Beveridge Williams

ACN 006 197 235
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Melbourne Office
1 Glenferrie Road
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Tel: (03) 9524 8888

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Our Reference: 2102640

5 June 2024

RE: LIMITED SOIL CONTAMINATION ASSESSMENT – MAFFRA NORTH

At the request of I, Beveridge Williams & Co P/L (Beveridge Williams) conducted a review of the updated site development plan (attachment 1) with regards to the previous findings and recommendations provided in Beveridge Williams Limited Soil Contamination Assessment completed in November 2022 (attachment 2).

The proposed site development plan has been amended to comprise:

Land Use	**Area**
Site	46.735 ha
Residential lots	39.225 ha (64 individual lots)
Roads	5.667 ha
Drainage reserve	1.843 ha

In line with the desktop investigation, the historical sources of information and site inspection, the site has historically been used for grazing with the risk of widespread contamination of the site considered to be low.

An area of potential for increased risk was present along a portion of the south boundary running along an offsite land parcel formerly used as a night spoil depot. The limited soil sampling program completed along the site boundary reported all test results below the adopted criteria being NEPM HIL A and NEPM EIL (2013) for silty soils. All reported metals concentrations were very low indicating a low probability that the former night soil depot has contaminated surface soils which could have impacted the site.

A review recent aerial photography from January 2023 and February 2024 indicates no significant changes to the site have occurred since the completion of the Limited Soil Contamination Assessment (November 2022).

Based on this Beveridge Williams considers the updated proposed development plan would not affect the conclusions for the site.

Regards,

Principle Environmental Scientist
BEVERIDGE WILLIAMS

enc:
Attachment 1: Draft Site Development Plan
Attachment 2: Limited Soil Contamination Assessment (Beveridge Williams, November 2022).

LEGEND

- Title boundary
- Site Boundary
- Drainage Easement
- Existing contours (1m interval)
- Residential Lots
- Naturestrip (indicative)
- Road pavement (indicative)
- Drainage reserve
- Existing tree to be removed
- Native tree to be retained
- (1) Tree ID as per Nature Vegetation Extent by INDIGENOUS DESIGN (Ref No. 221198W)
- Bushfire Management Overlay

150mm crushed rock - all weather access track

Area for temporary access and maintenance of vegetation until 443 Maffra-Briagolong Road has been developed.

MAFFRA-BRIAGOLONG ROAD

THREE CHAIN ROAD

Drainage Reserve 0.40ha

Drainage Reserve 1.44ha

Notes:

- This plan was prepared as a PROPOSAL only and should not be used for any other purpose.
- This plan is subject to Council approval.
- All dimensions and areas are subject to survey and final computations.
- The layout and area required will be subject to engineering detail design and Council approval.
- Existing drainage directions shown are approximate only and subject to a detailed storm water management investigation.
- Existing dams located within construction areas will be filled during construction.
- Further investigation may be required for fire buffers, vegetation retention and removal, site access and egress, and aboriginal and cultural heritage.
- Road pavement is indicative only and subject to detailed engineering design.
- NO ALLOWANCE has been made for Public Open Space within this development.
- Arc dimensions shown are length of arc (not chord)
- 25m building exclusions to be applied to trees to be retained.

DRAFT

FOR DISCUSSION PURPOSES ONLY

40 0 40 80 120 160 200 240m

Beveridge Williams

1 Glenferrie Road, Malvern, Victoria 3144
ph : 03 9524 8888 - www.beveridgewilliams.com.au

Native Vegetation Removal Plan

Maffra-Briagolong Road, Maffra

Version	Date	Description	Drafted	Approved
01	08.10.2024	First Issue		
02	31.01.2025	Added Drainage easement		
03	07.02.2025	Added trees as per consultant		

Date: 07.02.2025
Version No: 03
Job No: 2102640
Scale (A1): 1:2000
(A3): 1:4000

K:\JOBS DATA\2102640 - MAFFRA-BRIAGOLONG ROAD, MAFFRA_UD\CAD\2102640_UD_BASE01.DWG

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Our Reference: 2102640

11 November 2022

Dear

RE: LIMITED SOIL CONTAMINATION ASSESSMENT – MAFFRA NORTH

At the request of , Beveridge Williams & Co P/L (Beveridge Williams) conducted a limited soil contamination assessment at a property along Maffra-Briagalong Road, Maffra North (Council Property Number 361378).

