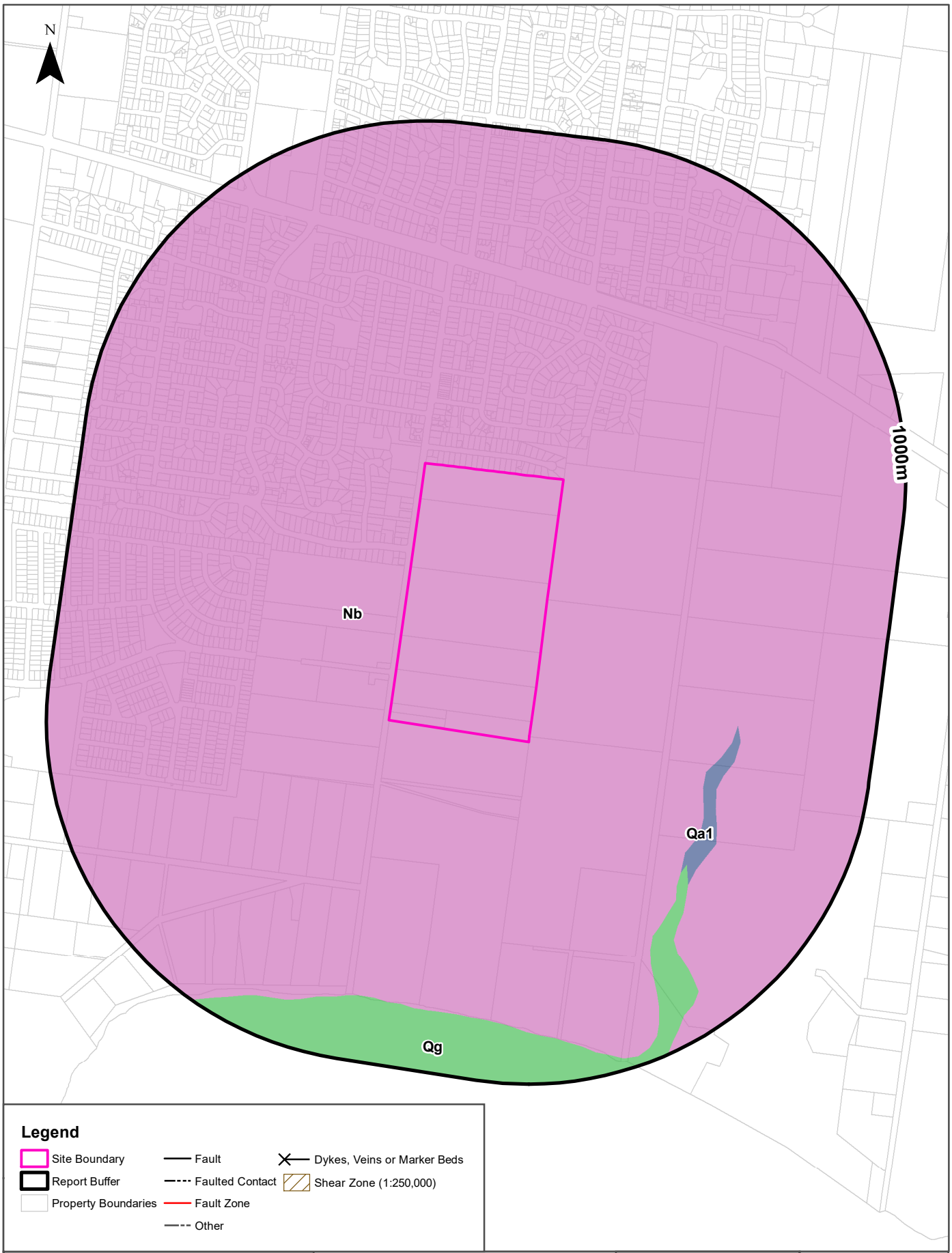
Mine Shaft Locations were collected by a variety of methods from 1869 in some areas of the state, mainly concentrating in Ballarat and Bendigo. In places a shaft may be recorded multiple times with a different source. In cases where several shaft locations are shown close together (generally with separations less than stated position errors) and they have different sources, it is possible that one shaft has been mapped several times. In cases where several shaft locations are shown close together but they have the same information source, it is possible that each shaft location represents a different shaft on the ground.

Historical Mine Shafts within the dataset buffer:

Map Id	Name	Source	Depth (m)	Collar (ft)	Fill/Cap Method	Location Desc	Location Accuracy	Distance	Direction
N/A	No records in buffer								

Geology 1:50,000

73-155 Ash Road, Leopold, VIC 3224



Geology

73-155 Ash Road, Leopold, VIC 3224

Geological Units

What are the Geological Units onsite?

Symbol	Name	Description	Geological Age	Lithology	Dataset
Nb	Brighton Group(Nb): generic	Gravel, sand, silt: variably calcareous to ferruginous sandstones and coquinas; marine to nonmarine	Miocene to Pliocene	silt material (significant); sand (significant); gravel material (significant)	1:50,000

What are the Geological Units within the dataset buffer?

Symbol	Name	Description	Geological Age	Lithology	Dataset
Nb	Brighton Group(Nb): generic	Gravel, sand, silt: variably calcareous to ferruginous sandstones and coquinas; marine to nonmarine	Miocene to Pliocene	silt material (significant); sand (significant); gravel material (significant)	1:50,000
Qa1	alluvium(Qa1): generic	Gravel, sand, silt: variably sorted and rounded; generally unconsolidated; includes deposits of low terraces; alluvial floodplain deposits	Pleistocene to Holocene	gravel material (significant); sand (significant); silt material (significant)	1:50,000
Qg	coastal lagoon deposits (Qg): generic	Silt, clay: dark grey to black; variably consolidated	Holocene to Holocene	silt material (significant); clay lithology (significant)	1:50,000

Geology

73-155 Ash Road, Leopold, VIC 3224

Geological Structures

What are the Geological Faults or Faulted Contacts onsite?

Map Id	Type	Name	Contact	Positional Accuracy	Dataset
No features					1:50,000

What are the Dykes, Marker Beds and Veins onsite?

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:50,000

What are the Shear Zones onsite (1:250,000 scale)?

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:250,000

What are the Geological Faults or Faulted Contacts within the dataset buffer?

Map Id	Type	Name	Contact	Positional Accuracy	Dataset
No features					1:50,000

What are the Dykes, Marker Beds and Veins within the dataset buffer?

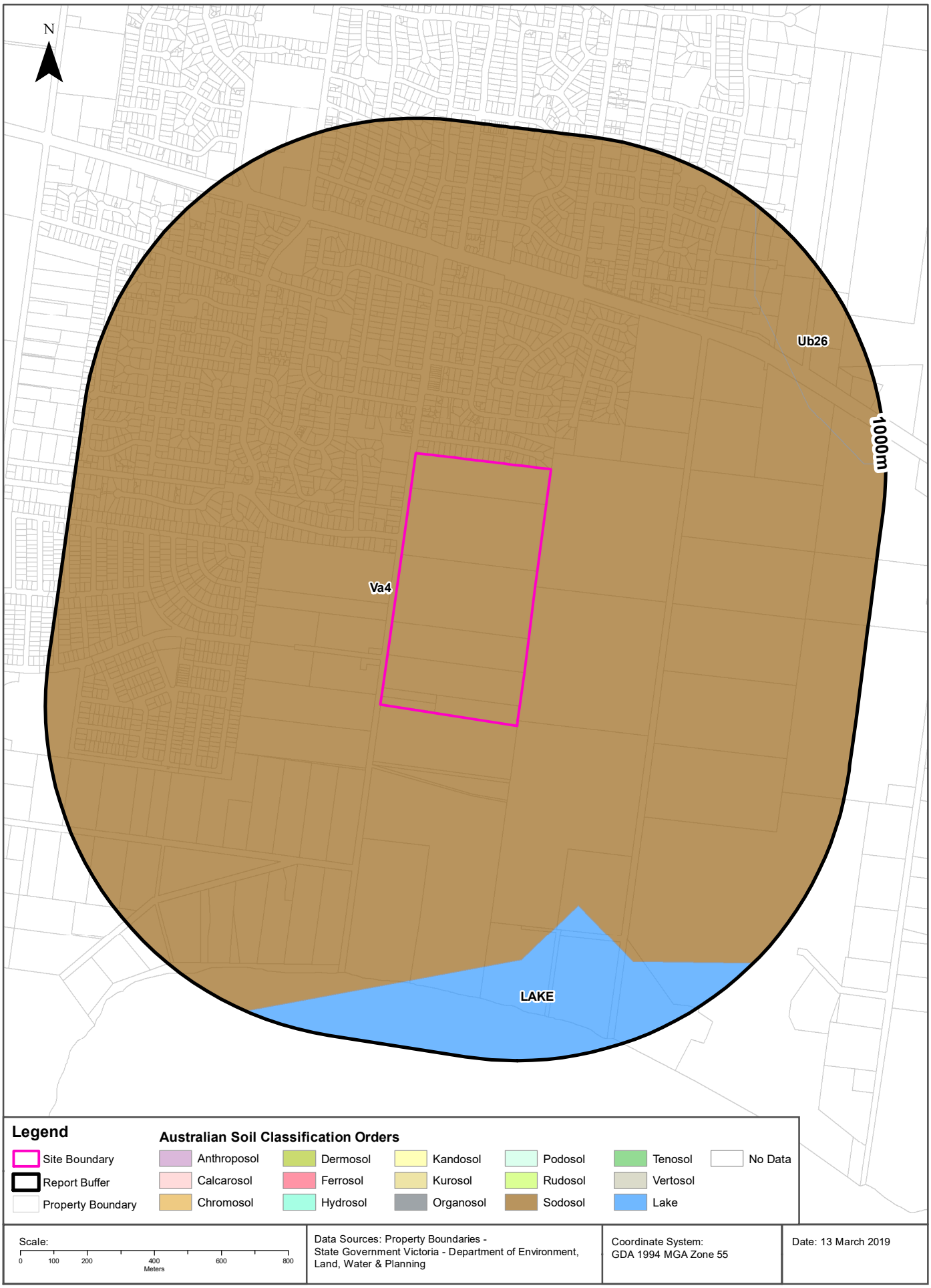
Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:50,000

What are the Shear Zones within the dataset buffer (1:250,000 scale)?

Map Id	Type	Name	Description	Positional Accuracy	Dataset
No features					1:250,000

Atlas of Australian Soils

73-155 Ash Road, Leopold, VIC 3224



Soil Landscapes

73-155 Ash Road, Leopold, VIC 3224

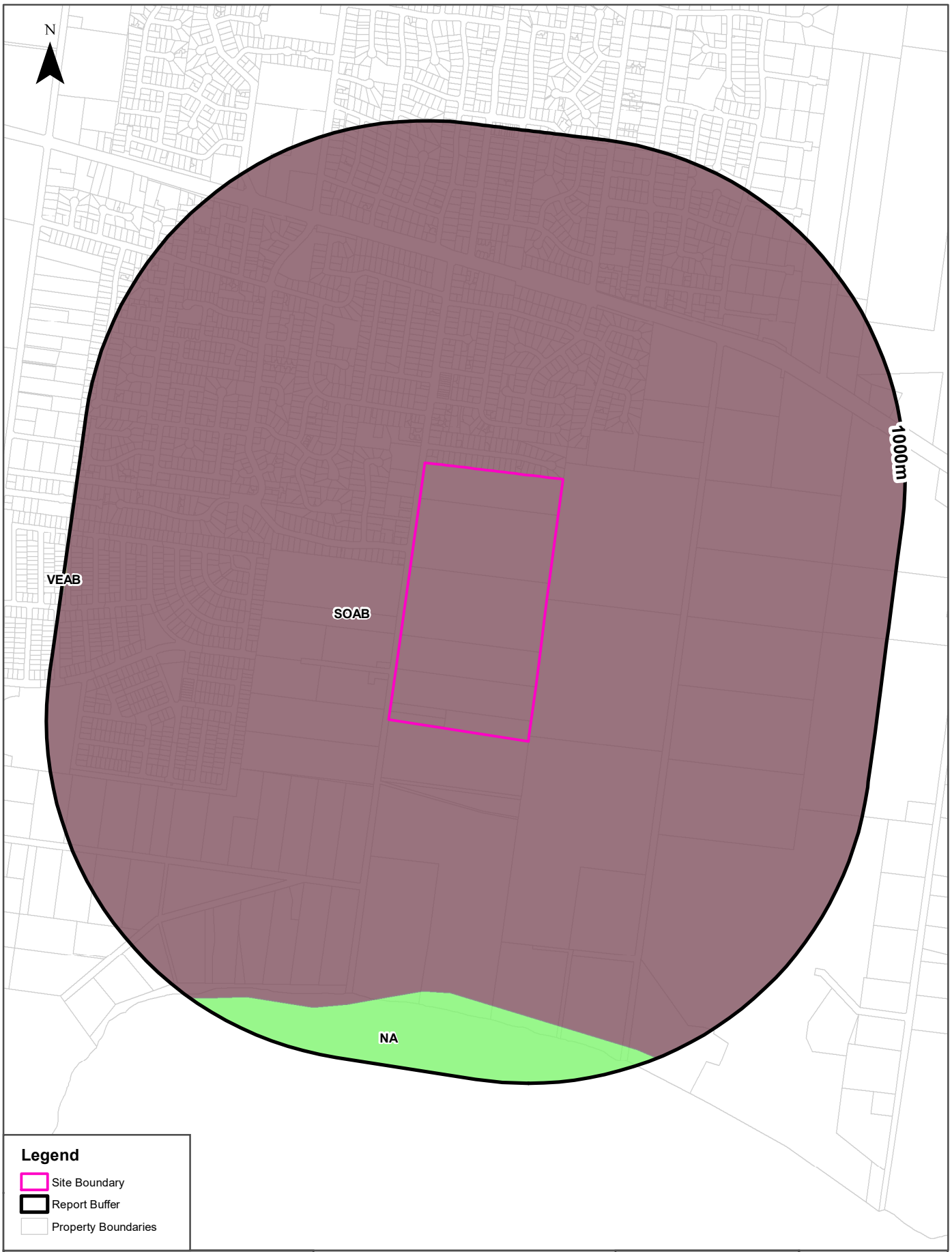
Atlas of Australian Soils

Australian soil types within the dataset buffer:

Symbol	Soil Order	Map Unit Description	Distance
Va4	Sodosol	Undulating outwash plains: hard alkaline yellow mottled soils (Dy3.43) and (Dy5.43) with smaller areas of (Dr2.33) shallow forms (Um6), (Uc6.11), and (Gc1.12).	0m
LAKE	Lake	No Description Available	565m
Ub26	Sodosol	Undulating area of hard neutral and alkaline yellow mottled soils (Dy3.42 and Dy3.43), possibly with some areas of cracking clays (Ug5.1 and Ug5.2); layering of soil materials is evident ill places bow the sola of present-day soils and includes sandy ironstone and grey billy; occasional dunes of leached sands (Uc2.2) in the vicinity of coastal plains.	773m

Victorian Soil Type Mapping

73-155 Ash Road, Leopold, VIC 3224



Soil Landscapes

73-155 Ash Road, Leopold, VIC 3224

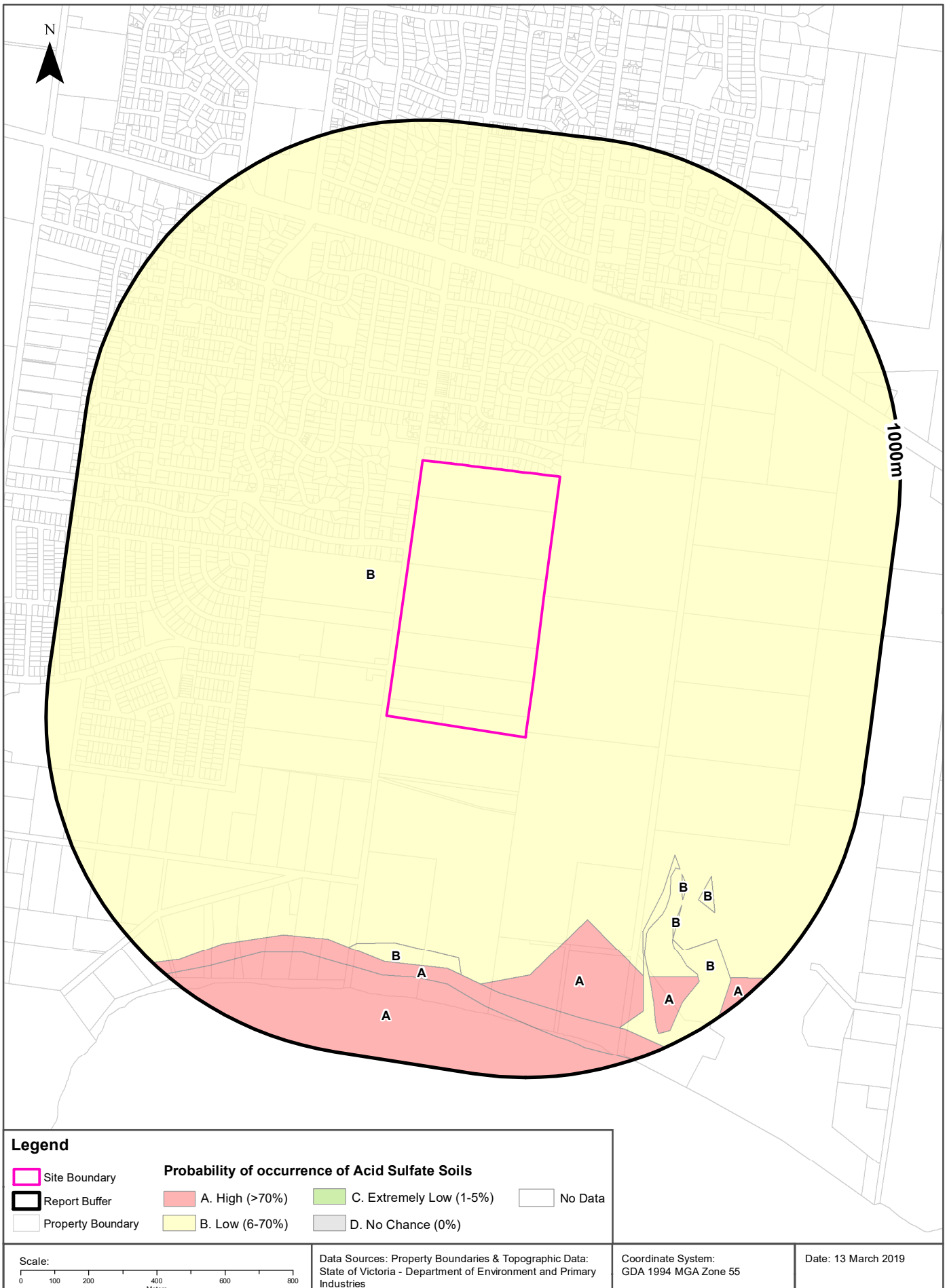
Victorian Soil Type Mapping

Victorian Soil Types within the dataset buffer:

Symbol	Description	Distance
SOAB	Brown Sodosols	0m
NA	Unassigned	761m
VEAB	Brown Vertosols	988m

Atlas of Australian Acid Sulfate Soils

73-155 Ash Road, Leopold, VIC 3224



Acid Sulfate Soils

73-155 Ash Road, Leopold, VIC 3224

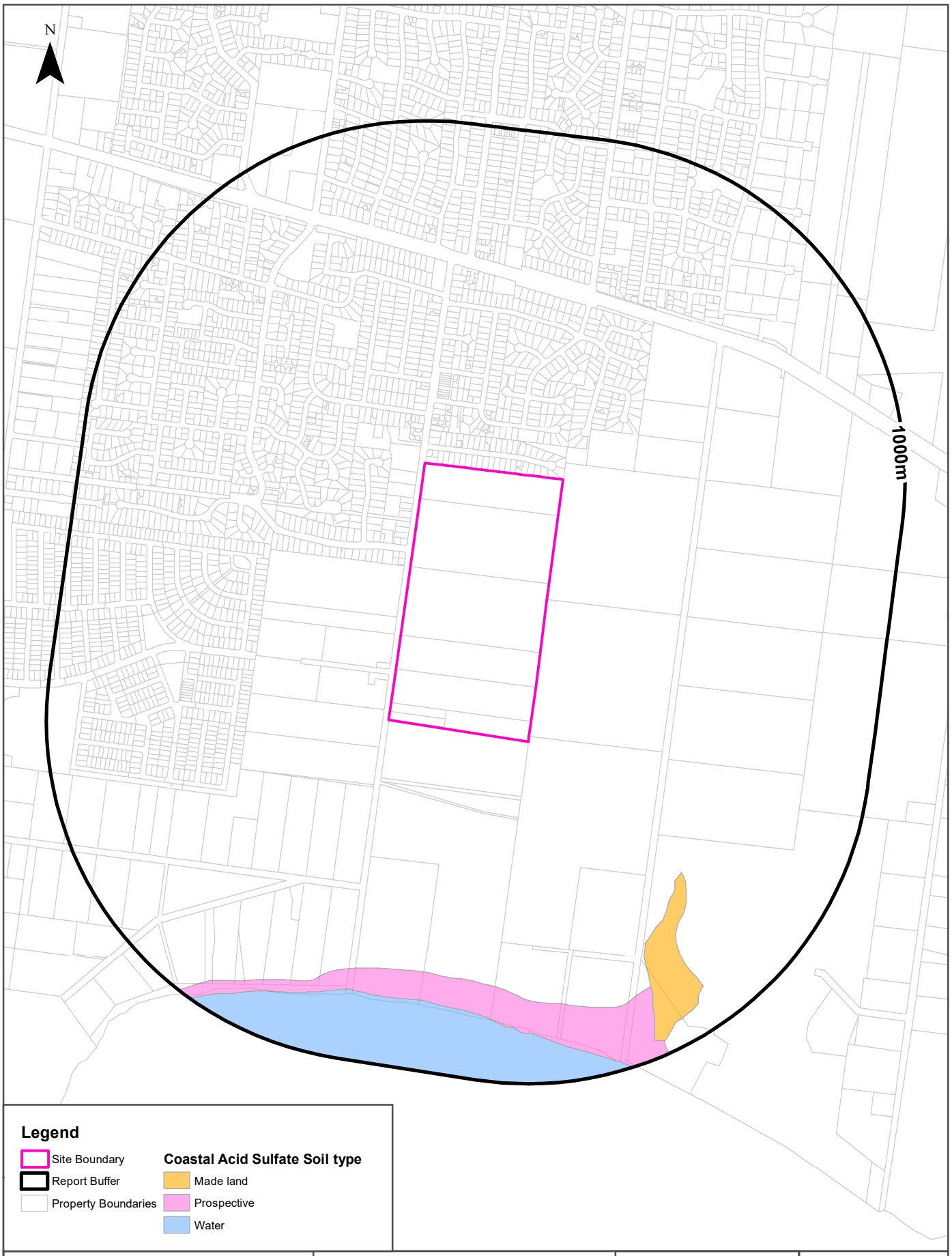
Atlas of Australian Acid Sulfate Soils

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

PROBCLASS	Description	Distance
B	Low Probability of occurrence. 6-70% chance of occurrence.	0m
A	High Probability of occurrence. >70% chance of occurrence.	565m

Coastal Acid Sulfate Soils

73-155 Ash Road, Leopold, VIC 3224



Coastal Acid Sulfate Soils

73-155 Ash Road, Leopold, VIC 3224

Coastal Acid Sulfate Soils

What are the on-site Coastal Acid Sulfate Soil types?

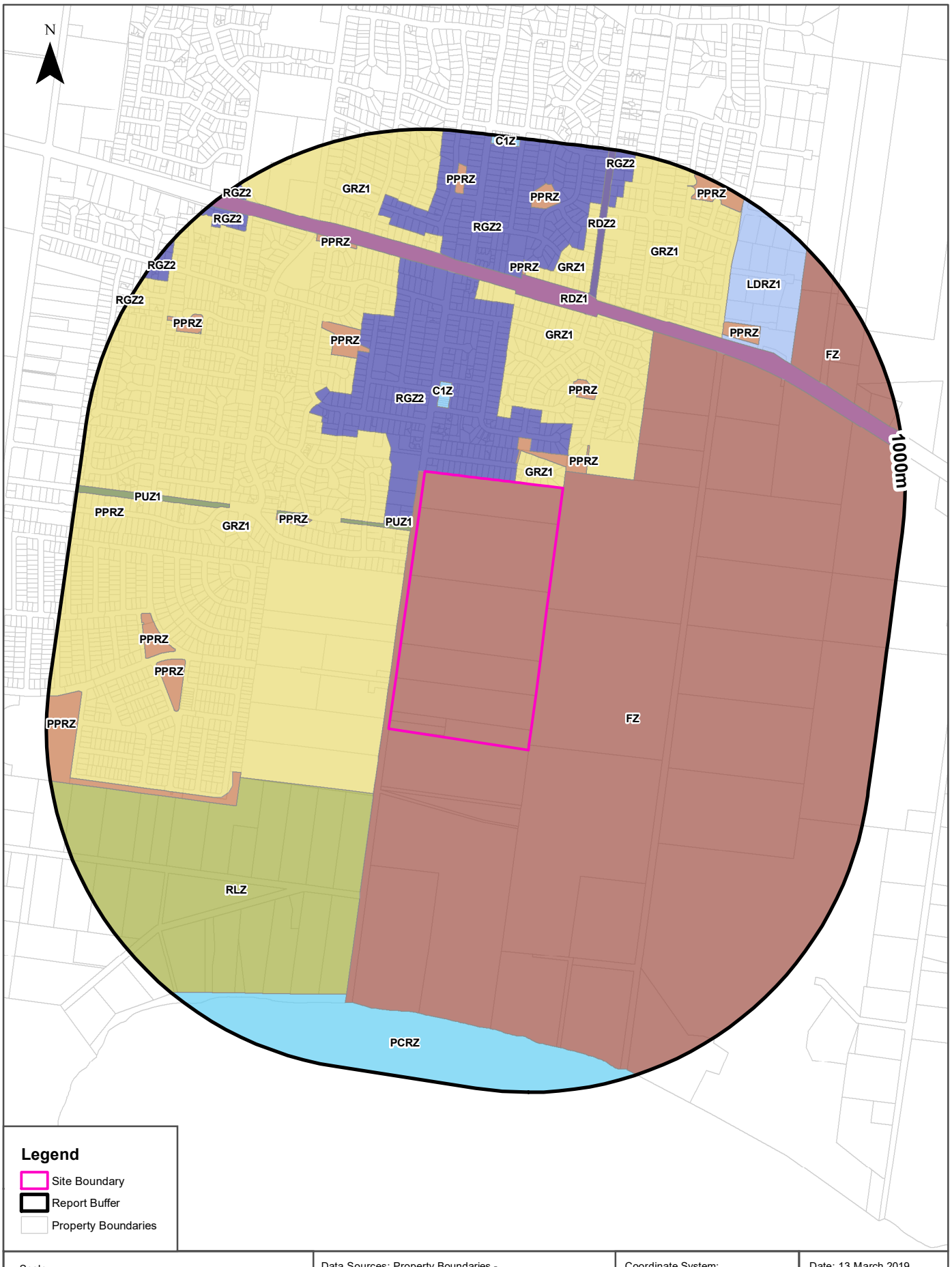
Coastal Acid Sulfate Soil Types
There are no Acid Sulfate areas onsite

What are the Coastal Acid Sulfate Soil types within the dataset buffer?

Coastal Acid Sulfate Soil Types	Distance	Direction
Made land	587m	South East
Prospective	713m	South West
Water	794m	South

Planning Zones

73-155 Ash Road, Leopold, VIC 3224



Planning Zones

73-155 Ash Road, Leopold, VIC 3224

Planning Zones

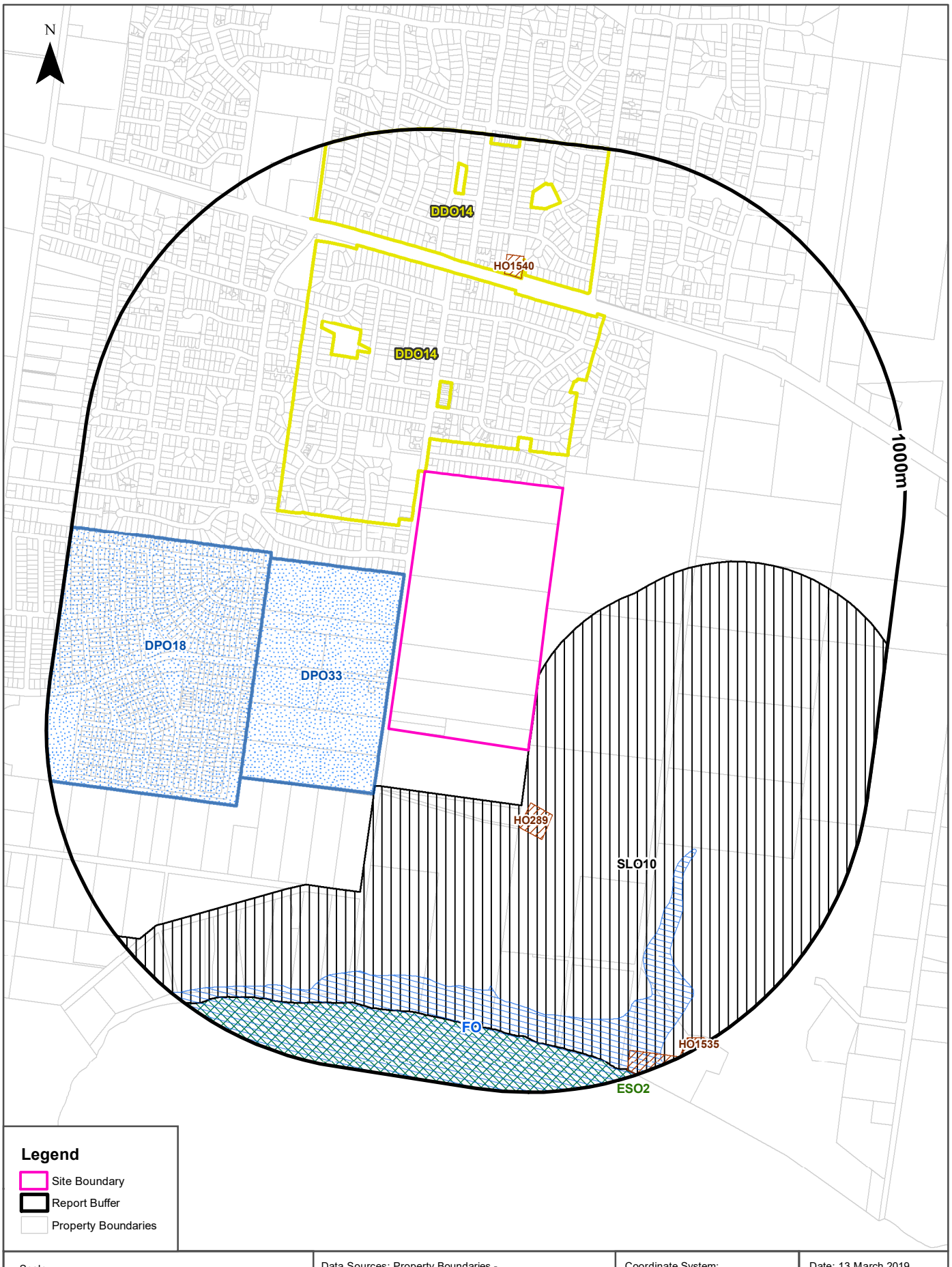
Planning zones within the dataset buffer:

Zone Code	Description	Distance	Direction
FZ	FARMING ZONE	0m	Onsite
GRZ1	GENERAL RESIDENTIAL ZONE - SCHEDULE 1	0m	North East
RGZ2	RESIDENTIAL GROWTH ZONE - SCHEDULE 2	0m	North
GRZ1	GENERAL RESIDENTIAL ZONE - SCHEDULE 1	19m	West
PUZ1	PUBLIC USE ZONE - SERVICE AND UTILITY	20m	North West
PPRZ	PUBLIC PARK AND RECREATION ZONE	50m	North East
GRZ1	GENERAL RESIDENTIAL ZONE - SCHEDULE 1	79m	North East
C1Z	COMMERCIAL 1 ZONE	194m	North
RLZ	RURAL LIVING ZONE	195m	South West
PPRZ	PUBLIC PARK AND RECREATION ZONE	271m	North East
PPRZ	PUBLIC PARK AND RECREATION ZONE	308m	North West
PUZ1	PUBLIC USE ZONE - SERVICE AND UTILITY	324m	North West
PPRZ	PUBLIC PARK AND RECREATION ZONE	384m	North West
PPRZ	PUBLIC PARK AND RECREATION ZONE	451m	West
RDZ1	ROAD ZONE - CATEGORY 1	511m	North West
PUZ1	PUBLIC USE ZONE - SERVICE AND UTILITY	553m	West
GRZ1	GENERAL RESIDENTIAL ZONE - SCHEDULE 1	554m	North East
RDZ2	ROAD ZONE - CATEGORY 2	564m	North
GRZ1	GENERAL RESIDENTIAL ZONE - SCHEDULE 1	575m	North
RGZ2	RESIDENTIAL GROWTH ZONE - SCHEDULE 2	595m	North
PPRZ	PUBLIC PARK AND RECREATION ZONE	605m	North
PPRZ	PUBLIC PARK AND RECREATION ZONE	616m	West
GRZ1	GENERAL RESIDENTIAL ZONE - SCHEDULE 1	637m	North
LDRZ1	LOW DENSITY RESIDENTIAL ZONE - SCHEDULE 1	637m	North East
PPRZ	PUBLIC PARK AND RECREATION ZONE	646m	North East
PPRZ	PUBLIC PARK AND RECREATION ZONE	650m	West
PPRZ	PUBLIC PARK AND RECREATION ZONE	681m	North
FZ	FARMING ZONE	757m	East
PPRZ	PUBLIC PARK AND RECREATION ZONE	769m	North West
PCRZ	PUBLIC CONSERVATION AND RESOURCE ZONE	787m	South West
PPRZ	PUBLIC PARK AND RECREATION ZONE	805m	North

Zone Code	Description	Distance	Direction
PPRZ	PUBLIC PARK AND RECREATION ZONE	819m	North
RGZ2	RESIDENTIAL GROWTH ZONE - SCHEDULE 2	835m	North
PPRZ	PUBLIC PARK AND RECREATION ZONE	877m	West
RGZ2	RESIDENTIAL GROWTH ZONE - SCHEDULE 2	878m	North West
PPRZ	PUBLIC PARK AND RECREATION ZONE	926m	North East
RGZ2	RESIDENTIAL GROWTH ZONE - SCHEDULE 2	950m	North West
C1Z	COMMERCIAL 1 ZONE	974m	North

Planning Overlays

73-155 Ash Road, Leopold, VIC 3224



Planning Overlays

73-155 Ash Road, Leopold, VIC 3224

Planning Overlays

Planning overlays within the dataset buffer:

Zone Code	Description	Distance	Direction
DDO14	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 14	0m	North
SLO10	SIGNIFICANT LANDSCAPE OVERLAY - SCHEDULE 10	0m	South
DPO33	DEVELOPMENT PLAN OVERLAY - SCHEDULE 33	19m	South West
HO289	HERITAGE OVERLAY (HO289)	153m	South
DPO18	DEVELOPMENT PLAN OVERLAY - SCHEDULE 18	411m	West
FO	FLOODWAY OVERLAY	547m	South West
DDO14	DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 14	575m	North
HO1540	HERITAGE OVERLAY (HO1540)	595m	North
ESO2	ENVIRONMENTAL SIGNIFICANCE OVERLAY - SCHEDULE 2	807m	South West
HO1535	HERITAGE OVERLAY (HO1535)	924m	South East

Heritage

73-155 Ash Road, Leopold, VIC 3224

Commonwealth Heritage List

What are the Commonwealth Heritage List Items located within the dataset buffer?

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

National Heritage List

What are the National Heritage List Items located within the dataset buffer?
Note. Please click on Place Id to activate a hyperlink to online website.

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

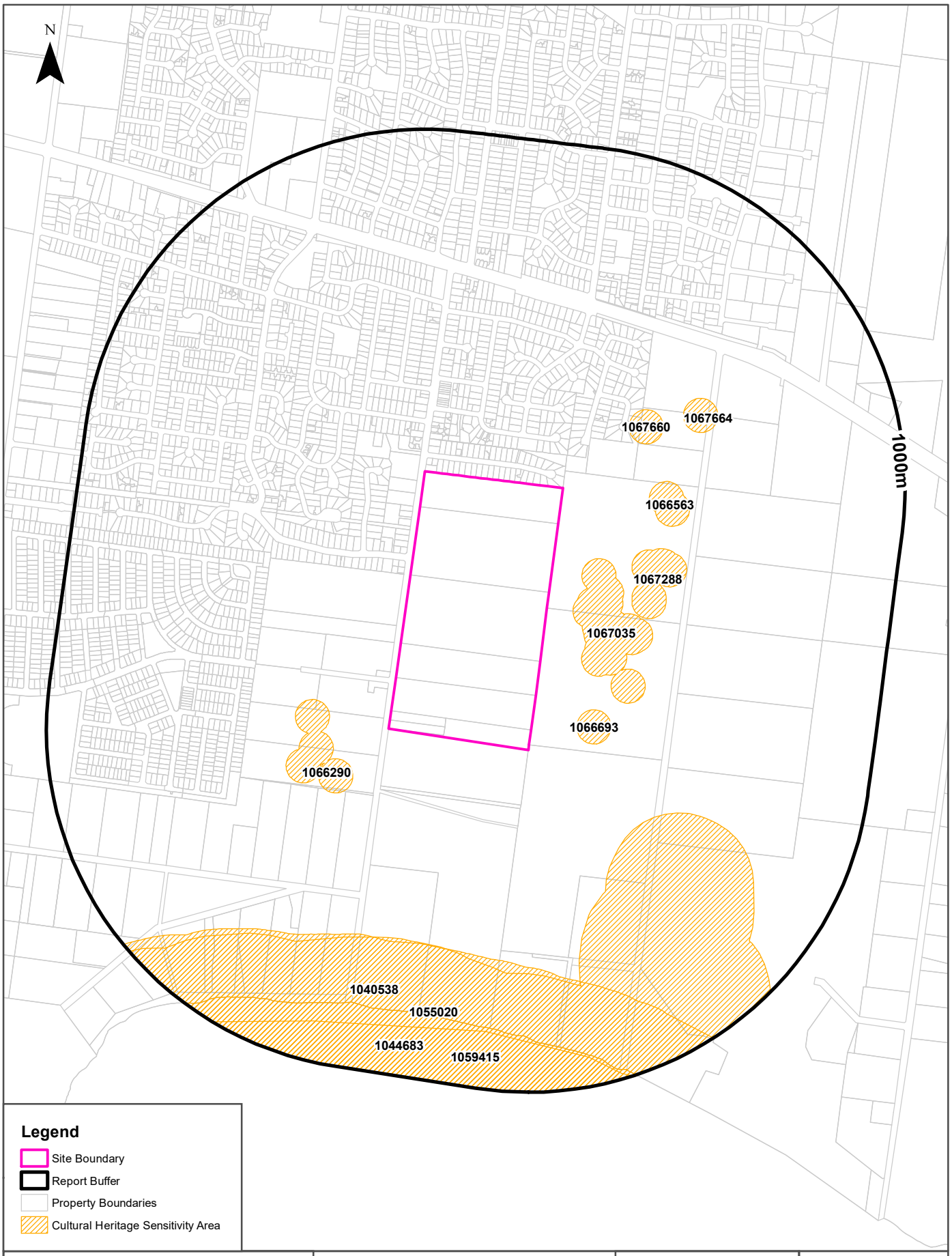
Victorian Heritage Register

What are the Victorian Heritage Register items located within the dataset buffer?:

VHR Number	Description	Distance	Direction
N/A	No records within buffer		

Cultural Heritage Sensitivity

73-155 Ash Road, Leopold, VIC 3224



Heritage

73-155 Ash Road, Leopold, VIC 3224

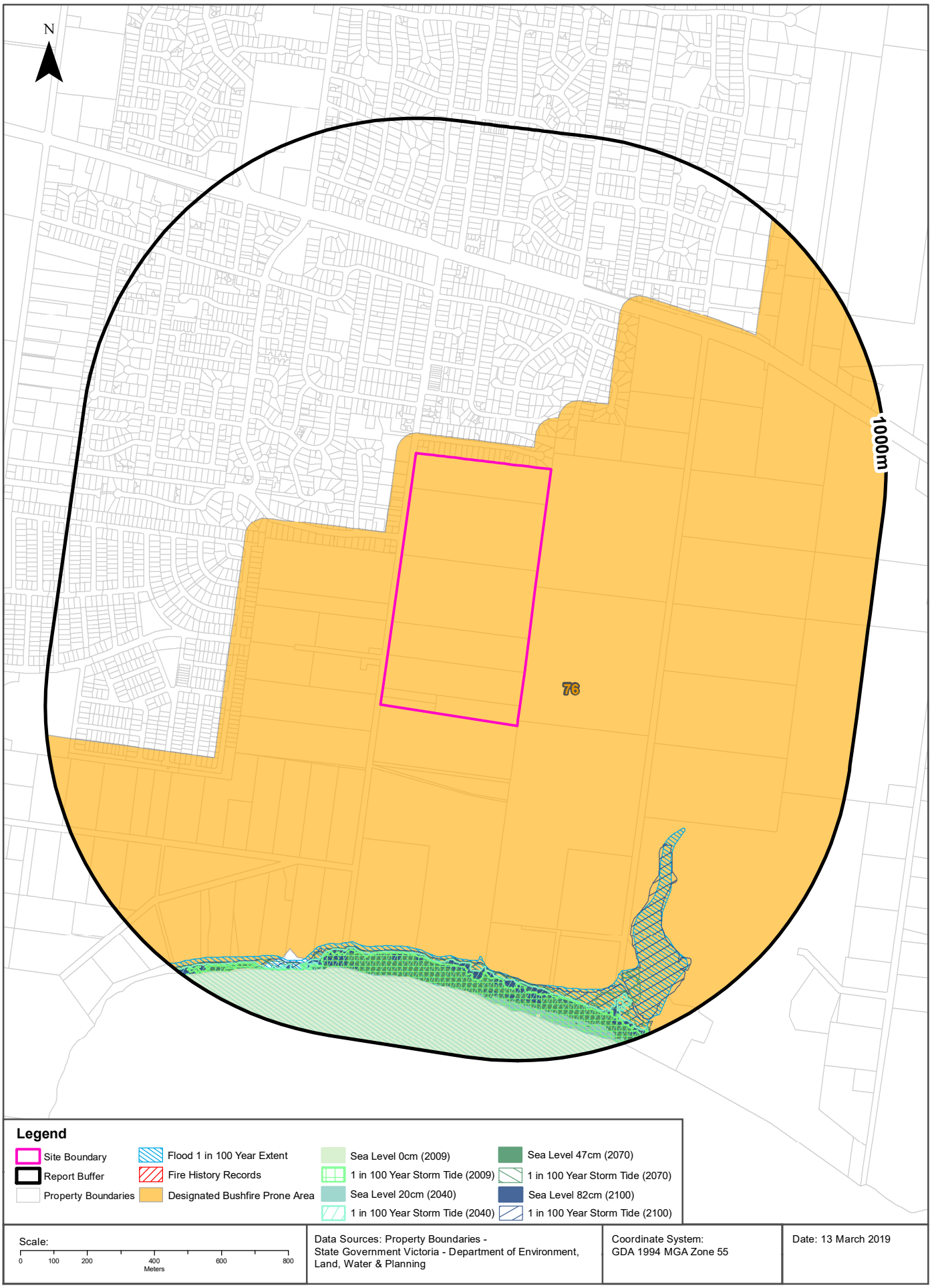
Cultural Heritage Sensitivity

Areas of Cultural Heritage Sensitivity as specified in Division 3 of Part 2 in the Victorian Aboriginal Heritage Regulations 2007, within the dataset buffer:

Map Id	Distance	Direction
1067035	76m	East
1066693	131m	South East
1066290	158m	South West
1067288	230m	East
1067660	252m	North East
1066563	254m	North East
1055020	383m	South West
1067664	405m	North East
1040538	607m	South
1044683	807m	South West
1059415	832m	South West

Natural Hazards

73-155 Ash Road, Leopold, VIC 3224



Natural Hazards

73-155 Ash Road, Leopold, VIC 3224

Bushfire Prone Areas

What are the designated bushfire prone areas within the dataset buffer?