The purpose of the limited soil contamination assessment was to identify if the site contained potential for any significant soil contamination (from current or historical site uses) that may pose an adverse risk to potential future use of the site as residential.

This letter report presents information on the site history, the results of a limited soil sampling and testing program, an evaluation of the chemical testing results with respect to relevant criteria and the extent and implications of testing results and risk of site contamination.

DESKTOP INVESTIGATION

Sand & McDougall Directories

The Unearthed Victoria Database[1], that includes the information from the Sands & McDougall Directories was reviewed. The search revealed no Sands & McDougall listed businesses were operated on the site. No properties and/or listed businesses in the surrounding area were considered to present a contamination risk to the site.

Aerial Photographs

Aerial photographs from 1968, 1972 and 1982 from the Department of Environment, Land, Water and Planning were reviewed (Table 1). Aerial photographs from 2009 and 2022 from Nearmap were also reviewed. Copies of the aerial photographs are shown on Attachment 3.

Table 1: Aerial Photograph Review

YEAR / SOURCE	SUMMARY
1956 DELWP	**Onsite:** The site is mostly used for agricultural purposes (mainly grazing) with a dam visible on site. **Offsite:** The surrounding area appears to be used for agricultural purposes with the Maffra cemetery visible to the south of site and a tributary to Sandy Creek to the north.
1972 DELWP	**Onsite:** An additional small dam has been built in the south east corner of site. **Offsite:** No significant changes to the surrounding area are visible, earth disturbance is visible on the property to the south.

[1] http://mapshare.maps.vic.gov.au/victoriaunearthed/ - (online) accessed February 2020

YEAR / SOURCE	SUMMARY
1982 DEWLP	**Onsite:** No significant changes to the site are visible. **Offsite:** A small dam has been constructed on the property adjacent to the north of site and the earth disturbance remains visible on the property to the south.
2009 Google Earth	**Onsite:** No significant changes to the site are visible. **Offsite:** Some residential development is visible to the west.
2022 Nearmap	**Onsite:** No significant changes to the site are visible. **Offsite:** Continued residential development is visible.

EPA Priority Sites Register and Issued Statements and Certificates of Environmental Audit and Landfill Register

The site is not listed on the EPA Priority Sites Register and there are no EPA Priority Sites within 2.0 km of the site. A search of the list of issued Certificates and Statements of Environmental Audit revealed no listed properties within 2.0 km of the site. The site is not listed on the Victorian EPA landfill register and there are no nearby registered landfills.

Council Supplied Information

Wellington Shire Council confirmed that the property immediately to the south of the site was formerly a night spoil depot operated by Council and also water authorities prior to the installation of the sewer network in Maffra in the 1980's (over 35 years ago). The front portion of the site has been used by Council for temporary storage of crushed rock and green waste. Gippsland Water (and its predecessor – Heyfield Water) operated at the site before Council, however, they did not provide Beveridge Williams with any information following our request.

Beveridge Williams has previously completed contamination assessments of regional night spoil depots and notes that low-level contamination can sometimes be found in the former drainage ponds. Typically, low concentrations of heavy metals (but above background concentrations) and sometimes high molecular weight hydrocarbons within the sediments of the former night spoil ponds/trenches is found.

Geology Plans

Review of the Department of Jobs, Precincts and Regions (DJPR) GeoVic version 3[2] website indicates that the site is underlain by Pliocene to Quaternary aged Alluvial Terrace Deposits (Qa6) consisting of gravel, sand, silt; variably sorted and rounded, generally unconsolidated; dissected to form alluvial terraces higher than Qa5; alluvial floodplain deposits.