Map ID	Feature	Plan No	LGA	Gazetted Date	Distance	Direction
76	Designated Bushfire Prone Area	LEGL./18-404	GREATER GEELONG	16/10/2018	0m	Onsite

Fire History

What are the fire history records of fires primarily on public land, within the dataset buffer?

Map Id	Fire Type	Fire Key	Season	Fire No	Fire Name	Treatment	Fire Cover	Start Date	Dist (m)	Direction
N/A	No records within buffer									

Flood - 1 in 100 year modelled flood extent

What 1 in 100 year flood extent features exist within the dataset buffer?

Feature	Source	Method	Scale	Modified Date	Distance	Direction
100 Year Flood Outline	Unknown	Modelled		01/01/2000	560m	South West

Natural Hazards

73-155 Ash Road, Leopold, VIC 3224

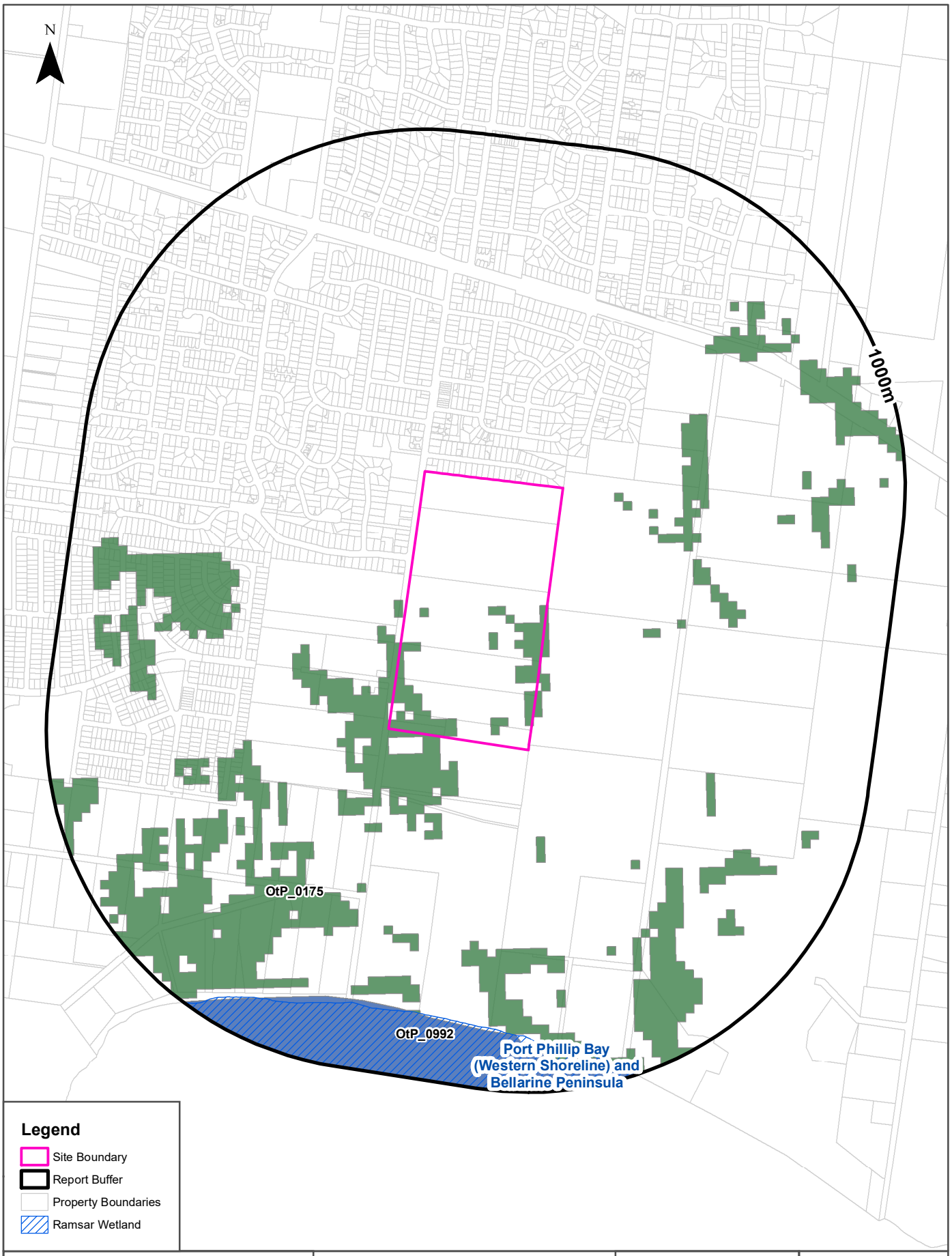
Victorian Coastal Inundation Sea Level Rise

What coastal inundation sea level rise features exist within the dataset buffer?

Description	Distance	Direction
Inundation to 1-in-100 year storm tide level with storm surge increased by 19% plus 82 cm sea level rise (2100)	559m	South West
Inundation to 1-in-100 year storm tide level with storm surge increased by 13% plus 47 cm sea level rise (2070)	715m	South West
Inundation to 1-in-100 year storm tide level with storm surge increased by 6% plus 20 cm sea level rise (2040)	718m	South West
Projected 82cm sea level rise by 2100	719m	South West
Current (2009) inundation to 1-in-100 year storm tide level	722m	South West
Projected 47cm sea level rise by 2070	728m	South West
Projected 20cm sea level rise by 2040	790m	South
Current (2009) sea level	792m	South West

Ecological Constraints - Native Vegetation 2005 & Ramsar Wetlands

73-155 Ash Road, Leopold, VIC 3224



Ecological Constraints

73-155 Ash Road, Leopold, VIC 3224

Native Vegetation (Modelled 2005 Ecological Vegetation Classes)

What native vegetation exists within the dataset buffer?

Veg Code	EVC Name	EVCCode	Group	Subgroup	Bioregion	Conservation Status	Geographic Occurance	Distance
OtP_0175	Grassy Woodland	0175	Lower Slopes or Hills Woodlands	Grassy	Otway Plain	Endangered	Common	0m
OtP_0992	Water Body - Fresh	0992	No native vegetation recorded		Otway Plain	Not Applicable	not applicable	797m

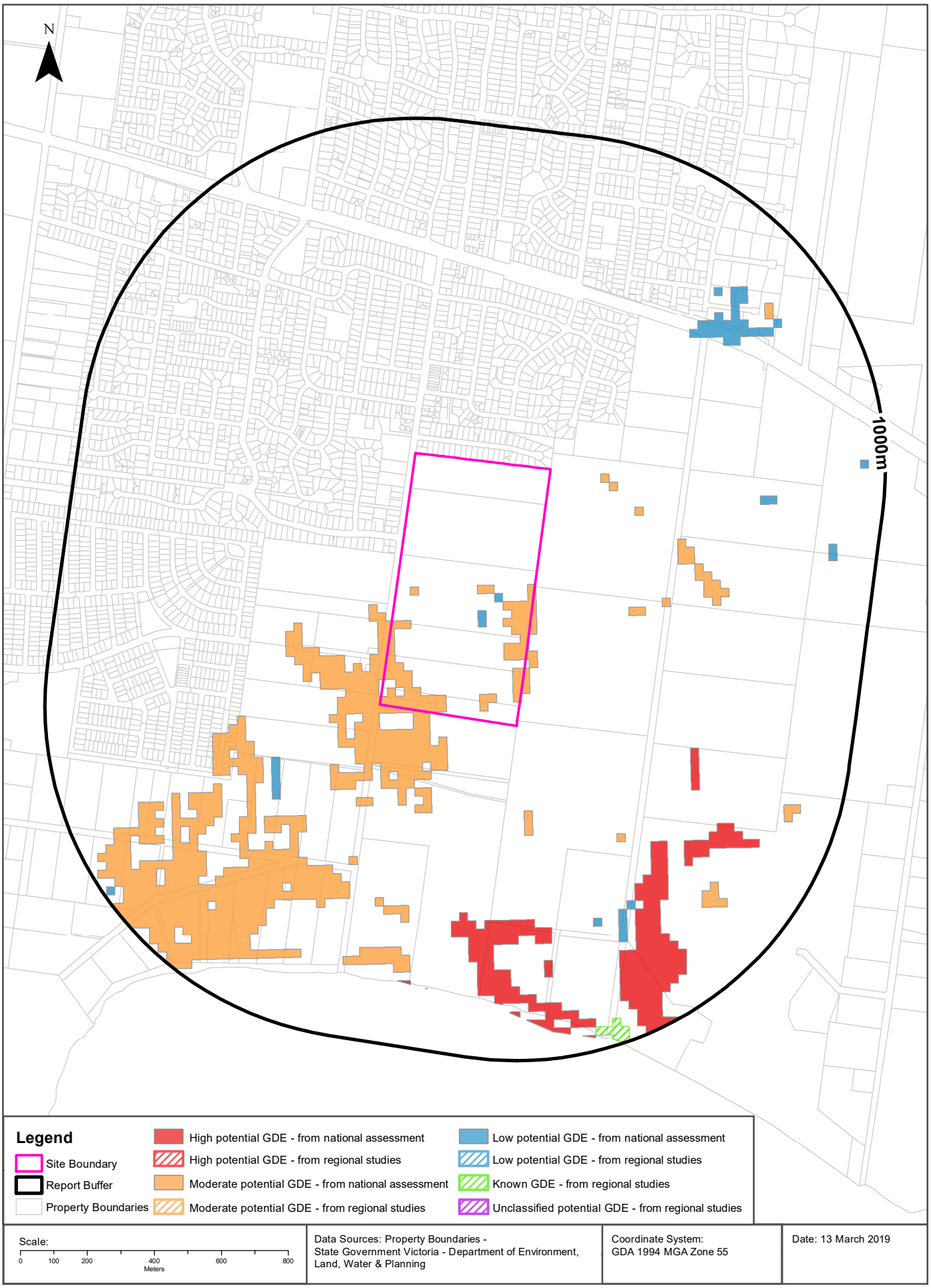
Ramsar Wetlands

What Ramsar wetland areas exist within the dataset buffer?

Map ID	Site Name	Lake Name	Distance	Direction
9	Port Phillip Bay (Western Shoreline) and Bellarine Peninsula	Lake Connewarre	806m	South

Ecological Constraints - Groundwater Dependent Ecosystems Atlas

73-155 Ash Road, Leopold, VIC 3224



Ecological Constraints

73-155 Ash Road, Leopold, VIC 3224

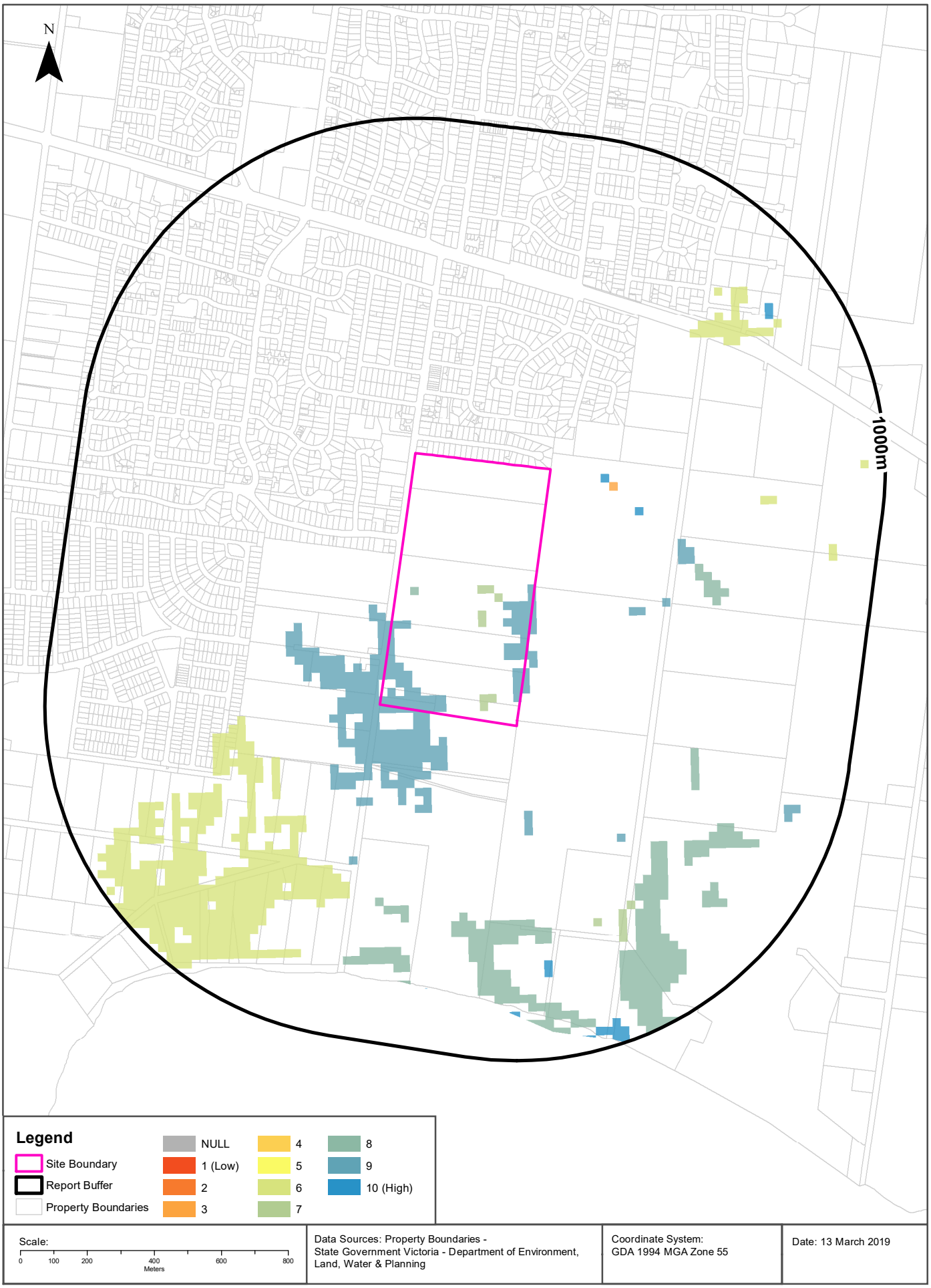
Groundwater Dependent Ecosystems Atlas

What GDEs exist within the dataset buffer?

GDE Type	Name	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial		Low potential GDE - from national assessment	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	0m
Terrestrial		Moderate potential GDE - from national assessment	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	0m
Terrestrial		High potential GDE - from national assessment	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	522m
Terrestrial		Known GDE - from regional studies	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation		917m

Inflow Dependent Ecosystems Likelihood

73-155 Ash Road, Leopold, VIC 3224



Ecological Constraints

73-155 Ash Road, Leopold, VIC 3224

Inflow Dependent Ecosystems Likelihood

What IDEs exist within the dataset buffer?

GDE Type	Name	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial		7	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	0m
Terrestrial		8	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	0m
Terrestrial		9	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	0m
Terrestrial		10	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	149m
Terrestrial		3	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	177m
Terrestrial		6	Plains mainly on basalt lavas with many volcanic forms and lakes, partly on weak sedimentary rocks.	Vegetation	Unconsolidated sedimentary	337m

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Appendix D – Bore Logs

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Drilling Log

Soil Boring **BH1**

Project *73-155 Ash Road, Leopold ESA* Owner *Tract Consultants Pty Ltd*

Location *73-155 Ash Road, Leopold, Vic* Proj. No. *754-GEXEN227979*

Surface Elev. *NA* Total Hole Depth *0.5 m.* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *100 mm.*

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material Rig/Core *Hand Auger*

Drill Co. Method *Hand Auger*

Driller *E. Grinter* Log By *E. Grinter* Date *4-4-19* Permit # *NA*

Checked By *B. Tiddy* License No.

COMMENTS

Depth (m.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						
	0.2	BH1/0.2			ML	**Sandy SILT:** fine grained, light brown, dry.
	0.4	BH1/0.3			CL	**CLAY:** medium plasticity, orange-brown, dry.
						End of investigation @0.5mbgs.
1						
2						

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Drilling Log

Test Pit **TP1**

Project *73-155 Ash Road, Leopold ESA* Owner *Tract Consultants Pty Ltd*

Location *73-155 Ash Road, Leopold, Vic* Proj. No. *754-GEXEN227979*

Surface Elev. *NA* Total Hole Depth *1.3 m.* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *300 mm.*

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material Rig/Core *Backhoe*

Drill Co. Method *Backhoe*

Driller *E. Grinter* Log By *E. Grinter* Date *4-4-19* Permit # *NA*

Checked By *B. Tiddy* License No.

COMMENTS
Test Pit dimensions 1.5m L x 0.3m W

Depth (m.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) — Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						
	0.1	TP1//0.2			ML	**Sandy SILT:** fine grained, dark brown, dry.
	0.1	TP1//0.5			CL	**CLAY:** medium plasticity, orange-brown, with some sub-angular gravels, dry.
1	0.1	TP1//1.0				As above: hard, stiff.
	0.1	TP1//1.3				End of investigation @1.3mbgs.
2						

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Drilling Log

Test Pit **TP2**

Project *73-155 Ash Road, Leopold ESA* Owner *Tract Consultants Pty Ltd*

Location *73-155 Ash Road, Leopold, Vic* Proj. No. *754-GEXEN227979*

Surface Elev. *NA* Total Hole Depth *1.0 m.* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *300 mm.*

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material Rig/Core *Backhoe*

Drill Co. Method *Backhoe*

Driller *E. Grinter* Log By *E. Grinter* Date *4-4-19* Permit # *NA*

Checked By *B. Tiddy* License No.

COMMENTS
Test Pit dimensions 2.0m L x 0.3m W

Depth (m.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) — Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						
	0.2	TP2//0.2			SP	**SAND:** fine grained, light brown, dry.
	0.3	TP2//0.5				
					CL	**CLAY:** medium plasticity, orange-brown, very hard, dry.
1	0.2	TP2//1.0				End of Investigation @1.0mbgs.
2						

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Drilling Log

Test Pit **TP3**

Project *73-155 Ash Road, Leopold ESA* Owner *Tract Consultants Pty Ltd*

Location *73-155 Ash Road, Leopold, Vic* Proj. No. *754-GEXEN227979*

Surface Elev. *NA* Total Hole Depth *1.0 m.* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *300 mm.*

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material Rig/Core *Backhoe*

Drill Co. Method *Backhoe*

Driller *E. Grinter* Log By *E. Grinter* Date *4-4-19* Permit # *NA*

Checked By *B. Tiddy* License No.

COMMENTS
Test Pit dimensions 1.8m L x 0.3m W

Depth (m.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) — Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						
					ML	**Sandy SILT:** brown, dry.
	0.3	TP3//0.2			SP	**SAND:** fine grained, light brown, dry.
	0.4	TP3//0.5				
					CL	**CLAY:** dark brown/orange, hard, dry.
1	1.0	TP3//1.0				End of investigation @1.0mbgs
2						

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Drilling Log

Test Pit **TP4**

Project *73-155 Ash Road, Leopold ESA* Owner *Tract Consultants Pty Ltd*

Location *73-155 Ash Road, Leopold, Vic* Proj. No. *754-GEXEN227979*

Surface Elev. *NA* Total Hole Depth *0.5 m.* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *300 mm.*

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material Rig/Core *Backhoe*

Drill Co. Method *Backhoe*

Driller *E. Grinter* Log By *E. Grinter* Date *4-4-19* Permit # *NA*

Checked By *B. Tiddy* License No.

COMMENTS
Test Pit dimensions 1.7m L x 0.3m W

Depth (m.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
0						
	0.4	TP4//0.2			ML	**Sandy SILT/SAND** fine grained, light brown, dry.
	0.4	TP4//0.5			CL	**CLAY:** dark brown/orange.
						End of investigation @0.5mbgs.
1						
2						

Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.

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Drilling Log

Test Pit **TP5**

Project *73-155 Ash Road, Leopold ESA* Owner *Tract Consultants Pty Ltd*

Location *73-155 Ash Road, Leopold, Vic* Proj. No. *754-GEXEN227979*

Surface Elev. *NA* Total Hole Depth *0.6 m.* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *300 mm.*

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material Rig/Core *Backhoe*

Drill Co. Method *Backhoe*

Driller *E. Grinter* Log By *E. Grinter* Date *4-4-19* Permit # *NA*

Checked By *B. Tiddy* License No.

COMMENTS
Test Pit dimensions 1.7m L x 0.3m W

Depth (m.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
0					ML	**Sandy SILT**
	0.1	TP5//0.2			SP	**SAND:** fine grained, light brown, dry.
		TP5//0.5			CL	**CLAY:** dark orange-brown, hard, dry.
						End of investigation @0.6mbgs.
1						
2						

Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.

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Drilling Log

Test Pit **TP6**

Project *73-155 Ash Road, Leopold ESA* Owner *Tract Consultants Pty Ltd*

Location *73-155 Ash Road, Leopold, Vic* Proj. No. *754-GEXEN227979*

Surface Elev. *NA* Total Hole Depth *0.5 m.* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *300 mm.*

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material Rig/Core *Backhoe*

Drill Co. Method *Backhoe*

Driller *E. Grinter* Log By *E. Grinter* Date *4-4-19* Permit # *NA*

Checked By *B. Tiddy* License No.

COMMENTS
Test Pit dimensions 1.8m L x 0.3m W

Depth (m.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
0						
					ML	**Sandy SILT:** fine grained, brown, dry.
	0.4	TP6//0.2			SP	**SAND:** fine grained, light brown.
	0.4	TP6//0.5			CL	**CLAY:** dark brown-orange, hard, dry.
						End of investigation @0.5mbgs.
1						
2						

Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.

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Drilling Log

Test Pit **TP7**

Project *73-155 Ash Road, Leopold ESA* Owner *Tract Consultants Pty Ltd*

Location *73-155 Ash Road, Leopold, Vic* Proj. No. *754-GEXEN227979*

Surface Elev. *NA* Total Hole Depth *1.2 m.* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *300 mm.*

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material Rig/Core *Backhoe*

Drill Co. Method *Backhoe*

Driller *E. Grinter* Log By *E. Grinter* Date *4-4-19* Permit # *NA*

Checked By *B. Tiddy* License No.

COMMENTS
Test Pit dimensions 1.7m L x 0.3m W

Depth (m.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) — Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						
					ML	**Sandy SILT:** brown, dry.
	0.3	TP7//0.2				
					SP	**SAND:** fine grained, light brown, dry.
	0.3	TP7//0.5				
1						
	0.4	TP7//1.1			CL	**CLAY:** dark brown-orange, hard, dry.
						End of investigation @1.2mbgs.
2						

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Drilling Log

Test Pit **TP8**

Project *73-155 Ash Road, Leopold ESA* Owner *Tract Consultants Pty Ltd*

Location *73-155 Ash Road, Leopold, Vic* Proj. No. *754-GEXEN227979*

Surface Elev. *NA* Total Hole Depth *0.5 m.* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *300 mm.*

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material Rig/Core *Backhoe*

Drill Co. Method *Backhoe*

Driller *E. Grinter* Log By *E. Grinter* Date *4-4-19* Permit # *NA*

Checked By *B. Tiddy* License No.

COMMENTS
Test Pit dimensions 1.8m L x 0.3m W

Depth (m.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
0						Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
	1.3	TP8//0.2			SP	**SAND:** fine grained, light brown, dry.
	0.5	TP8//0.5			CL	**CLAY:** dark orange-brown, hard, dry.
						End of investigation @0.5mbgs.
1						
2						

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Test Pit **TP9**

Project *73-155 Ash Road, Leopold ESA* Owner *Tract Consultants Pty Ltd*

Location *73-155 Ash Road, Leopold, Vic* Proj. No. *754-GEXEN227979*

Surface Elev. *NA* Total Hole Depth *0.55 m.* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *300 mm.*

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material Rig/Core *Backhoe*

Drill Co. Method *Backhoe*

Driller *E. Grinter* Log By *E. Grinter* Date *4-4-19* Permit # *NA*

Checked By *B. Tiddy* License No.

COMMENTS
Test Pit dimensions 1.7m L x 0.3m W

Depth (m.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
0						
	0.3	TP9//0.2			SP	**SAND:** fine grained, light brown, dry.
	0.2	TP9//0.5			CL	**CLAY:** dark orange-brown, hard, dry.
						End of investigation @0.55mbgs.
1						
2						

Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.

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Test Pit **TP10**

Project *73-155 Ash Road, Leopold ESA* Owner *Tract Consultants Pty Ltd*

Location *73-155 Ash Road, Leopold, Vic* Proj. No. *754-GEXEN227979*

Surface Elev. *NA* Total Hole Depth *0.45 m.* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *300 mm.*

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material Rig/Core *Backhoe*

Drill Co. Method *Backhoe*

Driller *E. Grinter* Log By *E. Grinter* Date *4-4-19* Permit # *NA*

Checked By *B. Tiddy* License No.

COMMENTS
Test Pit dimensions 1.8m L x 0.3m W

Depth (m.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
0						
	0.2	TP10//0.2			ML	**Sandy SILT:** fine grained, brown, dry.
	0.4	TP10//0.4			CL	**CLAY:** dark brown-orange, hard, dry.
						End of investigation @0.45mbgs.
1						
2						

Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.

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Drilling Log

Test Pit **TP11**

Project *73-155 Ash Road, Leopold ESA* Owner *Tract Consultants Pty Ltd*

Location *73-155 Ash Road, Leopold, Vic* Proj. No. *754-GEXEN227979*

Surface Elev. *NA* Total Hole Depth *0.55 m.* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *300 mm.*

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material Rig/Core *Backhoe*

Drill Co. Method *Backhoe*

Driller *E. Grinter* Log By *E. Grinter* Date *4-4-19* Permit # *NA*

Checked By *B. Tiddy* License No.

COMMENTS
Test Pit dimensions 1.7m L x 0.3m W

Depth (m.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
0						
					ML	**Sandy SILT:** fine grained, brown, dry.
	0.2	TP11/0.2			CL	**CLAY:** medium plasticity, dark orange-brown, hard, dry.
	0.2	TP11/0.5				
1						End of investigation @0.55mbgs.
2						

Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.

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Drilling Log

Test Pit **TP12**

Project *73-155 Ash Road, Leopold ESA* Owner *Tract Consultants Pty Ltd*

Location *73-155 Ash Road, Leopold, Vic* Proj. No. *754-GEXEN227979*

Surface Elev. *NA* Total Hole Depth *0.55 m.* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *300 mm.*

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material Rig/Core *Backhoe*

Drill Co. Method *Backhoe*

Driller *E. Grinter* Log By *E. Grinter* Date *4-4-19* Permit # *NA*

Checked By *B. Tiddy* License No.

COMMENTS
Test Pit dimensions 1.7m L x 0.3m W

Depth (m.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
0						Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
	0.2	TP12/0.2			SP	**SAND:** fine grained, light brown, dry.
	0.2	TP12/0.5			CL	**CLAY:** medium plasticity, dark orange-brown, hard, dry.
						End of investigation @0.55mbgs
1						
2						

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Drilling Log

Test Pit **TP13**

Project *73-155 Ash Road, Leopold ESA* Owner *Tract Consultants Pty Ltd*

Location *73-155 Ash Road, Leopold, Vic* Proj. No. *754-GEXEN227979*

Surface Elev. *NA* Total Hole Depth *1.0 m.* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *300 mm.*

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material Rig/Core *Backhoe*

Drill Co. Method *Backhoe*

Driller *E. Grinter* Log By *E. Grinter* Date *4-4-19* Permit # *NA*

Checked By *B. Tiddy* License No.

COMMENTS
Test Pit dimensions 1.7m L x 0.3m W

Depth (m.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
0						
	0.1	TP13/0.2			SP	**SAND:** fine grained, light brown, dry.
	0.4	TP13/0.5			CL	**CLAY:** medium plasticity, dark orange-brown, hard, dry.
1	0.3	TP13/1.0				End of Investigation @1.0mbgs.
2						

Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.

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Drilling Log

Test Pit **TP14**

Project *73-155 Ash Road, Leopold ESA* Owner *Tract Consultants Pty Ltd*

Location *73-155 Ash Road, Leopold, Vic* Proj. No. *754-GEXEN227979*

Surface Elev. *NA* Total Hole Depth *1.0 m.* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *300 mm.*

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material Rig/Core *Backhoe*

Drill Co. Method *Backhoe*

Driller *E. Grinter* Log By *E. Grinter* Date *4-4-19* Permit # *NA*

Checked By *B. Tiddy* License No.

COMMENTS
Test Pit dimensions 1.7m L x 0.3m W

Depth (m.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) — Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						
	0.3	TP14/0.2			SP	**SAND:** fine grained, light brown, dry.
	0.3	TP14/0.5			SP	**Gravelly SAND:** fine grained sand, light brown, with sub-angular gravel, dry.
					CL	**CLAY:** medium plasticity, dark brown-orange, hard, dry.
1	0.5	TP14/1.0				End of investigation @1.0mbgs
2						

coffey
A TETRA TECH COMPANY

Drilling Log

Test Pit **TP15**

Project *73-155 Ash Road, Leopold ESA* Owner *Tract Consultants Pty Ltd*

Location *73-155 Ash Road, Leopold, Vic* Proj. No. *754-GEXEN227979*

Surface Elev. *NA* Total Hole Depth *1.25 m.* North *NA* East *NA*

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *300 mm.*

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material Rig/Core *Backhoe*

Drill Co. Method *Backhoe*

Driller *E. Grinter* Log By *E. Grinter* Date *4-4-19* Permit # *NA*

Checked By *B. Tiddy* License No.

COMMENTS
Test Pit dimensions 1.8m L x 0.3m W

Depth (m.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure)
0						
	0.4	TP15/0.2			SP	**SAND:** fine grained, light brown, dry.
	0.3	TP15/0.5				
1						
	0.5	TP15/1.2			CL	**CLAY:** medium plasticity, dark orange-brown, hard, dry.
						End of investigation @1.25mbgs.
2						

Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.

Appendix E – Calibration Certificate

PID Calibration Certificate

Instrument PhoCheck Tiger
Serial No. T-113963

airmet

Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump	Operation	✓				
	Filter	✓				
	Flow	✓				
	Valves, Diaphragm	✓				
PCB	Condition	✓				
Connectors	Condition	✓				
Sensor	PID	✓	10.6 ev			
Alarms	Beeper	✓	Low	High	TWA	STEL
	Settings	✓	50ppm	100ppm		
Software	Version	✓				
Data logger	Operation	✓				
Download	Operation	✓				
Other tests:						

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Diffusion mode Aspirated mode

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		96ppm Isobutylene	NIST	ME468		96ppm Isobutylene

Calibrated by: David Trengove

Calibration date: 2/04/2019

Next calibration due: 29/09/2019

Appendix F – Laboratory Documents

eurofins | mgt

Melbourne
6 Monterey Road
Dandenong South Vic 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**Coffey Environments Pty Ltd GEEL**
Contact name:	Edward Grinter
Project name:	ASH RD ESA
Project ID:	754-GEXEN227979
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Apr 5, 2019 1:30 PM
Eurofins | mgt reference:	**649548**

Sample information

- ☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ☑ All samples have been received as described on the above COC.
- ☑ COC has been completed correctly.
- ☑ Attempt to chill was evident.
- ☑ Appropriately preserved sample containers have been used.
- ☑ All samples were received in good condition.
- ☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ☑ Appropriate sample containers have been used.
- ☑ Sample containers for volatile analysis received with zero headspace.
- ☑ Split sample sent to requested external lab.
- ☒ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

TP14_1.0 received extra.

Contact notes

If you have any questions with respect to these samples please contact:

Mary Makarios on Phone : +61 3 8564 5000 or by e.mail: MaryMakarios@eurofins.com

Results will be delivered electronically via e.mail to Edward Grinter - Edward.Grinter@coffey.com.

Coffey Environments Pty Ltd GEEL
Level 1, 23 West Fyans Street
Newtown
VIC 3220

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Edward Grinter**

Report **649548-S**
Project name ASH RD ESA
Project ID 754-GEXEN227979
Received Date Apr 05, 2019

Client Sample ID			**BH1_0.1**	**TP1_0.2**	**TP2_0.5**	**TP2_1.0**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M19-Ap10377**	**M19-Ap10378**	**M19-Ap10379**	**M19-Ap10380**
Date Sampled			**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	-
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	-
TRH C15-C28	50	mg/kg	74	< 50	< 50	-
TRH C29-C36	50	mg/kg	82	< 50	< 50	-
TRH C10-36 (Total)	50	mg/kg	156	< 50	< 50	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	67	71	68	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	-
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	-
TRH >C16-C34	100	mg/kg	110	< 100	< 100	-
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	110	< 100	< 100	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-

Client Sample ID			BH1_0.1	TP1_0.2	TP2_0.5	TP2_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Ap10377	M19-Ap10378	M19-Ap10379	M19-Ap10380
Date Sampled			Apr 04, 2019	Apr 04, 2019	Apr 04, 2019	Apr 04, 2019
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	63	61	63	-
p-Terphenyl-d14 (surr.)	1	%	71	64	65	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Dieldrin	0.05	mg/kg	0.12	< 0.05	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Toxaphene	1	mg/kg	< 1	< 1	< 1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	0.12	< 0.05	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	0.12	< 0.1	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Dibutylchlorendate (surr.)	1	%	76	70	68	-
Tetrachloro-m-xylene (surr.)	1	%	72	68	73	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Coumaphos	2	mg/kg	< 2	< 2	< 2	-
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-

Client Sample ID			BH1_0.1	TP1_0.2	TP2_0.5	TP2_1.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M19-Ap10377**	**M19-Ap10378**	**M19-Ap10379**	**M19-Ap10380**
Date Sampled			**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Monocrotophos	2	mg/kg	< 2	< 2	< 2	-
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Omethoate	2	mg/kg	< 2	< 2	< 2	-
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Triphenylphosphate (surr.)	1	%	73	63	57	-
% Clay	1	%	-	-	-	15
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	-	-	-	77
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	4.9	5.4	6.4	-
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.)	0.1	pH Units	-	-	-	6.4
Sulphate (as SO4)	30	mg/kg	32	-	< 30	-
Total Organic Carbon	0.1	%	-	-	-	0.8
% Moisture	1	%	3.3	4.7	1.5	6.6
Heavy Metals						
Arsenic	2	mg/kg	< 2	12	2.1	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	-
Chromium	5	mg/kg	< 5	44	< 5	-
Copper	5	mg/kg	< 5	< 5	< 5	-
Iron	20	mg/kg	-	-	-	23000
Lead	5	mg/kg	6.1	26	< 5	-
Mercury	0.1	mg/kg	< 0.1	0.1	< 0.1	-
Nickel	5	mg/kg	< 5	5.7	< 5	-
Zinc	5	mg/kg	< 5	< 5	< 5	-
Heavy Metals						
Iron (%)	0.01	%	-	-	-	2.3
Cation Exchange Capacity						
Cation Exchange Capacity	0.05	meq/100g	-	-	-	8.7

Client Sample ID			TP3_1.0	TP4_0.2	TP5_0.2	TP6_0.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M19-Ap10381**	**M19-Ap10382**	**M19-Ap10383**	**M19-Ap10384**
Date Sampled			**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	64	68	70	58
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	100	89	66	63
p-Terphenyl-d14 (surr.)	1	%	100	96	69	68

Client Sample ID			TP3_1.0	TP4_0.2	TP5_0.2	TP6_0.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M19-Ap10381**	**M19-Ap10382**	**M19-Ap10383**	**M19-Ap10384**
Date Sampled			**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	0.34	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	0.34	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	0.34	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	130	118	128	127
Tetrachloro-m-xylene (surr.)	1	%	107	98	72	68
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			TP3_1.0	TP4_0.2	TP5_0.2	TP6_0.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M19-Ap10381**	**M19-Ap10382**	**M19-Ap10383**	**M19-Ap10384**
Date Sampled			**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	102	100	60	86
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	7.0	5.5	5.8	-
% Moisture	1	%	15	2.0	1.4	18
Heavy Metals						
Arsenic	2	mg/kg	8.2	< 2	< 2	8.8
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	40	< 5	< 5	56
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	10	< 5	< 5	13
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	13	< 5	< 5	22
Zinc	5	mg/kg	7.2	< 5	5.3	10

Client Sample ID			TP7_0.2	TP8_0.2	TP8_0.5	TP9_0.2
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M19-Ap10385**	**M19-Ap10386**	**M19-Ap10387**	**M19-Ap10388**
Date Sampled			**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	-	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	-	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	-	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	-	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	74	-	77	60

Client Sample ID			TP7_0.2	TP8_0.2	TP8_0.5	TP9_0.2
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M19-Ap10385**	**M19-Ap10386**	**M19-Ap10387**	**M19-Ap10388**
Date Sampled			**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	-	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	-	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	-	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	-	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	66	-	64	76
p-Terphenyl-d14 (surr.)	1	%	77	-	67	76
Organochlorine Pesticides						
Bifenthrin	0.05	mg/kg	< 0.05	-	-	-
Chlordanes - Total	0.1	mg/kg	-	-	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	< 0.05	< 0.05
a-BHC	0.05	mg/kg	-	-	< 0.05	< 0.05
Aldrin	0.05	mg/kg	-	-	< 0.05	< 0.05
b-BHC	0.05	mg/kg	-	-	< 0.05	< 0.05
d-BHC	0.05	mg/kg	-	-	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	-	-	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	-	-	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	-	-	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	< 0.05	< 0.05
Endrin	0.05	mg/kg	-	-	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	-	-	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	< 0.05	< 0.05

Client Sample ID			TP7_0.2	TP8_0.2	TP8_0.5	TP9_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Ap10385	M19-Ap10386	M19-Ap10387	M19-Ap10388
Date Sampled			Apr 04, 2019	Apr 04, 2019	Apr 04, 2019	Apr 04, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Heptachlor	0.05	mg/kg	-	-	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	-	-	< 0.05	< 0.05
Toxaphene	1	mg/kg	-	-	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	72	77
Tetrachloro-m-xylene (surr.)	1	%	-	-	77	83
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	-	< 0.2	< 0.2
Bolstar	0.2	mg/kg	-	-	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	-	-	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	-	-	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	-	-	-
Chlorpyrifos-methyl	0.2	mg/kg	-	-	< 0.2	< 0.2
Coumaphos	2	mg/kg	-	-	< 2	< 2
Demeton-S	0.2	mg/kg	-	-	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	-	-	< 0.2	< 0.2
Diazinon	0.2	mg/kg	-	-	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	-	-	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	-	-	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	-	-	< 0.2	< 0.2
EPN	0.2	mg/kg	-	-	< 0.2	< 0.2
Ethion	0.2	mg/kg	-	-	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	-	-	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	-	-	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	-	-	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	-	-	< 0.2	< 0.2
Fenthion	0.2	mg/kg	-	-	< 0.2	< 0.2
Malathion	0.2	mg/kg	-	-	< 0.2	< 0.2
Merphos	0.2	mg/kg	-	-	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	-	-	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	-	-	< 0.2	< 0.2
Monocrotophos	2	mg/kg	-	-	< 2	< 2
Naled	0.2	mg/kg	-	-	< 0.2	< 0.2
Omethoate	2	mg/kg	-	-	< 2	< 2
Phorate	0.2	mg/kg	-	-	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	-	-	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	-	-	< 0.2	< 0.2
Ronnel	0.2	mg/kg	-	-	< 0.2	< 0.2
Terbufos	0.2	mg/kg	-	-	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	-	-	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	-	-	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	-	-	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	-	-	61	72