Hydrogeology Plans

A search of the Visualising Victoria's Groundwater[3] database showed the site to be underlain by groundwaters with total dissolved solids (TDS) ranging from 1,000 to 3,500 mg/L, between 20 - 50 m below the ground surface. This would conservatively classify the groundwater beneath the site as segment A2 waters, as per the Environmental Reference Standard (2021).

The protected beneficial uses of Segment A2 groundwater are listed below.

- Water dependent ecosystems and species
- Potable water supply (acceptable)
- Potable mineral water supply
- Agriculture and irrigation (irrigation and stock watering)

[2] http://er-info.dpi.vic.gov.au/sd_weave/anonymous.html - (online) accessed October 2022

[3] http://www.vvg.org.au/ - (online) accessed October 2022

- Industrial and commercial
- Water-based recreation (primary contact recreation)
- Traditional Owner cultural values
- Buildings and structures
- Geothermal properties

Groundwater Flow Direction and Recharge

Beveridge Williams' anticipates groundwater to flow to the southeast in line with local and regional topography.

Surface Water and Drainage

The site is mostly flat. It is anticipated that surface water from the site will runoff to the west and will flow into Sandy Creek then towards Bass Straight.

Site Inspection

On 12 October 2022 a Beveridge Williams Environmental Engineer carried out an inspection of the site. The following observations were made:

- A site compound for the future development of the site is located in the southwest corner of the site. Earthworks for the new crushed rock track in the compound were only completed recently. The following was located in the compound at the time of the inspection:
    - Soil stockpiles
    - Crushed rock stockpiles
    - Building materials, steel beam and post (for a future shed)
    - Fence posts
    - Old cars, caravans and trailers
- The site gently undulates with a ridge running through the centre of the site. The east side of the site slopes to the northeast, the southwest area falls to the southwest and the northwest area falls to the northwest.
- Scattered gum trees were present across the site.
- The site had good grass cover, with some tussocks located in wetter areas of the site.
- Minor areas of rocky outcrops were observed.
- Two dams were located on site:
    - The dam in the southeast corner of the site, the dam embankments appear to be comprised of nature soil excavated from the dam when created.
    - The dam in the centre of the site, the dam embankments appear to be comprised of nature soil excavated from the dam when created.
- Rubbish stockpiles were located to the southeast of the central dam, these stockpiles included:
    - Green waste (vegetation)
    - Timber (timber pallets, furniture, doors, timber panels)
    - Plastic waste (general rubbish)
- No potential asbestos-containing materials were observed.
- A stockyard was observed on the eastern boundary of the site.
- The property to the southeast (owned by Council) appeared to be used as a holding yard immediately off Maffra-Briagolong Road for green waste, street sweeping waste, general road maintenance waste (crushed rock, concrete, asphalt), minor stockpiling of surplus materials and minor soil stockpiling. The vacant portion of the property further west of the holding yard area appears to have been filled, the ground surface appeared uneven. Soil stockpiling was visible across the area and varying levels of health of vegetation were visible with

patches of dead vegetation grass (it does not appear the areas of dead vegetation have been sprayed as the patches are random).

Photographs taken during the site inspection are included on Attachment 4.

Potential for Contamination

Based on the historical sources of information and site inspection, the site has historically been used for grazing. Beveridge Williams considers the risk of widespread contamination of the site as low. A portion of the south boundary runs along an offsite land parcel formerly used as a night spoil depot.

Based on the information provided by the site history and site inspection, the following activities and potential contaminants have been listed in Table 2.

Table 2: Potential Contamination Sources

SOURCE / SITE ACTIVITIES	ONSITE / OFFSITE	LOCATION	CONTAMINANTS
Night-soil depot	Offsite	Adjacent to south site boundary	Heavy metals and TRH

Due to the proximity of the site to the former night spoil depot and risk of previous contaminated runoff entering the site from the former depot, Beveridge Williams recommended a limited contamination assessment along the south boundary of the former night spoil depot.

LIMITED SOIL CONTAMINATION ASSESSMENT

The Victorian State Environmental Protection Policy (SEPP), Prevention and Management of Contaminated Land (June 2002, updated September 2013) lists the beneficial uses for each segment of land to be protected.

Table 3: Protected Beneficial Uses of Land

BENEFICIAL USE		LAND USE						
		PARKS AND RESERVES	AGRICULTURAL	SENSITIVE USE		RECREATION / OPEN SPACE	COMMERCIAL	INDUSTRIAL
				HIGH DENSITY	OTHER			
Maintenance of ecosystems	Natural Ecosystems	√						
	Modified Ecosystems	√	√		√	√		
	Highly Modified Ecosystems		√	√	√	√	√	√
Human Health		√	√	√	√	√	√	√
Buildings and Structures		√	√	√	√	√	√	√
Aesthetics		√		√	√	√	√	
Production of food, flora and fibre		√	√		√			

- **Maintenance of modified and highly modified ecosystems** – National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1) (NEPM (Amendment 2013)) - Ecological Investigation

Levels (EIL). EPA Fill criteria (EPA Publication No. 1828.2) published by the Environment Protection Authority of Victoria, which lists the maximum concentrations of contaminants allowed in soil to be disposed of as Clean Fill, Category D, C, B and A Contaminated Soil) has been referenced also

- **Human health** – NEPM (Amendment 2013) Human Health Investigation Levels (HIL) for sensitive uses (low-density residential, primary schools and childcare, HIL A) and CRC Care 2011 Direct Contact HSL A have been referenced
- **Buildings and structures** – Contamination must not cause the land to be corrosive to or adversely affect the integrity of structures or building materials
- **Aesthetics** – Contamination must not cause the land to be offensive to the senses of human beings
- **Production of food, flora and fibre** – Contamination of land must not adversely affect produce quality, flora and fibre yield or affect the level of any indicator in food, flora and fibre produced at the site (or that may be produced).

NEPM (Amendment 2013) Ecological Investigation Levels Criteria Derivation

The NEPM (Amendment 2013) states that '*the EIL [criteria] takes into account the biological availability of the element in different soils and separate naturally occurring concentrations of a contaminant and the added contaminant in deriving EILs which are based on the 'added risk approach*'. This approach assumes that the availability of the ambient background concentration (ABC, the soil concentration in a specified locality that is the sum of the naturally occurring background and the contaminant levels that have been introduced from diffuse or non-point sources by general anthropogenic activity not attributed to industrial, commercial, or agricultural activities) of a contaminant is zero or sufficiently close that it makes no practical difference. More importantly, it assumes that the background '*has resulted in the biodiversity of ecosystems or serves to fulfil the needs for micronutrients for the organisms in the environment*'. Therefore, the approach views only the effect of added contaminants to the environment as adverse (for further information refer to Section 2.4, Schedule B5b). Thus, rather than having a single numerical limit for a contaminant, different soils will have different limits. The EIL derivation methodology generates, wherever possible, soil-specific EILs'.

Beveridge Williams considers that any contamination identified on the site is unlikely to have been added within the last 2 years indicating that contamination would be "aged" (as defined by NEPM (Amendment 2013). Therefore, Beveridge Williams has adopted the "aged" values listed in Appendix A of NEPM (Amendment 2013) Schedule B5a "Guide on Ecological Risk Assessment" for urban residential/public open space for reporting purposes.

Field Methodology

Fieldworks were generally carried out in accordance with Australian Standard (AS) 4482.1-2005 by a Beveridge Williams Environmental Professional who logged the soil samples generally in accordance with AS 1726-1993 and obtained disturbed soil samples at nominated depths. To follow appropriate sampling procedure, the Environmental Professional wore disposable rubber nitrile gloves which were replaced prior to the recovery of each sample.

The soil samples were placed into acid-rinsed and solvent-washed screw-top glass jars supplied by the analysing laboratory. The jars were tightly closed and kept on ice in a portable cooler until delivery to the laboratory under chain of custody procedures.