Client Sample ID			TP7_0.2	TP8_0.2	TP8_0.5	TP9_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Ap10385	M19-Ap10386	M19-Ap10387	M19-Ap10388
Date Sampled			Apr 04, 2019	Apr 04, 2019	Apr 04, 2019	Apr 04, 2019
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1221	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1232	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1242	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1248	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1254	0.1	mg/kg	< 0.1	-	-	-
Aroclor-1260	0.1	mg/kg	< 0.1	-	-	-
Total PCB*	0.1	mg/kg	< 0.1	-	-	-
Dibutylchlorendate (surr.)	1	%	129	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	70	-	-	-
Triazines						
Atrazine	0.2	mg/kg	< 0.2	-	-	-
NEPM 2013 Acid Herbicides						
Picloram	0.5	mg/kg	< 0.5	-	-	-
2.4-D	0.5	mg/kg	< 0.5	-	-	-
2.4.5-T	0.5	mg/kg	< 0.5	-	-	-
MCPA	0.5	mg/kg	< 0.5	-	-	-
MCPB	0.5	mg/kg	< 0.5	-	-	-
Mecoprop	0.5	mg/kg	< 0.5	-	-	-
Warfarin (surr.)	1	%	128	-	-	-
NEPM 2013 Organochlorine Pesticides						
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	-
Mirex	0.01	mg/kg	< 0.01	-	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	-	-
Aldrin	0.05	mg/kg	< 0.05	-	-	-
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-	-
Dieldrin	0.05	mg/kg	0.37	-	-	-
Endosulfan I	0.05	mg/kg	< 0.05	-	-	-
Endosulfan II	0.05	mg/kg	< 0.05	-	-	-
Endrin	0.05	mg/kg	< 0.05	-	-	-
Heptachlor	0.05	mg/kg	< 0.05	-	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	-
Methoxychlor	0.05	mg/kg	< 0.05	-	-	-
Toxaphene	1	mg/kg	< 1	-	-	-
Dibutylchlorendate (surr.)	1	%	129	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	70	-	-	-
NEPM 2013 Phenols						
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	-	-	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	-	-	-
Pentachlorophenol	1	mg/kg	< 1	-	-	-
Phenol	0.5	mg/kg	< 0.5	-	-	-
Phenol-d6 (surr.)	1	%	59	-	-	-
% Clay	1	%	-	1.3	-	-
Chromium (hexavalent)	1	mg/kg	< 1	-	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	-	140	-	-
Cyanide (free)	5	mg/kg	< 5	-	-	-

Client Sample ID			TP7_0.2	TP8_0.2	TP8_0.5	TP9_0.2
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M19-Ap10385**	**M19-Ap10386**	**M19-Ap10387**	**M19-Ap10388**
Date Sampled			**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**
Test/Reference	LOR	Unit				
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	-	-	6.0	5.0
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.)	0.1	pH Units	-	4.9	-	-
Sulphate (as SO4)	30	mg/kg	-	-	-	51
Total Organic Carbon	0.1	%	-	0.5	-	-
% Moisture	1	%	2.8	1.3	14	5.1
Heavy Metals						
Arsenic	2	mg/kg	< 2	-	16	5.8
Beryllium	2	mg/kg	< 2	-	-	-
Boron	10	mg/kg	< 10	-	-	-
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	-	38	12
Cobalt	5	mg/kg	< 5	-	-	-
Copper	5	mg/kg	< 5	-	< 5	< 5
Iron	20	mg/kg	-	2600	-	-
Lead	5	mg/kg	< 5	-	13	5.9
Manganese	5	mg/kg	16	-	-	-
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	-	10	< 5
Selenium	2	mg/kg	< 2	-	-	-
Zinc	5	mg/kg	7.4	-	8.4	< 5
Heavy Metals						
Iron (%)	0.01	%	-	0.26	-	-
Cation Exchange Capacity						
Cation Exchange Capacity	0.05	meq/100g	-	1.9	-	-

Client Sample ID			TP10_0.2	TP11_0.5	TP12_0.2	TP13_0.2
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M19-Ap10389**	**M19-Ap10390**	**M19-Ap10391**	**M19-Ap10392**
Date Sampled			**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	68	63	67	71

Client Sample ID			TP10_0.2	TP11_0.5	TP12_0.2	TP13_0.2
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M19-Ap10389**	**M19-Ap10390**	**M19-Ap10391**	**M19-Ap10392**
Date Sampled			**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	70	62	74	67
p-Terphenyl-d14 (surr.)	1	%	65	64	73	72
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05

Client Sample ID			TP10_0.2	TP11_0.5	TP12_0.2	TP13_0.2
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**M19-Ap10389**	**M19-Ap10390**	**M19-Ap10391**	**M19-Ap10392**
Date Sampled			**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**	**Apr 04, 2019**
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	67	59	79	77
Tetrachloro-m-xylene (surr.)	1	%	71	74	83	76
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	62	54	74	69
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	5.8	6.2	4.7	6.7
% Moisture	1	%	8.5	19	1.7	3.2

Client Sample ID			TP10_0.2	TP11_0.5	TP12_0.2	TP13_0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Ap10389	M19-Ap10390	M19-Ap10391	M19-Ap10392
Date Sampled			Apr 04, 2019	Apr 04, 2019	Apr 04, 2019	Apr 04, 2019
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	7.0	10	< 2	4.0
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	30	59	< 5	6.4
Copper	5	mg/kg	6.8	< 5	< 5	< 5
Lead	5	mg/kg	86	15	< 5	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	5.1	27	< 5	6.0
Zinc	5	mg/kg	33	7.0	< 5	7.0

Client Sample ID			TP13_0.5	TP14_0.2	TP15_0.5	SP1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Ap10393	M19-Ap10394	M19-Ap10395	M19-Ap10396
Date Sampled			Apr 04, 2019	Apr 04, 2019	Apr 04, 2019	Apr 04, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	68	63	66	73
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			TP13_0.5	TP14_0.2	TP15_0.5	SP1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Ap10393	M19-Ap10394	M19-Ap10395	M19-Ap10396
Date Sampled			Apr 04, 2019	Apr 04, 2019	Apr 04, 2019	Apr 04, 2019
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	67	70	75	72
p-Terphenyl-d14 (surr.)	1	%	68	66	78	74
Organochlorine Pesticides						
Bifenthrin	0.05	mg/kg	-	-	-	< 0.05
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Toxaphene	1	mg/kg	< 1	< 1	< 1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Dibutylchlorendate (surr.)	1	%	71	74	71	-
Tetrachloro-m-xylene (surr.)	1	%	73	69	74	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Chlorpyrifos	0.2	mg/kg	-	-	-	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Coumaphos	2	mg/kg	< 2	< 2	< 2	-

Client Sample ID			TP13_0.5	TP14_0.2	TP15_0.5	SP1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Ap10393	M19-Ap10394	M19-Ap10395	M19-Ap10396
Date Sampled			Apr 04, 2019	Apr 04, 2019	Apr 04, 2019	Apr 04, 2019
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Monocrotophos	2	mg/kg	< 2	< 2	< 2	-
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Omethoate	2	mg/kg	< 2	< 2	< 2	-
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Triphenylphosphate (surr.)	1	%	61	61	65	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1242	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1248	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1254	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1260	0.1	mg/kg	-	-	-	< 0.1
Total PCB*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	88
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	78
Triazines						
Atrazine	0.2	mg/kg	-	-	-	< 0.2
NEPM 2013 Acid Herbicides						
Picloram	0.5	mg/kg	-	-	-	< 0.5
2.4-D	0.5	mg/kg	-	-	-	< 0.5
2.4.5-T	0.5	mg/kg	-	-	-	< 0.5
MCPA	0.5	mg/kg	-	-	-	< 0.5
MCPB	0.5	mg/kg	-	-	-	< 0.5
Mecoprop	0.5	mg/kg	-	-	-	< 0.5
Warfarin (surr.)	1	%	-	-	-	126

Client Sample ID			TP13_0.5	TP14_0.2	TP15_0.5	SP1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Ap10393	M19-Ap10394	M19-Ap10395	M19-Ap10396
Date Sampled			Apr 04, 2019	Apr 04, 2019	Apr 04, 2019	Apr 04, 2019
Test/Reference	LOR	Unit				
NEPM 2013 Organochlorine Pesticides						
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Mirex	0.01	mg/kg	-	-	-	< 0.01
4.4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.05	mg/kg	-	-	-	< 0.05
Toxaphene	1	mg/kg	-	-	-	< 1
Dibutylchlorendate (surr.)	1	%	-	-	-	88
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	78
NEPM 2013 Phenols						
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	-	< 0.2
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	-	< 0.4
Pentachlorophenol	1	mg/kg	-	-	-	< 1
Phenol	0.5	mg/kg	-	-	-	< 0.5
Phenol-d6 (surr.)	1	%	-	-	-	33
% Clay	1	%	-	2.5	-	-
Chromium (hexavalent)	1	mg/kg	-	-	-	< 1
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	-	41	-	-
Cyanide (free)	5	mg/kg	-	-	-	< 5
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	7.9	-	6.7	-
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.)	0.1	pH Units	-	4.6	-	-
Sulphate (as SO4)	30	mg/kg	-	< 30	-	-
Total Organic Carbon	0.1	%	-	1.0	-	-
% Moisture	1	%	18	1.9	1.3	3.8
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	2.7	2.9
Beryllium	2	mg/kg	-	-	-	< 2
Boron	10	mg/kg	-	-	-	< 10
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	28	< 5	< 5	10
Cobalt	5	mg/kg	-	-	-	< 5
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Iron	20	mg/kg	-	3100	-	-
Lead	5	mg/kg	8.8	5.4	< 5	12
Manganese	5	mg/kg	-	-	-	71
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	9.4	< 5	< 5	12
Selenium	2	mg/kg	-	-	-	< 2
Zinc	5	mg/kg	5.7	< 5	< 5	25
Heavy Metals						
Iron (%)	0.01	%	-	0.31	-	-

Client Sample ID			TP13_0.5	TP14_0.2	TP15_0.5	SP1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			M19-Ap10393	M19-Ap10394	M19-Ap10395	M19-Ap10396
Date Sampled			Apr 04, 2019	Apr 04, 2019	Apr 04, 2019	Apr 04, 2019
Test/Reference	LOR	Unit				
Cation Exchange Capacity						
Cation Exchange Capacity	0.05	meq/100g	-	1.5	-	-

Client Sample ID			SP2	D1
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			M19-Ap10397	M19-Ap10398
Date Sampled			Apr 04, 2019	Apr 04, 2019
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	57	59
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5

Client Sample ID			SP2	D1
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			M19-Ap10397	M19-Ap10398
Date Sampled			Apr 04, 2019	Apr 04, 2019
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	62	63
p-Terphenyl-d14 (surr.)	1	%	74	79
Organochlorine Pesticides				
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	127	130
Tetrachloro-m-xylene (surr.)	1	%	66	69
Organophosphorus Pesticides				
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2

Client Sample ID			SP2	D1
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			M19-Ap10397	M19-Ap10398
Date Sampled			Apr 04, 2019	Apr 04, 2019
Test/Reference	LOR	Unit		
Organophosphorus Pesticides				
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	120	122
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	7.6	-
% Moisture	1	%	4.7	7.2
Heavy Metals				
Arsenic	2	mg/kg	3.1	6.3
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	11	28
Copper	5	mg/kg	6.4	< 5
Lead	5	mg/kg	12	13
Mercury	0.1	mg/kg	< 0.1	0.1
Nickel	5	mg/kg	21	8.4
Zinc	5	mg/kg	31	< 5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Apr 09, 2019	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Apr 09, 2019	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Apr 09, 2019	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Apr 09, 2019	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Eurofins | mgt Suite B10			
Polycyclic Aromatic Hydrocarbons	Melbourne	Apr 09, 2019	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Organochlorine Pesticides	Melbourne	Apr 09, 2019	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Melbourne	Apr 09, 2019	14 Day
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Metals M8	Melbourne	Apr 09, 2019	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding Methyl Mercury/PBDE			
Polychlorinated Biphenyls	Melbourne	Apr 09, 2019	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Triazines	Melbourne	Apr 09, 2019	14 Day
- Method: LTM-ORG-2080			
NEPM 2013 Acid Herbicides	Melbourne	Apr 09, 2019	14 Day
- Method: MGT 530			
NEPM 2013 Organochlorine Pesticides	Melbourne	Apr 09, 2019	14 Day
- Method: USEPA 8081 Organochlorine Pesticides			
NEPM 2013 Phenols	Melbourne	Apr 09, 2019	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Chromium (hexavalent)	Melbourne	Apr 09, 2019	28 Day
- Method: APHA 3500-Cr Hexavalent Chromium- (Extraction:- USEPA3060)			
NEPM 2013 Metals : Metals M12	Melbourne	Apr 09, 2019	28 Day
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
Heavy Metals	Melbourne	Apr 09, 2019	180 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
NEPM Screen for Soil Classification			
% Clay	Brisbane	Apr 10, 2019	0 Day
- Method: LTM-GEN-7040			
Conductivity (1:5 aqueous extract at 25°C as rec.)	Melbourne	Apr 09, 2019	7 Day
- Method: LTM-INO-4030 Conductivity			
pH (units)(1:5 soil:CaCl2 extract at 25°C as rec.)	Melbourne	Apr 09, 2019	7 Day
- Method: LTM-GEN-7090 pH in soil by ISE			
Total Organic Carbon	Melbourne	Apr 10, 2019	28 Day
- Method: APHA 5310B Total Organic Carbon			
Cation Exchange Capacity	Melbourne	Apr 10, 2019	180 Days
- Method: LTM-MET-3060 Cation Exchange Capacity by bases & Exchangeable Sodium Percentage			
pH (1:5 Aqueous extract at 25°C as rec.)	Melbourne	Apr 09, 2019	7 Day
- Method: LTM-GEN-7090 pH in soil by ISE			
Sulphate (as SO4)	Melbourne	Apr 09, 2019	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
% Moisture	Melbourne	Apr 05, 2019	14 Day
- Method: LTM-GEN-7080 Moisture			

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Company Name: Coffey Environments Pty Ltd GEEL
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Project Name: ASH RD ESA
Project ID: 754-GEXEN227979

Order No.:
Report #: 649548
Phone: 5215 4600
Fax: 5224 1368

Received: Apr 5, 2019 1:30 PM
Due: Apr 12, 2019
Priority: 5 Day
Contact Name: Edward Grinter

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Sulphate (as SO4)	TRH C6-C9	Moisture Set	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	NEPM Screen for Soil Classification	Eurofins | mgt Suite B10	Eurofins | mgt Suite B5 (filtered metals)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
External Laboratory														
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
1	BH1_0.1	Apr 04, 2019		Soil	M19-Ap10377		X	X		X			X	
2	TP1_0.2	Apr 04, 2019		Soil	M19-Ap10378		X			X			X	
3	TP2_0.5	Apr 04, 2019		Soil	M19-Ap10379		X	X		X			X	
4	TP2_1.0	Apr 04, 2019		Soil	M19-Ap10380					X		X		
5	TP3_1.0	Apr 04, 2019		Soil	M19-Ap10381		X			X			X	
6	TP4_0.2	Apr 04, 2019		Soil	M19-Ap10382		X			X			X	
7	TP5_0.2	Apr 04, 2019		Soil	M19-Ap10383		X			X			X	
8	TP6_0.5	Apr 04, 2019		Soil	M19-Ap10384					X			X	
9	TP7_0.2	Apr 04, 2019		Soil	M19-Ap10385					X	X			

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Company Name: Coffey Environments Pty Ltd GEEL
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Project Name: ASH RD ESA
Project ID: 754-GEXEN227979

Order No.:
Report #: 649548
Phone: 5215 4600
Fax: 5224 1368

Received: Apr 5, 2019 1:30 PM
Due: Apr 12, 2019
Priority: 5 Day
Contact Name: Edward Grinter

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Sulphate (as SO4)	TRH C6-C9	Moisture Set	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	NEPM Screen for Soil Classification	Eurofins | mgt Suite B10	Eurofins | mgt Suite B5 (filtered metals)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
10	TP8_0.2	Apr 04, 2019		Soil	M19-Ap10386					X		X		
11	TP8_0.5	Apr 04, 2019		Soil	M19-Ap10387		X			X			X	
12	TP9_0.2	Apr 04, 2019		Soil	M19-Ap10388		X	X		X			X	
13	TP10_0.2	Apr 04, 2019		Soil	M19-Ap10389		X			X			X	
14	TP11_0.5	Apr 04, 2019		Soil	M19-Ap10390		X			X			X	
15	TP12_0.2	Apr 04, 2019		Soil	M19-Ap10391		X			X			X	
16	TP13_0.2	Apr 04, 2019		Soil	M19-Ap10392		X			X			X	
17	TP13_0.5	Apr 04, 2019		Soil	M19-Ap10393		X			X			X	
18	TP14_0.2	Apr 04, 2019		Soil	M19-Ap10394			X		X		X	X	
19	TP15_0.5	Apr 04, 2019		Soil	M19-Ap10395		X			X			X	
20	SP1	Apr 04, 2019		Soil	M19-Ap10396					X	X			
21	SP2	Apr 04, 2019		Soil	M19-Ap10397		X			X			X	

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Company Name: Coffey Environments Pty Ltd GEEL
Address: Level 1, 23 West Fyans Street
Newtown
VIC 3220

Project Name: ASH RD ESA
Project ID: 754-GEXEN227979

Order No.:
Report #: 649548
Phone: 5215 4600
Fax: 5224 1368

Received: Apr 5, 2019 1:30 PM
Due: Apr 12, 2019
Priority: 5 Day
Contact Name: Edward Grinter

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Sulphate (as SO4)	TRH C6-C9	Moisture Set	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	NEPM Screen for Soil Classification	Eurofins | mgt Suite B10	Eurofins | mgt Suite B5 (filtered metals)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
22	D1	Apr 04, 2019		Soil	M19-Ap10398					X			X	
23	RB1	Apr 04, 2019		Water	M19-Ap10399									X
24	TB1	Apr 04, 2019		Water	M19-Ap10400				X					
25	BH1_0.3	Apr 04, 2019		Soil	M19-Ap10401	X								
26	TP1_0.5	Apr 04, 2019		Soil	M19-Ap10402	X								
27	TP1_1.0	Apr 04, 2019		Soil	M19-Ap10403	X								
28	TP1_1.3	Apr 04, 2019		Soil	M19-Ap10404	X								
29	TP2_0.2	Apr 04, 2019		Soil	M19-Ap10405	X								
30	TP3_0.2	Apr 04, 2019		Soil	M19-Ap10406	X								
31	TP3_0.5	Apr 04, 2019		Soil	M19-Ap10407	X								
32	TP4_0.4	Apr 04, 2019		Soil	M19-Ap10408	X								
33	TP5_0.5	Apr 04, 2019		Soil	M19-Ap10409	X								

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
34	TP6_0.2	Apr 04, 2019		Soil	M19-Ap10410	X								
35	TP7_0.5	Apr 04, 2019		Soil	M19-Ap10411	X								
36	TP7_1.1	Apr 04, 2019		Soil	M19-Ap10412	X								
37	TP9_0.5	Apr 04, 2019		Soil	M19-Ap10413	X								
38	TP10_0.4	Apr 04, 2019		Soil	M19-Ap10414	X								
39	TP11_0.2	Apr 04, 2019		Soil	M19-Ap10415	X								
40	TP12_0.5	Apr 04, 2019		Soil	M19-Ap10416	X								
41	TP13_1.0	Apr 04, 2019		Soil	M19-Ap10417	X								
42	TP14_0.5	Apr 04, 2019		Soil	M19-Ap10418	X								
43	TP15_0.2	Apr 04, 2019		Soil	M19-Ap10419	X								
44	TP15_1.2	Apr 04, 2019		Soil	M19-Ap10420	X								
45	D2	Apr 04, 2019		Soil	M19-Ap10421	X								

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Sample Detail						HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Sulphate (as SO4)	TRH C6-C9	Moisture Set	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	NEPM Screen for Soil Classification	Eurofins | mgt Suite B10	Eurofins | mgt Suite B5 (filtered metals)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
46	TP14_1.0	Apr 04, 2019		Soil	M19-Ap10438	X								
Test Counts						22	15	4	1	22	2	3	18	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure, April 2011 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

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

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

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

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.2 2018
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.2 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Bifenthrin	mg/kg	< 0.05			0.05	Pass	
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Triazines							
Atrazine	mg/kg	< 0.2			0.2	Pass	
Method Blank							
NEPM 2013 Acid Herbicides							
Picloram	mg/kg	< 0.5			0.5	Pass	
2.4-D	mg/kg	< 0.5			0.5	Pass	
2.4.5-T	mg/kg	< 0.5			0.5	Pass	
MCPA	mg/kg	< 0.5			0.5	Pass	
MCPB	mg/kg	< 0.5			0.5	Pass	
Mecoprop	mg/kg	< 0.5			0.5	Pass	
Method Blank							
NEPM 2013 Organochlorine Pesticides							
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Mirex	mg/kg	< 0.01			0.01	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
NEPM 2013 Phenols							
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
% Clay	%	< 1			1	Pass	
Sulphate (as SO4)	mg/kg	< 30			30	Pass	
Total Organic Carbon	%	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Iron	mg/kg	< 20			20	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	95			70-130	Pass	
TRH C10-C14	%	87			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	99			70-130	Pass	
Toluene	%	106			70-130	Pass	
Ethylbenzene	%	109			70-130	Pass	
m&p-Xylenes	%	114			70-130	Pass	
Xylenes - Total	%	112			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	100			70-130	Pass	
TRH C6-C10	%	96			70-130	Pass	
TRH >C10-C16	%	80			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	80			70-130	Pass	
Acenaphthylene	%	99			70-130	Pass	
Anthracene	%	86			70-130	Pass	
Benz(a)anthracene	%	92			70-130	Pass	
Benzo(a)pyrene	%	111			70-130	Pass	
Benzo(b&j)fluoranthene	%	119			70-130	Pass	
Benzo(g.h.i)perylene	%	116			70-130	Pass	
Benzo(k)fluoranthene	%	115			70-130	Pass	
Chrysene	%	121			70-130	Pass	
Dibenz(a.h)anthracene	%	95			70-130	Pass	
Fluoranthene	%	90			70-130	Pass	
Fluorene	%	101			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	109			70-130	Pass	
Naphthalene	%	111			70-130	Pass	
Phenanthrene	%	91			70-130	Pass	
Pyrene	%	95			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Bifenthrin	%	101			70-130	Pass	
Chlordanes - Total	%	92			70-130	Pass	
4.4'-DDD	%	83			70-130	Pass	
4.4'-DDE	%	104			70-130	Pass	
4.4'-DDT	%	91			70-130	Pass	
a-BHC	%	96			70-130	Pass	
Aldrin	%	99			70-130	Pass	
b-BHC	%	74			70-130	Pass	
d-BHC	%	83			70-130	Pass	
Dieldrin	%	106			70-130	Pass	
Endosulfan I	%	87			70-130	Pass	
Endosulfan II	%	85			70-130	Pass	
Endosulfan sulphate	%	93			70-130	Pass	
Endrin	%	87			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	%	100			70-130	Pass	
Endrin ketone	%	111			70-130	Pass	
g-BHC (Lindane)	%	97			70-130	Pass	
Heptachlor	%	98			70-130	Pass	
Heptachlor epoxide	%	122			70-130	Pass	
Hexachlorobenzene	%	113			70-130	Pass	
Methoxychlor	%	103			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	76			70-130	Pass	
Dimethoate	%	100			70-130	Pass	
Ethion	%	103			70-130	Pass	
Fenitrothion	%	88			70-130	Pass	
Methyl parathion	%	92			70-130	Pass	
Mevinphos	%	84			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	122			70-130	Pass	
LCS - % Recovery							
NEPM 2013 Acid Herbicides							
Picloram	%	99			70-130	Pass	
2.4-D	%	109			70-130	Pass	
2.4.5-T	%	103			70-130	Pass	
MCPA	%	107			70-130	Pass	
MCPB	%	117			70-130	Pass	
Mecoprop	%	98			70-130	Pass	
LCS - % Recovery							
NEPM 2013 Organochlorine Pesticides							
Mirex	%	95			70-130	Pass	
LCS - % Recovery							
NEPM 2013 Phenols							
2-Methylphenol (o-Cresol)	%	43			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	77			30-130	Pass	
Pentachlorophenol	%	83			30-130	Pass	
Phenol	%	61			30-130	Pass	
LCS - % Recovery							
Total Organic Carbon	%	103			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	100			80-120	Pass	
Beryllium	%	89			80-120	Pass	
Boron	%	93			80-120	Pass	
Cadmium	%	96			80-120	Pass	
Chromium	%	110			80-120	Pass	
Cobalt	%	108			80-120	Pass	
Copper	%	109			80-120	Pass	
Lead	%	117			80-120	Pass	
Manganese	%	114			80-120	Pass	
Mercury	%	106			75-125	Pass	
Nickel	%	116			80-120	Pass	
Selenium	%	103			80-120	Pass	
Zinc	%	114			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	M19-Ap16601	NCP	%	117			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M19-Ap16601	NCP	%	114			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Endrin	M19-Ap09945	NCP	%	76			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M19-Ap10377	CP	%	89			75-125	Pass	
Beryllium	M19-Ap10377	CP	%	87			75-125	Pass	
Boron	M19-Ap10377	CP	%	88			75-125	Pass	
Cadmium	M19-Ap10377	CP	%	93			75-125	Pass	
Chromium	M19-Ap10377	CP	%	99			75-125	Pass	
Cobalt	M19-Ap10377	CP	%	96			75-125	Pass	
Copper	M19-Ap10377	CP	%	100			75-125	Pass	
Lead	M19-Ap10377	CP	%	104			75-125	Pass	
Manganese	M19-Ap10377	CP	%	103			75-125	Pass	
Mercury	M19-Ap10377	CP	%	105			70-130	Pass	
Nickel	M19-Ap10377	CP	%	106			75-125	Pass	
Selenium	M19-Ap10377	CP	%	91			75-125	Pass	
Zinc	M19-Ap10377	CP	%	103			75-125	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M19-Ap10379	CP	%	73			70-130	Pass	
Acenaphthylene	M19-Ap10379	CP	%	82			70-130	Pass	
Anthracene	M19-Ap10379	CP	%	72			70-130	Pass	
Benz(a)anthracene	M19-Ap10379	CP	%	76			70-130	Pass	
Benzo(a)pyrene	M19-Ap10379	CP	%	94			70-130	Pass	
Benzo(b&j)fluoranthene	M19-Ap10379	CP	%	98			70-130	Pass	
Benzo(g.h.i)perylene	M19-Ap10379	CP	%	105			70-130	Pass	
Benzo(k)fluoranthene	M19-Ap10379	CP	%	99			70-130	Pass	
Chrysene	M19-Ap10379	CP	%	99			70-130	Pass	
Dibenz(a.h)anthracene	M19-Ap10379	CP	%	84			70-130	Pass	
Fluoranthene	M19-Ap10379	CP	%	76			70-130	Pass	
Fluorene	M19-Ap10379	CP	%	83			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M19-Ap10379	CP	%	92			70-130	Pass	
Naphthalene	M19-Ap10379	CP	%	92			70-130	Pass	
Phenanthrene	M19-Ap10379	CP	%	75			70-130	Pass	
Pyrene	M19-Ap10379	CP	%	79			70-130	Pass	
Spike - % Recovery									
NEPM 2013 Phenols				Result 1					
2-Methylphenol (o-Cresol)	M19-Ap10379	CP	%	100			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Ap10379	CP	%	107			30-130	Pass	
Pentachlorophenol	M19-Ap10379	CP	%	75			30-130	Pass	
Phenol	M19-Ap10379	CP	%	107			30-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M19-Ap10384	CP	%	103			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M19-Ap10384	CP	%	106			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Toluene	M19-Ap10384	CP	%	112			70-130	Pass	
Ethylbenzene	M19-Ap10384	CP	%	113			70-130	Pass	
m&p-Xylenes	M19-Ap10384	CP	%	122			70-130	Pass	
o-Xylene	M19-Ap10384	CP	%	115			70-130	Pass	
Xylenes - Total	M19-Ap10384	CP	%	120			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M19-Ap10384	CP	%	95			70-130	Pass	
TRH C6-C10	M19-Ap10384	CP	%	104			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	M19-Ap14325	NCP	%	75			70-130	Pass	
Aroclor-1260	M19-Ap14325	NCP	%	85			70-130	Pass	
Spike - % Recovery									
NEPM 2013 Acid Herbicides				Result 1					
Picloram	M19-Ap10810	NCP	%	88			70-130	Pass	
2.4-D	M19-Ap10810	NCP	%	92			70-130	Pass	
MCPA	M19-Ap10810	NCP	%	94			70-130	Pass	
MCPB	M19-Ap10810	NCP	%	95			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	M19-Ap09934	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M19-Ap10387	CP	%	91			75-125	Pass	
Beryllium	M19-Ap10387	CP	%	72			75-125	Fail	Q08
Boron	M19-Ap10387	CP	%	66			75-125	Fail	Q08
Cadmium	M19-Ap10387	CP	%	94			75-125	Pass	
Chromium	M19-Ap10387	CP	%	93			75-125	Pass	
Cobalt	M19-Ap10387	CP	%	85			75-125	Pass	
Copper	M19-Ap10387	CP	%	86			75-125	Pass	
Lead	M19-Ap10387	CP	%	92			75-125	Pass	
Manganese	M19-Ap10387	CP	%	93			75-125	Pass	
Mercury	M19-Ap10387	CP	%	94			70-130	Pass	
Nickel	M19-Ap10387	CP	%	91			75-125	Pass	
Selenium	M19-Ap10387	CP	%	81			75-125	Pass	
Zinc	M19-Ap10387	CP	%	89			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M19-Ap10389	CP	%	103			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M19-Ap10389	CP	%	105			70-130	Pass	
Toluene	M19-Ap10389	CP	%	101			70-130	Pass	
Ethylbenzene	M19-Ap10389	CP	%	96			70-130	Pass	
m&p-Xylenes	M19-Ap10389	CP	%	101			70-130	Pass	
o-Xylene	M19-Ap10389	CP	%	101			70-130	Pass	
Xylenes - Total	M19-Ap10389	CP	%	101			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M19-Ap10389	CP	%	85			70-130	Pass	
TRH C6-C10	M19-Ap10389	CP	%	115			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Bifenthrin	M19-Ap10389	CP	%	89			70-130	Pass	
Chlordanes - Total	M19-Ap10389	CP	%	95			70-130	Pass	
4.4'-DDD	M19-Ap10389	CP	%	122			70-130	Pass	
4.4'-DDE	M19-Ap10389	CP	%	92			70-130	Pass	
4.4'-DDT	M19-Ap10389	CP	%	84			70-130	Pass	
a-BHC	M19-Ap10389	CP	%	76			70-130	Pass	
Aldrin	M19-Ap10389	CP	%	96			70-130	Pass	
b-BHC	M19-Ap10389	CP	%	84			70-130	Pass	
d-BHC	M19-Ap10389	CP	%	70			70-130	Pass	
Dieldrin	M19-Ap10389	CP	%	87			70-130	Pass	
Endosulfan I	M19-Ap10389	CP	%	101			70-130	Pass	
Endosulfan II	M19-Ap10389	CP	%	100			70-130	Pass	
Endosulfan sulphate	M19-Ap10389	CP	%	94			70-130	Pass	
Endrin aldehyde	M19-Ap10389	CP	%	93			70-130	Pass	
Endrin ketone	M19-Ap10389	CP	%	101			70-130	Pass	
g-BHC (Lindane)	M19-Ap10389	CP	%	95			70-130	Pass	
Heptachlor	M19-Ap10389	CP	%	76			70-130	Pass	
Heptachlor epoxide	M19-Ap10389	CP	%	99			70-130	Pass	
Hexachlorobenzene	M19-Ap10389	CP	%	103			70-130	Pass	
Methoxychlor	M19-Ap10389	CP	%	76			70-130	Pass	
Spike - % Recovery									
NEPM 2013 Organochlorine Pesticides				Result 1					
Mirex	M19-Ap10389	CP	%	105			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M19-Ap10391	CP	%	92			70-130	Pass	
Acenaphthylene	M19-Ap10391	CP	%	114			70-130	Pass	
Anthracene	M19-Ap10391	CP	%	99			70-130	Pass	
Benz(a)anthracene	M19-Ap10391	CP	%	114			70-130	Pass	
Benzo(a)pyrene	M19-Ap10391	CP	%	104			70-130	Pass	
Benzo(b&j)fluoranthene	M19-Ap10391	CP	%	107			70-130	Pass	
Benzo(g.h.i)perylene	M19-Ap10391	CP	%	122			70-130	Pass	
Benzo(k)fluoranthene	M19-Ap10391	CP	%	108			70-130	Pass	
Chrysene	M19-Ap10391	CP	%	103			70-130	Pass	
Dibenz(a.h)anthracene	M19-Ap10391	CP	%	115			70-130	Pass	
Fluoranthene	M19-Ap10391	CP	%	106			70-130	Pass	
Fluorene	M19-Ap10391	CP	%	114			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M19-Ap10391	CP	%	110			70-130	Pass	
Naphthalene	M19-Ap10391	CP	%	127			70-130	Pass	
Phenanthrene	M19-Ap10391	CP	%	104			70-130	Pass	
Pyrene	M19-Ap10391	CP	%	108			70-130	Pass	
Spike - % Recovery									
NEPM 2013 Phenols				Result 1					
2-Methylphenol (o-Cresol)	M19-Ap10391	CP	%	91			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Ap10391	CP	%	99			30-130	Pass	
Pentachlorophenol	M19-Ap10391	CP	%	128			30-130	Pass	
Phenol	M19-Ap10391	CP	%	97			30-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	M19-Ap10394	CP	%	97			70-130	Pass	
Dimethoate	M19-Ap10394	CP	%	75			70-130	Pass	
Ethion	M19-Ap10394	CP	%	83			70-130	Pass	
Fenitrothion	M19-Ap10394	CP	%	89			70-130	Pass	
Methyl parathion	M19-Ap10394	CP	%	76			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mevinphos	M19-Ap10394	CP	%	81			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M19-Ap10397	CP	%	74			75-125	Fail	Q08
Cadmium	M19-Ap10397	CP	%	80			75-125	Pass	
Chromium	M19-Ap10397	CP	%	82			75-125	Pass	
Cobalt	M19-Ap10397	CP	%	80			75-125	Pass	
Copper	M19-Ap10397	CP	%	83			75-125	Pass	
Lead	M19-Ap10397	CP	%	89			75-125	Pass	
Mercury	M19-Ap10397	CP	%	87			70-130	Pass	
Nickel	M19-Ap10397	CP	%	82			75-125	Pass	
Selenium	M19-Ap10397	CP	%	87			75-125	Pass	
Zinc	M19-Ap10397	CP	%	82			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
pH (1:5 Aqueous extract at 25°C as rec.)	M19-Ap08742	NCP	pH Units	5.9	6.0	pass	30%	Pass	
Sulphate (as SO4)	M19-Ap08759	NCP	mg/kg	92	88	4.0	30%	Pass	
% Moisture	M19-Ap10377	CP	%	3.3	3.3	2.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M19-Ap10377	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Beryllium	M19-Ap10377	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	M19-Ap10377	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Cadmium	M19-Ap10377	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M19-Ap10377	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Cobalt	M19-Ap10377	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	M19-Ap10377	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	M19-Ap10377	CP	mg/kg	6.1	6.1	1.0	30%	Pass	
Manganese	M19-Ap10377	CP	mg/kg	15	15	1.0	30%	Pass	
Mercury	M19-Ap10377	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M19-Ap10377	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Selenium	M19-Ap10377	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Zinc	M19-Ap10377	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Bifenthrin	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Chlordanes - Total	M19-Ap10378	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M19-Ap10378	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	M19-Ap10378	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	M19-Ap10378	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	M19-Ap10378	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Tetrachlorvinphos	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Triazines				Result 1	Result 2	RPD			
Atrazine	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
NEPM 2013 Organochlorine Pesticides				Result 1	Result 2	RPD			
Mirex	M19-Ap10378	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
NEPM 2013 Phenols				Result 1	Result 2	RPD			
2-Methylphenol (o-Cresol)	M19-Ap10378	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Ap10378	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Pentachlorophenol	M19-Ap10378	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Phenol	M19-Ap10378	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25°C as rec.)	M19-Ap08742	NCP	uS/cm	170	170	2.3	30%	Pass	
Total Organic Carbon	M19-Ap10380	CP	%	0.8	0.8	3.3	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Iron	M19-Ap13651	NCP	mg/kg	21000	21000	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Bifenthrin	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Chlordanes - Total	M19-Ap10381	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Endosulfan II	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M19-Ap10381	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	M19-Ma41669	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	M19-Ap10381	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	M19-Ap10381	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	M19-Ap10381	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Triazines				Result 1	Result 2	RPD			
Atrazine	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
NEPM 2013 Organochlorine Pesticides				Result 1	Result 2	RPD			
Mirex	M19-Ap10381	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	

Duplicate									
NEPM 2013 Phenols				Result 1	Result 2	RPD			
2-Methylphenol (o-Cresol)	M19-Ap10381	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Ap10381	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Pentachlorophenol	M19-Ap10381	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Phenol	M19-Ap10381	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M19-Ap10383	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M19-Ap10383	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M19-Ap10383	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M19-Ap10383	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M19-Ap10383	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M19-Ap10383	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M19-Ap10383	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M19-Ap10383	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M19-Ap10383	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	M19-Ap10384	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M19-Ap10384	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M19-Ap10384	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M19-Ap10384	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M19-Ap10384	CP	mg/kg	< 100	< 100	<1	30%	Pass	Q15
TRH >C34-C40	M19-Ap10384	CP	mg/kg	< 100	< 100	<1	30%	Pass	Q15
Duplicate									
NEPM 2013 Acid Herbicides				Result 1	Result 2	RPD			
Picloram	M19-Ap10808	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-D	M19-Ap10808	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-T	M19-Ap10808	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
MCPA	M19-Ap10808	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
MCPB	M19-Ap10808	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Mecoprop	M19-Ap10808	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	M19-Ap10848	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M19-Ap10386	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Beryllium	M19-Ap10386	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	M19-Ap10386	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Cadmium	M19-Ap10386	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M19-Ap10386	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Cobalt	M19-Ap10386	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	M19-Ap10386	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	M19-Ap10386	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Manganese	M19-Ap10386	CP	mg/kg	5.9	5.2	13	30%	Pass	
Mercury	M19-Ap10386	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M19-Ap10386	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Selenium	M19-Ap10386	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Zinc	M19-Ap10386	CP	mg/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M19-Ap10387	CP	%	14	14	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M19-Ap10387	CP	mg/kg	16	16	1.0	30%	Pass	
Beryllium	M19-Ap10387	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	M19-Ap10387	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Cadmium	M19-Ap10387	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M19-Ap10387	CP	mg/kg	38	39	3.0	30%	Pass	
Cobalt	M19-Ap10387	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	M19-Ap10387	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	M19-Ap10387	CP	mg/kg	13	13	<1	30%	Pass	
Manganese	M19-Ap10387	CP	mg/kg	19	20	2.0	30%	Pass	
Mercury	M19-Ap10387	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M19-Ap10387	CP	mg/kg	10	10	<1	30%	Pass	
Selenium	M19-Ap10387	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Zinc	M19-Ap10387	CP	mg/kg	8.4	8.6	3.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M19-Ap10388	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M19-Ap10388	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M19-Ap10388	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M19-Ap10388	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M19-Ap10388	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M19-Ap10388	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M19-Ap10388	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Bifenthrin	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Chlordanes - Total	M19-Ap10388	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M19-Ap10388	CP	mg/kg	< 0.05	0.06	36	30%	Fail	Q15
Endosulfan I	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M19-Ap10388	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	M19-Ap10388	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	M19-Ap10388	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	M19-Ap10388	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Tetrachlorvinphos	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Triazines				Result 1	Result 2	RPD			
Atrazine	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
NEPM 2013 Organochlorine Pesticides				Result 1	Result 2	RPD			
Mirex	M19-Ap10388	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
NEPM 2013 Phenols				Result 1	Result 2	RPD			
2-Methylphenol (o-Cresol)	M19-Ap10388	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Ap10388	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Pentachlorophenol	M19-Ap10388	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Phenol	M19-Ap10388	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Bifenthrin	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Chlordanes - Total	M19-Ap10390	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Hexachlorobenzene	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M19-Ap10390	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	M19-Ap10390	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	M19-Ap10390	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	M19-Ap10390	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Triazines				Result 1	Result 2	RPD			
Atrazine	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
NEPM 2013 Organochlorine Pesticides				Result 1	Result 2	RPD			
Mirex	M19-Ap10390	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
NEPM 2013 Phenols				Result 1	Result 2	RPD			
2-Methylphenol (o-Cresol)	M19-Ap10390	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Ap10390	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Pentachlorophenol	M19-Ap10390	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Phenol	M19-Ap10390	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Bifenthrin	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Chlordanes - Total	M19-Ap10393	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M19-Ap10393	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	M19-Ap10393	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Ethion	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	M19-Ap10393	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	M19-Ap10393	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Triazines				Result 1	Result 2	RPD			
Atrazine	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
NEPM 2013 Organochlorine Pesticides				Result 1	Result 2	RPD			
Mirex	M19-Ap10393	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
Duplicate									
NEPM 2013 Phenols				Result 1	Result 2	RPD			
2-Methylphenol (o-Cresol)	M19-Ap10393	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Ap10393	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Pentachlorophenol	M19-Ap10393	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Phenol	M19-Ap10393	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Clay	M19-Ap10394	CP	%	2.5	2.5	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1254	M19-Ap01859	NCP	mg/kg	0.6	0.6	6.0	30%	Pass	
Total PCB*	M19-Ap01859	NCP	mg/kg	0.6	0.6	6	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M19-Ap10397	CP	%	4.7	5.2	9.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M19-Ap10397	CP	mg/kg	3.1	3.1	<1	30%	Pass	
Beryllium	M19-Ap10397	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	M19-Ap10397	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Cadmium	M19-Ap10397	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M19-Ap10397	CP	mg/kg	11	12	3.0	30%	Pass	
Cobalt	M19-Ap10397	CP	mg/kg	< 5	5.0	4.0	30%	Pass	
Copper	M19-Ap10397	CP	mg/kg	6.4	6.4	<1	30%	Pass	
Lead	M19-Ap10397	CP	mg/kg	12	12	<1	30%	Pass	
Manganese	M19-Ap10397	CP	mg/kg	100	100	1.0	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Mercury	M19-Ap10397	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M19-Ap10397	CP	mg/kg	21	21	1.0	30%	Pass	
Selenium	M19-Ap10397	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Zinc	M19-Ap10397	CP	mg/kg	31	31	2.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Mary Makarios	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Jonathon Angell	Senior Analyst-Inorganic (QLD)
Joseph Edouard	Senior Analyst-Organic (VIC)
Julie Kay	Senior Analyst-Inorganic (VIC)

Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

Coffey Environments Pty Ltd GEEL
Level 1, 23 West Fyans Street
Newtown
VIC 3220

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Edward Grinter**

Report **649548-W**
Project name ASH RD ESA
Project ID 754-GEXEN227979
Received Date Apr 05, 2019

Client Sample ID			**RB1**	**TB1**
Sample Matrix			**Water**	**Water**
Eurofins | mgt Sample No.			**M19-Ap10399**	**M19-Ap10400**
Date Sampled			**Apr 04, 2019**	**Apr 04, 2019**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	-
TRH C15-C28	0.1	mg/L	< 0.1	-
TRH C29-C36	0.1	mg/L	< 0.1	-
TRH C10-36 (Total)	0.1	mg/L	< 0.1	-
BTEX				
Benzene	0.001	mg/L	< 0.001	-
Toluene	0.001	mg/L	< 0.001	-
Ethylbenzene	0.001	mg/L	< 0.001	-
m&p-Xylenes	0.002	mg/L	< 0.002	-
o-Xylene	0.001	mg/L	< 0.001	-
Xylenes - Total	0.003	mg/L	< 0.003	-
4-Bromofluorobenzene (surr.)	1	%	77	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.01	mg/L	< 0.01	-
TRH C6-C10	0.02	mg/L	< 0.02	-
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	-
TRH >C10-C16	0.05	mg/L	< 0.05	-
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	-
TRH >C16-C34	0.1	mg/L	< 0.1	-
TRH >C34-C40	0.1	mg/L	< 0.1	-
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	-
Heavy Metals				
Arsenic (filtered)	0.001	mg/L	< 0.001	-
Cadmium (filtered)	0.0002	mg/L	< 0.0002	-
Chromium (filtered)	0.001	mg/L	< 0.001	-
Copper (filtered)	0.001	mg/L	< 0.001	-
Lead (filtered)	0.001	mg/L	< 0.001	-
Nickel (filtered)	0.001	mg/L	< 0.001	-
Zinc (filtered)	0.005	mg/L	< 0.005	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Apr 08, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Apr 08, 2019	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Apr 08, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Apr 06, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Metals M7 filtered	Melbourne	Apr 06, 2019	180 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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Site # 23736

Company Name: Coffey Environments Pty Ltd GEEL
Address: Level 1, 23 West Fyans Street
Newtown
VIC 3220

Project Name: ASH RD ESA
Project ID: 754-GEXEN227979

Order No.:
Report #: 649548
Phone: 5215 4600
Fax: 5224 1368

Received: Apr 5, 2019 1:30 PM
Due: Apr 12, 2019
Priority: 5 Day
Contact Name: Edward Grinter

Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Sulphate (as SO4)	TRH C6-C9	Moisture Set	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	NEPM Screen for Soil Classification	Eurofins | mgt Suite B10	Eurofins | mgt Suite B5 (filtered metals)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
External Laboratory														
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**									
1	BH1_0.1	Apr 04, 2019		Soil	M19-Ap10377		X	X		X			X	
2	TP1_0.2	Apr 04, 2019		Soil	M19-Ap10378		X			X			X	
3	TP2_0.5	Apr 04, 2019		Soil	M19-Ap10379		X	X		X			X	
4	TP2_1.0	Apr 04, 2019		Soil	M19-Ap10380					X		X		
5	TP3_1.0	Apr 04, 2019		Soil	M19-Ap10381		X			X			X	
6	TP4_0.2	Apr 04, 2019		Soil	M19-Ap10382		X			X			X	
7	TP5_0.2	Apr 04, 2019		Soil	M19-Ap10383		X			X			X	
8	TP6_0.5	Apr 04, 2019		Soil	M19-Ap10384					X			X	
9	TP7_0.2	Apr 04, 2019		Soil	M19-Ap10385					X	X			

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Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
10	TP8_0.2	Apr 04, 2019		Soil	M19-Ap10386					X		X		
11	TP8_0.5	Apr 04, 2019		Soil	M19-Ap10387		X			X			X	
12	TP9_0.2	Apr 04, 2019		Soil	M19-Ap10388		X	X		X			X	
13	TP10_0.2	Apr 04, 2019		Soil	M19-Ap10389		X			X			X	
14	TP11_0.5	Apr 04, 2019		Soil	M19-Ap10390		X			X			X	
15	TP12_0.2	Apr 04, 2019		Soil	M19-Ap10391		X			X			X	
16	TP13_0.2	Apr 04, 2019		Soil	M19-Ap10392		X			X			X	
17	TP13_0.5	Apr 04, 2019		Soil	M19-Ap10393		X			X			X	
18	TP14_0.2	Apr 04, 2019		Soil	M19-Ap10394			X		X		X	X	
19	TP15_0.5	Apr 04, 2019		Soil	M19-Ap10395		X			X			X	
20	SP1	Apr 04, 2019		Soil	M19-Ap10396					X	X			
21	SP2	Apr 04, 2019		Soil	M19-Ap10397		X			X			X	

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Eurofins | mgt Analytical Services Manager : Mary Makarios

Sample Detail						HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Sulphate (as SO4)	TRH C6-C9	Moisture Set	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	NEPM Screen for Soil Classification	Eurofins | mgt Suite B10	Eurofins | mgt Suite B5 (filtered metals)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
22	D1	Apr 04, 2019		Soil	M19-Ap10398					X			X	
23	RB1	Apr 04, 2019		Water	M19-Ap10399									X
24	TB1	Apr 04, 2019		Water	M19-Ap10400				X					
25	BH1_0.3	Apr 04, 2019		Soil	M19-Ap10401	X								
26	TP1_0.5	Apr 04, 2019		Soil	M19-Ap10402	X								
27	TP1_1.0	Apr 04, 2019		Soil	M19-Ap10403	X								
28	TP1_1.3	Apr 04, 2019		Soil	M19-Ap10404	X								
29	TP2_0.2	Apr 04, 2019		Soil	M19-Ap10405	X								
30	TP3_0.2	Apr 04, 2019		Soil	M19-Ap10406	X								
31	TP3_0.5	Apr 04, 2019		Soil	M19-Ap10407	X								
32	TP4_0.4	Apr 04, 2019		Soil	M19-Ap10408	X								
33	TP5_0.5	Apr 04, 2019		Soil	M19-Ap10409	X								

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Sample Detail						HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Sulphate (as SO4)	TRH C6-C9	Moisture Set	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	NEPM Screen for Soil Classification	Eurofins | mgt Suite B10	Eurofins | mgt Suite B5 (filtered metals)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
34	TP6_0.2	Apr 04, 2019		Soil	M19-Ap10410	X								
35	TP7_0.5	Apr 04, 2019		Soil	M19-Ap10411	X								
36	TP7_1.1	Apr 04, 2019		Soil	M19-Ap10412	X								
37	TP9_0.5	Apr 04, 2019		Soil	M19-Ap10413	X								
38	TP10_0.4	Apr 04, 2019		Soil	M19-Ap10414	X								
39	TP11_0.2	Apr 04, 2019		Soil	M19-Ap10415	X								
40	TP12_0.5	Apr 04, 2019		Soil	M19-Ap10416	X								
41	TP13_1.0	Apr 04, 2019		Soil	M19-Ap10417	X								
42	TP14_0.5	Apr 04, 2019		Soil	M19-Ap10418	X								
43	TP15_0.2	Apr 04, 2019		Soil	M19-Ap10419	X								
44	TP15_1.2	Apr 04, 2019		Soil	M19-Ap10420	X								
45	D2	Apr 04, 2019		Soil	M19-Ap10421	X								

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Sample Detail						HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Sulphate (as SO4)	TRH C6-C9	Moisture Set	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	NEPM Screen for Soil Classification	Eurofins | mgt Suite B10	Eurofins | mgt Suite B5 (filtered metals)
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794												X		
Perth Laboratory - NATA Site # 23736														
46	TP14_1.0	Apr 04, 2019		Soil	M19-Ap10438	X								
Test Counts						22	15	4	1	22	2	3	18	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure, April 2011 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

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

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

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

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.2 2018
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.2 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

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Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	95			70-130	Pass	
TRH C10-C14	%	82			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	97			70-130	Pass	
Toluene	%	95			70-130	Pass	
Ethylbenzene	%	100			70-130	Pass	
m&p-Xylenes	%	100			70-130	Pass	
Xylenes - Total	%	100			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	103			70-130	Pass	
TRH C6-C10	%	94			70-130	Pass	
TRH >C10-C16	%	80			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic (filtered)	%	93			80-120	Pass	
Cadmium (filtered)	%	92			80-120	Pass	
Chromium (filtered)	%	89			80-120	Pass	
Copper (filtered)	%	93			80-120	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead (filtered)			%	92			80-120	Pass	
Nickel (filtered)			%	93			80-120	Pass	
Zinc (filtered)			%	94			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S19-Ap05112	NCP	%	97			70-130	Pass	
TRH C10-C14	M19-Ap08693	NCP	%	117			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S19-Ap05112	NCP	%	102			70-130	Pass	
Toluene	S19-Ap05112	NCP	%	100			70-130	Pass	
Ethylbenzene	S19-Ap05112	NCP	%	106			70-130	Pass	
m&p-Xylenes	S19-Ap05112	NCP	%	107			70-130	Pass	
o-Xylene	S19-Ap05112	NCP	%	107			70-130	Pass	
Xylenes - Total	S19-Ap05112	NCP	%	107			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S19-Ap05112	NCP	%	100			70-130	Pass	
TRH C6-C10	S19-Ap05112	NCP	%	91			70-130	Pass	
TRH >C10-C16	M19-Ap08693	NCP	%	113			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	M19-Ap10399	CP	%	91			70-130	Pass	
Cadmium (filtered)	M19-Ap10399	CP	%	92			70-130	Pass	
Chromium (filtered)	M19-Ap10399	CP	%	87			70-130	Pass	
Copper (filtered)	M19-Ap10399	CP	%	91			70-130	Pass	
Lead (filtered)	M19-Ap10399	CP	%	91			70-130	Pass	
Nickel (filtered)	M19-Ap10399	CP	%	92			70-130	Pass	
Zinc (filtered)	M19-Ap10399	CP	%	92			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S19-Ap05111	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	M19-Ap08653	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M19-Ap08653	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M19-Ap08653	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S19-Ap05111	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S19-Ap05111	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S19-Ap05111	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S19-Ap05111	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S19-Ap05111	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	S19-Ap05111	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S19-Ap05111	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S19-Ap05111	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	M19-Ap08653	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M19-Ap08653	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M19-Ap08653	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	M19-Ap10399	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium (filtered)	M19-Ap10399	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	M19-Ap10399	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	M19-Ap10399	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead (filtered)	M19-Ap10399	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Nickel (filtered)	M19-Ap10399	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc (filtered)	M19-Ap10399	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised By

Mary Makarios	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

Reference No. _____

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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A TETRA TECH COMPANY

Consigning Office:	Newtown				
Report Results to:	Ed Grinter	Mobile:	438997270	Email:	edward.grinter@coffey.com
Invoices to:	Lisa Marnell	Phone:	5215 4600	Email:	lisa.marnell@coffey.com

Project No:	754-GEXEN227979	Task No:	Field
Project Name:	Ash Rd ESA	Laboratory:	Eurofins
Sampler's Name:	Ed Grinter	Project Manager:	Ed Grinter
Special Instructions:	Please also report results to Bryden Tiddy - bryden.tiddy@coffey.com		

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	Analysis Request Section: Asbestos ID - NEPM	Asbestos - ID only	NOTES
	A1	4/04/2019		Soil	1 BAG	Standard	X		
	A2	4/04/2019		Soil	1 BAG	Standard	X		
	A3	4/04/2019		Soil	1 BAG	Standard		X	

RELINQUISHED BY			RECEIVED BY		
Name:	Date:	→	Name: Mark Baizanos	Date: 10/4	
Coffey Environments	Time:		Company: Eurofins	Time: 11AM	
Name:	Date:	→	Name:	Date:	
Company:	Time:		Company:	Time:	

Sample Receipt Advice: (Lab Use Only)

- All Samples Recieved in Good Condition ☐
- All Documentation is in Proper Order ☐
- Samples Received Properly Chilled ☐
- Lab. Ref/Batch No. 650139

***Container Type & Preservation Codes:** **P** - Plastic, **G**- Glass Bottle, **J** - Glass Jar, **V**- Vial, **Z** - Ziplock bag, **N** - Nitric Acid Preserved, **C** - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice, **ST** - Sodium Thiosulfate, **NP** - No Preservative

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NATA # 1261
Site # 1254 & 14271

Sydney
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Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**Coffey Environments Pty Ltd VIC**
Contact name:	Edward Grinter
Project name:	ASH RD ESA
Project ID:	754-GEXEN227979
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Apr 9, 2019 1:16 PM
Eurofins | mgt reference:	**650139**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Harry Bacalis on Phone : or by e.mail: HarryBacalis@eurofins.com

Results will be delivered electronically via e.mail to Edward Grinter - edward.grinter@coffey.com.

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Coffey Environments Pty Ltd VIC
Level 1, 436 Johnston Street
Abbotsford
VIC 3067

Attention:	Edward Grinter
Report	650139-AID
Project Name	ASH RD ESA
Project ID	754-GEXEN227979
Received Date	Apr 09, 2019
Date Reported	Apr 16, 2019

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w). The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk). *NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos".This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.*

Project Name ASH RD ESA
Project ID 754-GEXEN227979
Date Sampled Apr 04, 2019
Report 650139-AID

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
A1	19-Ap15782	Apr 04, 2019	Approximate Sample 1440g Sample consisted of: Brown fine-grained sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
A2	19-Ap15783	Apr 04, 2019	Approximate Sample 1117g Sample consisted of: Brown fine-grained sandy soil, rocks and organic debris	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No respirable fibres detected.
A3	19-Ap15784	Apr 04, 2019	Approximate Sample 37g / 90x50x4mm Sample consisted of: Grey compressed fibre cement sheet	Chrysotile asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Apr 10, 2019	Indefinite
Asbestos - LTM-ASB-8020	Sydney	Apr 10, 2019	Indefinite

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NATA # 1261
Site # 1254 & 14271

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NATA # 1261 Site # 18217

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Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Coffey Environments Pty Ltd VIC
Address: Level 1, 436 Johnston Street
Abbotsford
VIC 3067

Project Name: ASH RD ESA
Project ID: 754-GEXEN227979

Order No.:
Report #: 650139
Phone: 03 9290 7000
Fax:

Received: Apr 9, 2019 1:16 PM
Due: Apr 16, 2019
Priority: 5 Day
Contact Name: Edward Grinter

Eurofins | mgt Analytical Services Manager : Harry Bacalis

Sample Detail						Asbestos - AS4964	Asbestos Absence /Presence
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217						X	X
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	A1	Apr 04, 2019		Soil	M19-Ap15782	X	
2	A2	Apr 04, 2019		Soil	M19-Ap15783	X	
3	A3	Apr 04, 2019		Building Materials	M19-Ap15784		X
Test Counts						2	1

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

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

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

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

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

M19-Ap15782, M19-Ap15783: The samples received were deemed to be too large for AS4964, i.e. more than about 100 g. It was therefore necessary to reduce their size to that which could be thoroughly examined. Valid sub-sampling procedures were applied so as to ensure that the sub-samples to be analysed accurately represented the samples received.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

Sayeed Abu	Senior Analyst-Asbestos (NSW)

Authorised by:

Laxman Dias	Senior Analyst-Asbestos (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

coffey
TETRA TECH COMPANY

Consigning Office: Newtown

Report Results to: Ed Grinter Mobile: 438997270 Email: edward.grinter@coffey.com

Invoices to: Lisa Marnell Phone: 5215 4600 Email: lisa.marnell@coffey.com

Project No: 754-GEXEN227979 Task No: Field

Project Name: Ash Rd ESA Laboratory: Eurofins

Sampler's Name: Ed Grinter Project Manager: Ed Grinter

Special Instructions:

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	B10	R20	R21	Sulfate	pH	HOLD	NOTES
	BH1_0.1	04-04-19		Soil	1 Jar	Standard	X			X	X		
	BH1_0.3	04-04-19		Soil	1 Jar	Standard						X	
	TP1_0.2	04-04-19		Soil	1 Jar	Standard	X				X		
	TP1_0.5	04-04-19		Soil	1 Jar	Standard						X	
	TP1_1.0	04-04-19		Soil	1 Jar	Standard						X	
	TP1_1.3	04-04-19		Soil	1 Jar	Standard						X	
	TP2_0.2	04-04-19		Soil	1 Jar	Standard						X	
	TP2_0.5	04-04-19		Soil	1 Jar	Standard	X			X	X		
	TP2_1.0	04-04-19		Soil	1 Jar	Standard			X				
	TP3_0.2	04-04-19		Soil	1 Jar	Standard						X	
	TP3_0.5	04-04-19		Soil	1 Jar	Standard						X	
	TP3_1.0	04-04-19		Soil	1 Jar	Standard	X				X		
	TP4_0.2	04-04-19		Soil	1 Jar	Standard	X				X		
	TP4_0.4	04-04-19		Soil	1 Jar	Standard						X	
	TP5_0.2	04-04-19		Soil	1 Jar	Standard	X				X		
	TP5_0.5	04-04-19		Soil	1 Jar	Standard						X	
	TP6_0.2	04-04-19		Soil	1 Jar	Standard						X	
	TP6_0.5	04-04-19		Soil	1 Jar	Standard	X						

Analysis Request Section

RELINQUISHED BY

Name: Chris. Chapman Date: 5/4/19 →
Coffey Environments Time: 9:00

Name: Date: →
Company: Time:

RECEIVED BY

Name: [illegible] Date: 5/4.
Company: [illegible] Time: 9am

Name: Sulpa Post Date: 5/4
Company: MGM Time: 9:30 pm

Sample Receipt Advice: (Lab Use Only)

All Samples Recieved in Good Condition ☐
All Documentation is in Proper Order ☐
Samples Received Properly Chilled ☐
Lab. Ref/Batch No. 649348

*Container Type & Preservation Codes: **P** - Plastic, **G**- Glass Bottle, **J** - Glass Jar, **V**- Vial, **Z** - Ziplock bag, **N** - Nitric Acid Preserved, **C** - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice, **ST** - Sodium Thiosulfate, **NP** - No Preservative

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

coffey
TETRA TECH COMPANY

Consigning Office: Newtown

Report Results to: Ed Grinter Mobile: 438997270 Email: edward.grinter@coffey.com

Invoices to: Lisa Marnell Phone: 5215 4600 Email: lisa.marnell@coffey.com

Project No: 754-GEXEN227979 Task No: Field

Project Name: Ash Rd ESA Laboratory: Eurofins

Sampler's Name: Ed Grinter Project Manager: Ed Grinter

Special Instructions:

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	B10	R20	R21	Sulfate	pH	HOLD								NOTES
	TP7_0.2	04-04-19		Soil	1 Jar	Standard		x												
	TP7_0.5	04-04-19		Soil	1 Jar	Standard						X								
	TP7_1.1	04-04-19		Soil	1 Jar	Standard						X								
	TP8_0.2	04-04-19		Soil	1 Jar	Standard			X											
	TP8_0.5	04-04-19		Soil	1 Jar	Standard	X				X									
	TP9_0.2	04-04-19		Soil	1 Jar	Standard	X			X	X									
	TP9_0.5	04-04-19		Soil	1 Jar	Standard						X								
	TP10_0.2	04-04-19		Soil	1 Jar	Standard	X				X									
	TP10_0.4	04-04-19		Soil	1 Jar	Standard						X								
	TP11_0.2	04-04-19		Soil	1 Jar	Standard						X								
	TP11_0.5	04-04-19		Soil	1 Jar	Standard	X				X									
	TP12_0.2	04-04-19		Soil	1 Jar	Standard	X				X									
	TP12_0.5	04-04-19		Soil	1 Jar	Standard						X								
	TP13_0.2	04-04-19		Soil	1 Jar	Standard	X				X									
	TP13_0.5	04-04-19		Soil	1 Jar	Standard	X				X									
	TP13_1.0	04-04-19		Soil	1 Jar	Standard						X								
	TP14_0.2	04-04-19		Soil	1 Jar	Standard	X		X	X										
	TP14_0.5	04-04-19		Soil	1 Jar	Standard						X								

Analysis Request Section

RELINQUISHED BY

Name: Chris Chapman Date: 5/4/19

Coffey Environments Time: 9:00

Name: Date:

Company: Time:

RECEIVED BY

Name: [illegible] Date: 5/4/19

Company: [illegible] Time:

Name: Julia Pell Date: 5/4/19

Company: [illegible] Time: 1:30pm

Sample Receipt Advice: (Lab Use Only)

All Samples Recieved in Good Condition ☐

All Documentation is in Proper Order ☐

Samples Received Properly Chilled ☐

Lab. Ref/Batch No. 649548

***Container Type & Preservation Codes:** **P** - Plastic, **G**- Glass Bottle, **J** - Glass Jar, **V**- Vial, **Z** - Ziplock bag, **N** - Nitric Acid Preserved, **C** - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice, **ST** - Sodium Thiosulfate, **NP** - No Preservative

Reference No. ______________

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

coffey
A TETRA TECH COMPANY

Consigning Office:	Newtown				
Report Results to:	Ed Grinter	Mobile:	438997270	Email:	edward.grinter@coffey.com
Invoices to:	Lisa Marnell	Phone:	5215 4600	Email:	lisa.marnell@coffey.com

Project No:	754-GEXEN227979	Task No:	Field
Project Name:	Ash Rd ESA	Laboratory:	Eurofins
Sampler's Name:	Ed Grinter	Project Manager:	Ed Grinter
Special Instructions:			

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	B10	R20	R21	Sulfate	pH	HOLD	C6-C9	B5	NOTES
	TP15_0.2	04-04-19		Soil	1 Jar	Standard						X			
	TP15_0.5	04-04-19		Soil	1 Jar	Standard	X				X				
	TP15_1.2	04-04-19		Soil	1 Jar	Standard						X			
	SP1	04-04-19		Soil	1 Jar	Standard		X							
	SP2	04-04-19		Soil	1 Jar	Standard	X				X				
	D1	04-04-19		Soil	1 Jar	Standard	X								
	T1	04-04-19		Soil	1 Jar	Standard									Please forward to ALS
	D2	04-04-19		Soil	1 Jar	Standard						X			
	T2	04-04-19		Soil	1 Jar	Standard									Please forward to ALS
	RB1	04-04-19		Water	2V, 1G, 1P	Standard								X	
	TB1	04-04-19		Water	1 V	Standard							X		

RELINQUISHED BY		RECEIVED BY	
Name: Chris. Chapman	Date: 5/4/19 →	Name: [illegible]	Date: 5/4.
Coffey Environments	Time: 9:00	Company: [illegible]	Time: 9am.
Name:	Date: →	Name: [illegible]	Date: 5/4/19
Company:	Time:	Company: [illegible]	Time: 11:30am

Sample Receipt Advice: (Lab Use Only)

- All Samples Recieved in Good Condition ☐
- All Documentation is in Proper Order ☐
- Samples Received Properly Chilled ☐
- Lab. Ref/Batch No. 644548

*Container Type & Preservation Codes: **P** - Plastic, **G**- Glass Bottle, **J** - Glass Jar, **V**- Vial, **Z** - Ziplock bag, **N** - Nitric Acid Preserved, **C** - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice, **ST** - Sodium Thiosulfate, **NP** - No Preservative

Reference No. _____

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

coffey
A TETRA TECH COMPANY

Consigning Office:	Newtown				
Report Results to:	Ed Grinter	Mobile:	438997270	Email:	edward.grinter@coffey.com
Invoices to:	Lisa Marnell	Phone:	5215 4600	Email:	lisa.marnell@coffey.com
Project No:	754-GEXEN227979	Task No:	Field		
Project Name:	Ash Rd ESA	Laboratory:	ALS		
Sampler's Name:	Ed Grinter	Project Manager:	Ed Grinter		
Special Instructions:					

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	TRH	BTEX	PAH	Metals	OCP & OPP	NOTES
	T1						X	x	X	X	X	
	T2											HOLD

Analysis Request Section

RELINQUISHED BY

Name:	Chris. Chapman	Date:	5/4/19
Coffey Environments		Time:	9:00
Name:		Date:	
Company:		Time:	

RECEIVED BY

Name:	[illegible]	Date:	5/4
Company:	[illegible]	Time:	[illegible]
Name:	[illegible]	Date:	5/4/19
Company:	MCM	Time:	1:30pm

Sample Receipt Advice: (Lab Use Only)

- All Samples Recieved in Good Condition ☐
- All Documentation is in Proper Order ☐
- Samples Received Properly Chilled ☐
- Lab. Ref/Batch No. 649548

***Container Type & Preservation Codes:** **P** - Plastic, **G**- Glass Bottle, **J** - Glass Jar, **V**- Vial, **Z** - Ziplock bag, **N** - Nitric Acid Preserved, **C** - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice, **ST** - Sodium Thiosulfate, **NP** - No Preservative

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EM1905152**	Page	: 1 of 7
Client	: **COFFEY ENVIRONMENTS PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR EDWARD GRINTER	Contact	: Graeme Jablonskas
Address	: LEVEL 1 23 WEST FYANS ST NEWTOWN VIC, AUSTRALIA 3220	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 5215 4600	Telephone	: +6138549 9609
Project	: 754-GEXEN227979	Date Samples Received	: 05-Apr-2019 16:40
Order number	:	Date Analysis Commenced	: 09-Apr-2019
C-O-C number	: ----	Issue Date	: 12-Apr-2019 12:24
Sampler	: EG		
Site	: Ash Rd ESA		
Quote number	: EN/222		
No. of samples received	: 2		
No. of samples analysed	: 1		

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*
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

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

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

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

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When 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

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	T1	----	----	----	----
			Client sampling date / time	04-Apr-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1905152-001	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**6.5**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**6**	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**20**	----	----	----	----
Copper	7440-50-8	5	mg/kg	<5	----	----	----	----
Lead	7439-92-1	5	mg/kg	**17**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**5**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	<5	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**0.2**	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T1	----	----	----	----
				Client sampling date / time	04-Apr-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1905152-001	--------	--------	--------	--------
					Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T1	----	----	----	----
				Client sampling date / time	04-Apr-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1905152-001	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	T1	----	----	----	----
				Client sampling date / time	04-Apr-2019 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		EM1905152-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080: BTEXN - Continued									
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**90.4**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**87.0**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**98.8**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**111**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**74.9**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**108**	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**125**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**121**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**86.3**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**82.6**	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		**123**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	38	128
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	33	139
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	54	125
2-Chlorophenol-D4	93951-73-6	65	123
2.4.6-Tribromophenol	118-79-6	34	122
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	61	125
Anthracene-d10	1719-06-8	62	130
4-Terphenyl-d14	1718-51-0	67	133
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **EM1905152**	Page	: 1 of 10
Client	: **COFFEY ENVIRONMENTS PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR EDWARD GRINTER	Contact	: Graeme Jablonskas
Address	: LEVEL 1 23 WEST FYANS ST NEWTOWN VIC, AUSTRALIA 3220	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 5215 4600	Telephone	: +6138549 9609
Project	: 754-GEXEN227979	Date Samples Received	: 05-Apr-2019
Order number	:	Date Analysis Commenced	: 09-Apr-2019
C-O-C number	: ----	Issue Date	: 12-Apr-2019
Sampler	: EG		
Site	: Ash Rd ESA		
Quote number	: EN/222		
No. of samples received	: 2		
No. of samples analysed	: 1		

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*
Nancy Wang	2IC Organic Chemist	Melbourne Organics, Springvale, VIC
Nikki Stepniewski	Senior Inorganic Instrument Chemist	Melbourne Inorganics, Springvale, VIC

General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				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: 2287360)									
EM1904918-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	27	27	0.00	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	46	44	4.48	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	34	34	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	90	87	4.20	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	45	50	9.83	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	90	78	13.9	0% - 50%
EM1905105-002	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	44	41	7.32	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	13	12	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	15	45.3	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	29	23	22.9	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	132	140	6.10	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	70	78	11.8	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 2285147)									
EM1905127-015	Anonymous	EA055: Moisture Content	----	0.1	%	20.2	19.4	3.63	0% - 20%
EM1905153-001	Anonymous	EA055: Moisture Content	----	0.1	%	10.4	10.1	2.83	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 2287361)									
EM1905105-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.2	0.3	0.00	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 2287427)									
EM1904670-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit

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: 2287427) - continued									
EM1904670-001	Anonymous	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
EM1905025-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 2287427)									
EM1904670-001	Anonymous	EP068: Dichlorvos	62-73-7	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: 2287427) - continued									
EM1904670-001	Anonymous	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
EM1905025-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.00	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 2287431)									
EM1905025-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<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: 2287431) - continued									
EM1905025-001	Anonymous	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
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2284293)									
EM1904818-004	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EM1905136-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 2287428)									
EM1904670-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1905025-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2284293)									
EM1904818-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EM1905136-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 2287428)									
EM1904670-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EM1905025-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit

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: BTEXN (QC Lot: 2284293)									
EM1904818-004	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	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
EM1905136-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	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

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: 2287360)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	97.4	78	107
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	93.3	76	108
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	95.4	78	110
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	96.6	78	108
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	94.0	78	106
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	99.8	80	109
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	102	79	110
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2287361)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	94.4	77	104
EP068A: Organochlorine Pesticides (OC) (QCLot: 2287427)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	101	69	122
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	101	71	122
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	101	72	121
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	94.5	66	124
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	60	120
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.6	62	120
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	97.1	70	122
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	101	70	121
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	99.2	68	124
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.8	71	124
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	71	122
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	97.4	65	123
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.1	71	121
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.2	63	129
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	70	122
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	69	128
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	104	69	129
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	101	64	129
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	75.5	62	129
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.6	76	123
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	85.5	58	129
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2287427)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	109	72	134
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	108	63	141

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: 2287427) - continued								
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	67.0	10	136
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	103	62	130
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	93.5	70	124
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	96.5	70	121
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	107	60	126
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	103	65	126
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.4	73	122
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	102	67	126
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	108	59	126
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	93.4	67	124
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	104	57	130
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	75.4	70	122
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	103	54	133
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	97.1	70	123
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	104	67	123
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	103	71	129
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	111	31	141
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2287431)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	1.5 mg/kg	100	77	129
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	1.5 mg/kg	99.1	74	130
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	1.5 mg/kg	109	78	129
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	1.5 mg/kg	103	78	128
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	1.5 mg/kg	106	83	130
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	115	76	129
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	1.5 mg/kg	114	79	134
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	1.5 mg/kg	115	84	135
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	1.5 mg/kg	103	72	125
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	1.5 mg/kg	120	76	135
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	1.5 mg/kg	86.2	69	123
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	1.5 mg/kg	111	77	131
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	1.5 mg/kg	85.8	65	116
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	1.5 mg/kg	86.6	65	124
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	1.5 mg/kg	90.8	66	127
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	1.5 mg/kg	91.4	65	124
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2284293)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	72 mg/kg	91.4	61	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2287428)								

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: 2287428) - continued								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	806 mg/kg	98.7	72	122
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3006 mg/kg	106	84	123
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1584 mg/kg	94.4	79	119
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2284293)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	90 mg/kg	89.3	60	125
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2287428)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1160 mg/kg	98.3	77	121
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3978 mg/kg	99.8	83	121
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	313 mg/kg	96.4	65	123
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----
EP080: BTEXN (QCLot: 2284293)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	4 mg/kg	87.1	63	119
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	4 mg/kg	87.7	67	126
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	4 mg/kg	89.0	66	124
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	8 mg/kg	97.2	68	128
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	4 mg/kg	98.5	73	128
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	86.6	61	123

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: 2287360)							
EM1905105-002	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	92.7	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	92.3	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	116	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	108	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	111	76	124
		EG005T: Nickel	7440-02-0	50 mg/kg	96.8	78	120
		EG005T: Zinc	7440-66-6	50 mg/kg	119	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 2287361)							
EM1905105-002	Anonymous	EG035T: Mercury	7439-97-6	0.5 mg/kg	80.8	76	116
EP068A: Organochlorine Pesticides (OC) (QCLot: 2287427)							

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*
EP068A: Organochlorine Pesticides (OC) (QCLot: 2287427) - continued							
EM1904670-002	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	96.4	22	139
		EP068: Heptachlor	76-44-8	0.5 mg/kg	90.1	18	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	88.3	23	136
		EP068: Dieldrin	60-57-1	0.5 mg/kg	105	42	136
		EP068: Endrin	72-20-8	0.5 mg/kg	83.3	23	146
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	50.7	20	133
EP068B: Organophosphorus Pesticides (OP) (QCLot: 2287427)							
EM1904670-002	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	102	49	135
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	96.8	41	127
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	92.1	47	133
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	91.4	45	133
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	88.4	40	128
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 2287431)							
EM1905025-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	3 mg/kg	95.3	67	117
		EP075(SIM): Pyrene	129-00-0	3 mg/kg	109	52	148
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2284293)							
EM1904818-006	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	81.2	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 2287428)							
EM1904670-003	Anonymous	EP071: C10 - C14 Fraction	----	806 mg/kg	95.2	53	123
		EP071: C15 - C28 Fraction	----	3006 mg/kg	104	70	124
		EP071: C29 - C36 Fraction	----	1584 mg/kg	92.8	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2284293)							
EM1904818-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	81.5	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 2287428)							
EM1904670-003	Anonymous	EP071: >C10 - C16 Fraction	----	1160 mg/kg	95.7	65	123
		EP071: >C16 - C34 Fraction	----	3978 mg/kg	98.3	67	121
		EP071: >C34 - C40 Fraction	----	313 mg/kg	94.0	44	126
EP080: BTEXN (QCLot: 2284293)							
EM1904818-006	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	83.8	50	136
		EP080: Toluene	108-88-3	2 mg/kg	87.5	56	139

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EM1905152**	Page	: 1 of 4
Client	: **COFFEY ENVIRONMENTS PTY LTD**	Laboratory	: Environmental Division Melbourne
Contact	: MR EDWARD GRINTER	Telephone	: +6138549 9609
Project	: 754-GEXEN227979	Date Samples Received	: 05-Apr-2019
Site	: Ash Rd ESA	Issue Date	: 12-Apr-2019
Sampler	: EG	No. of samples received	: 2
Order number	:	No. of samples analysed	: 1

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

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

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			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
T1	**04-Apr-2019**	**----**	----	----	**09-Apr-2019**	18-Apr-2019	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
T1	**04-Apr-2019**	**10-Apr-2019**	01-Oct-2019	✓	**10-Apr-2019**	01-Oct-2019	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
T1	**04-Apr-2019**	**10-Apr-2019**	02-May-2019	✓	**10-Apr-2019**	02-May-2019	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
T1	**04-Apr-2019**	**10-Apr-2019**	18-Apr-2019	✓	**11-Apr-2019**	20-May-2019	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
T1	**04-Apr-2019**	**10-Apr-2019**	18-Apr-2019	✓	**11-Apr-2019**	20-May-2019	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
T1	**04-Apr-2019**	**10-Apr-2019**	18-Apr-2019	✓	**10-Apr-2019**	20-May-2019	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
T1	**04-Apr-2019**	**09-Apr-2019**	18-Apr-2019	✓	**10-Apr-2019**	18-Apr-2019	✓
Soil Glass Jar - Unpreserved (EP071)							
T1	**04-Apr-2019**	**10-Apr-2019**	18-Apr-2019	✓	**10-Apr-2019**	20-May-2019	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
T1	**04-Apr-2019**	**09-Apr-2019**	18-Apr-2019	✓	**10-Apr-2019**	18-Apr-2019	✓
Soil Glass Jar - Unpreserved (EP071)							
T1	**04-Apr-2019**	**10-Apr-2019**	18-Apr-2019	✓	**10-Apr-2019**	20-May-2019	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
T1	**04-Apr-2019**	**09-Apr-2019**	18-Apr-2019	✓	**10-Apr-2019**	18-Apr-2019	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	15	**13.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	15	**6.67**	**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 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (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)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270D Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM (2013) Schedule B(3) (Method 504,505)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, 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.

Reference No. ____________

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

coffey
A TETRA TECH COMPANY

Consigning Office:	Newtown				
Report Results to:	Ed Grinter	Mobile:	438997270	Email:	edward.grinter@coffey.com
Invoices to:	Lisa Marnell	Phone:	5215 4600	Email:	lisa.marnell@coffey.com

Project No:	754-GEXEN227979	Task No:	Field
Project Name:	Ash Rd ESA	Laboratory:	ALS
Sampler's Name:	Ed Grinter	Project Manager:	Ed Grinter
Special Instructions:			BN 8/4

Analysis Request Section

Lab No.	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	TRH	BTEX	PAH	Metals	OCP & OPP	NOTES
1	T1	4.4.19					X	x	X	X	X	
2	T2	4.4.19										HOLD

8

Environmental Division
Melbourne
Work Order Reference
EM1905152

Telephone : + 61-3-8549 9600

RELINQUISHED BY				RECEIVED BY			
Name:	Chris. Chapman	Date:	5/4/19	Name:	Rosie M.	Date:	5/4
Coffey Environments		Time:	9:00	Company:	[illegible]	Time:	[illegible]
Name:	Mark Batranos	Date:	5/4/19	Name:	[illegible]	Date:	5/4
Company:	Eurofins	Time:	3pm	Company:	[illegible]	Time:	6:00

Sample Receipt Advice: (Lab Use Only)

- All Samples Recieved in Good Condition ☐
- All Documentation is in Proper Order ☐
- Samples Received Properly Chilled ☐
- Lab. Ref/Batch No.

***Container Type & Preservation Codes: P** - Plastic, **G**- Glass Bottle, **J** - Glass Jar, **V**- Vial, **Z** - Ziplock bag, **N** - Nitric Acid Preserved, **C** - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice, **ST** - Sodium Thiosulfate, **NP** - No Preservative

Appendix G – Site Photographs

Client:	Tract Consulting Pty Ltd
Project:	Ash Road Phase 1 & 2 Environmental Site Assessment
Job No:	754-GEXEN227979
Photograph No: 1	Rubbish pile in northeast corner (looking southeast)

Client:	Tract Consulting Pty Ltd
Project:	Ash Road Phase 1 & 2 Environmental Site Assessment
Job No:	754-GEXEN227979
Photograph No: 2	Test Pit TP1

Client:	Tract Consulting Pty Ltd
Project:	Ash Road Phase 1 & 2 Environmental Site Assessment
Job No:	754-GEXEN227979
Photograph No: 3	Test Pit TP2

Client:	Tract Consulting Pty Ltd
Project:	Ash Road Phase 1 & 2 Environmental Site Assessment
Job No:	754-GEXEN227979
Photograph No: 4	Soil stockpile (sample location of SP1)

Client:	Tract Consulting Pty Ltd
Project:	Ash Road Phase 1 & 2 Environmental Site Assessment
Job No:	754-GEXEN227979
Photograph No: 5	Soil stockpiles (motorbike jumps)

Client:	Tract Consulting Pty Ltd
Project:	Ash Road Phase 1 & 2 Environmental Site Assessment
Job No:	754-GEXEN227979
Photograph No: 6	Soil stockpiles

Client:	Tract Consulting Pty Ltd
Project:	Ash Road Phase 1 & 2 Environmental Site Assessment
Job No:	754-GEXEN227979
Photograph No: 7	Waste and soil stockpile

Client:	Tract Consulting Pty Ltd
Project:	Ash Road Phase 1 & 2 Environmental Site Assessment
Job No:	754-GEXEN227979
Photograph No: 8	Southern end of site - looking north

Client:	Tract Consulting Pty Ltd
Project:	Ash Road Phase 1 & 2 Environmental Site Assessment
Job No:	754-GEXEN227979
Photograph No: 9	Central area of site - looking east

Client:	Tract Consulting Pty Ltd
Project:	Ash Road Phase 1 & 2 Environmental Site Assessment
Job No:	754-GEXEN227979
Photograph No: 10	Central area of site - looking north

Client:	Tract Consulting Pty Ltd
Project:	Ash Road Phase 1 & 2 Environmental Site Assessment
Job No:	754-GEXEN227979
Photograph No: 11	Northern end of site - looking west