Each soil sample was assessed both visually and by odour for evidence of contamination with a ranking on a scale of 0 - 3 as follows:

0 No odour or visual evidence of contamination

1 Slight visual evidence of contamination and/or slight odour

2 Visual evidence of contamination and/or odour

3 Obvious visual evidence of contamination and/or strong odour.

A calibrated photoionization detector (PID) was used to screen for the presence of volatile organic compounds (VOCs) in all samples collected. During sampling, an extra sample was collected and placed in a properly sealed snap-lock plastic bag. The volume of soil used for obtaining PID readings was kept generally uniform for all samples tested. After approximately 15 minutes the plastic bag was pierced with the probe to obtain a PID reading.

All chemical testing was undertaken by a NATA registered analytical laboratory.

Soil Investigation – Surface Samples

On 27 October 2022 a Beveridge Williams environmental professional collected 12 surface samples (2710-S01 to 2710-S12) along the south boundary near the former night spoil depot.

The sample location plan is presented on Attachment 2.

Soil Observations

The surface soils in each sample generally consisted of a dark brown-black silt with medium grained sand. No odours, foreign inclusions or staining were observed.

Contamination Ranking and PID Readings

All samples were assigned a contamination ranking of 0.

All soil samples were screened in the field with a photoionisation detector (PID). The majority of PID responses were reported at 0.0 ppm. Based on the PID responses Beveridge William considers the possibility that volatile contamination is unlikely to be present in the soil.

Each VOC result is expressed as a VOC isobutylene equivalent concentration (in ppm). Different compounds give different responses relative to isobutylene.

Chemical Testing Program

The chemical testing program for individual samples collected is detailed in Table 1.

Table 4: Soil Sample Chemical Testing Program

SAMPLE NUMBERS	TESTING PROGRAM
2710-S03, 2710-S09	EPA Fill Screen[4]
2710-S01, 2710-S02, 2710-S04, 2710-S05, 2710-S06, 2710-S07, 2710-S08, 2710-S10, 2710-S11, 2710-S12	Heavy Metals[5], Total Petroleum Hydrocarbons (TRH)

Chemical Testing Results

None of the test results exceed the adopted criteria being NEPM HIL A and NEPM EIL (2013) for silty soils. All reported metals concentrations were very low indicating a low probability that the former night soil depot has contaminated surface soils at the site.

The soil test results also meet the EPA Fill Criteria.

A copy of the chain of custody and NATA laboratory Certificate of Analysis is included as Attachment 5.

CONCLUSION

Beveridge Williams has completed a limited soil contamination assessment of the site comprising a desktop site history review, site inspection and a limited soil sampling and testing. No adverse contamination issues were identified.

Beveridge Williams considers the contamination risk at the site is low. Contamination is not considered likely to restrict development of the site for residential.

[4]An EPA fill screen consists of the following analytes: total metals (Sb, As, Ba, Be, B, Cd, Cr (III+VI), Cr (VI), Co, Cu, Pb, Mn, Hg, Mo, Se, Ag, Sn, V, Zn), total cyanide, total fluoride, speciated phenols (halogenated plus non-halogenated), MAH, PAH, TPH, PCB, CHC and OCP

[5] Heavy metals: Al, Sb, As, Ba, Be, B, Cd, Cr (III+VI), Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, Sn, V, Zn

Should you have any queries relating to this letter report, please contact myself via

BEVERIDGE WILLIAMS & CO PTY LTD

Approved for issue by

Manager Environmental Division

Attachment 1 – Planning Property Report

Attachment 2 – Sample Location Plan

Attachment 3 – Aerial Photographs

Attachment 4 – Site Photographs

Attachment 5 – Laboratory Certificates of Analysis

PLANNING PROPERTY REPORT

Environment, Land, Water and Planning

From www.planning.vic.gov.au at 11 November 2022 01:52 PM

PROPERTY DETAILS

Address:	**MAFFRA-BRIAGOLONG ROAD MAFFRA 3860**
Lot and Plan Number:	**More than one parcel - see link below**
Standard Parcel Identifier (SPI):	**More than one parcel - see link below**
Local Government Area (Council):	**WELLINGTON** www.wellington.vic.gov.au
Council Property Number:	**361360**
Planning Scheme:	**Wellington** Planning Scheme - Wellington
Directory Reference:	**Vicroads 82 H8**

This property has 2 parcels. For full parcel details get the free Property report at Property Reports

UTILITIES

Rural Water Corporation:	**Southern Rural Water**
Urban Water Corporation:	**Gippsland Water**
Melbourne Water:	**Outside drainage boundary**
Power Distributor:	**AUSNET**

STATE ELECTORATES

Legislative Council:	**EASTERN VICTORIA**
Legislative Assembly:	**GIPPSLAND EAST**

OTHER

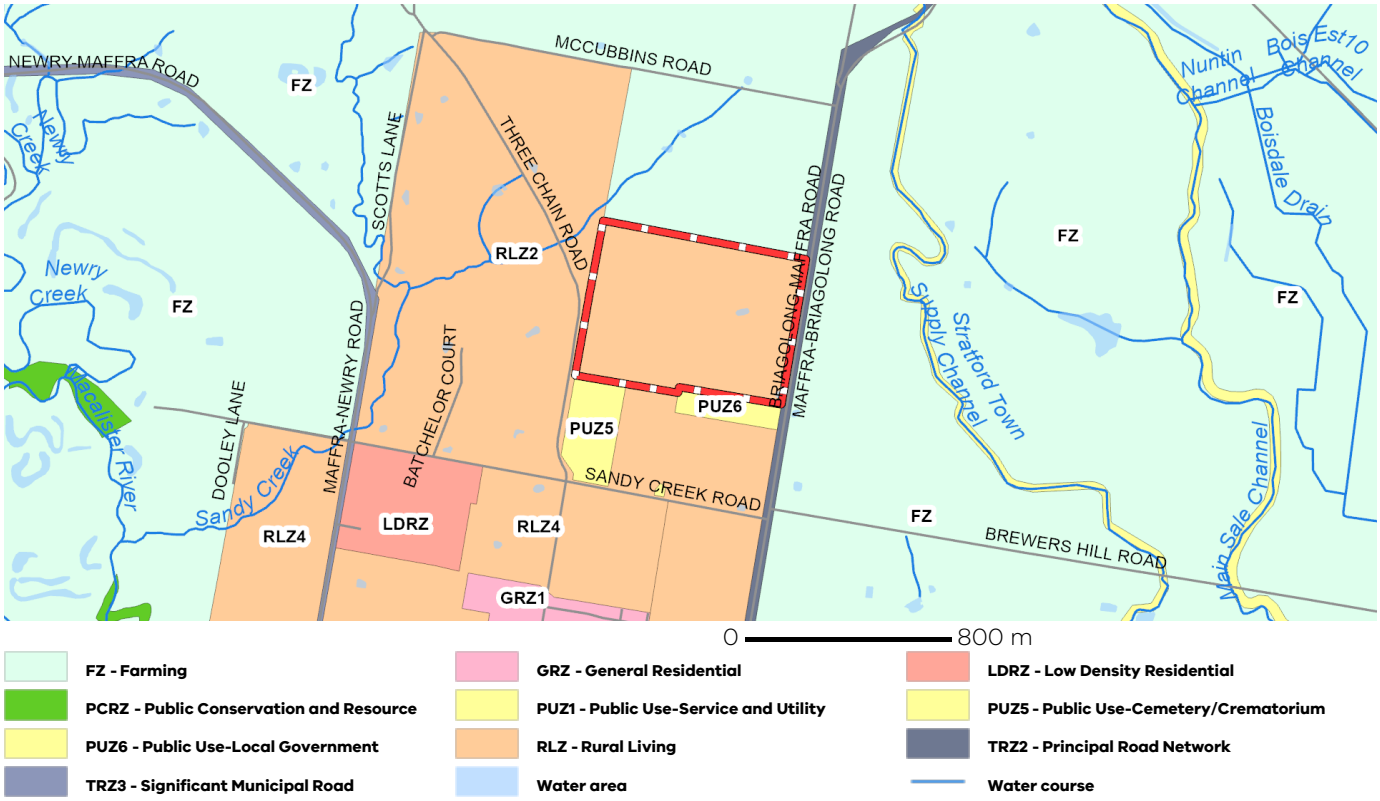
Registered Aboriginal Party: **Gunaikurnai Land and Waters Aboriginal Corporation**

View location in VicPlan

Planning Zones

RURAL LIVING ZONE (RLZ)

RURAL LIVING ZONE - SCHEDULE 2 (RLZ2)



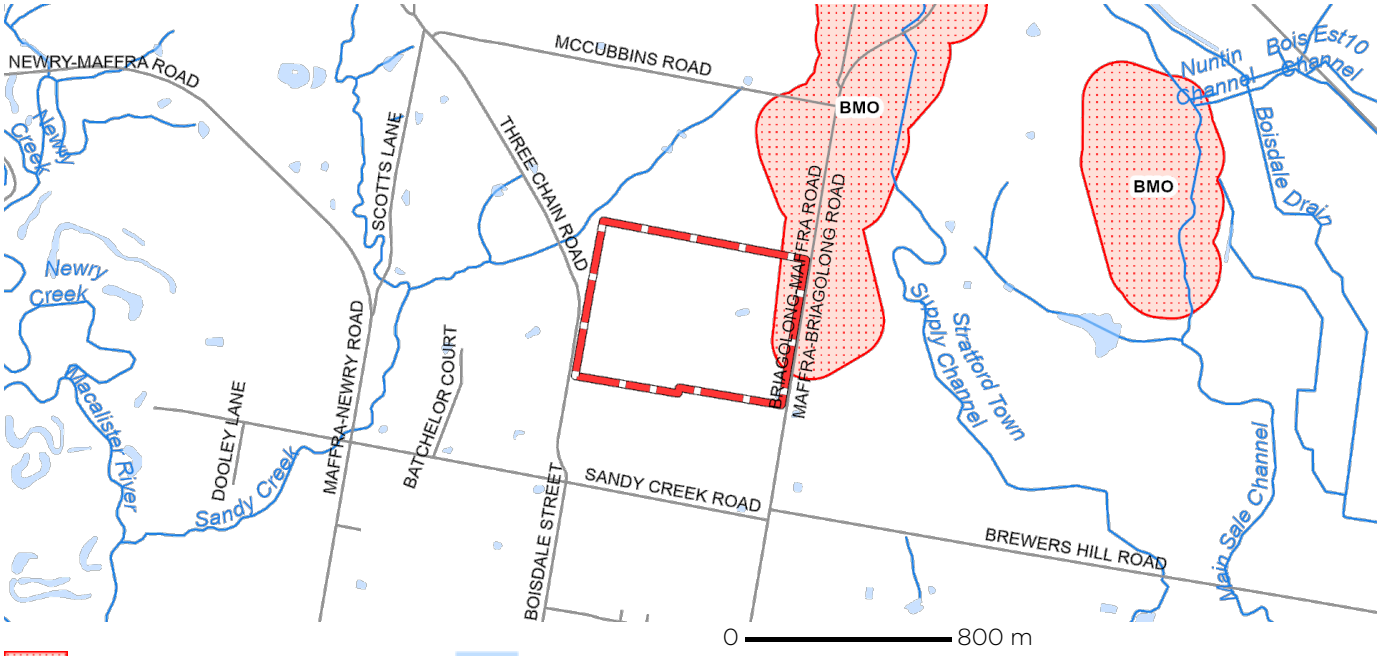
FZ - Farming	GRZ - General Residential	LDRZ - Low Density Residential
PCRZ - Public Conservation and Resource	PUZ1 - Public Use-Service and Utility	PUZ5 - Public Use-Cemetery/Crematorium
PUZ6 - Public Use-Local Government	RLZ - Rural Living	TRZ2 - Principal Road Network
TRZ3 - Significant Municipal Road	Water area	Water course

Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

PLANNING PROPERTY REPORT

Planning Overlays

BUSHFIRE MANAGEMENT OVERLAY (BMO)

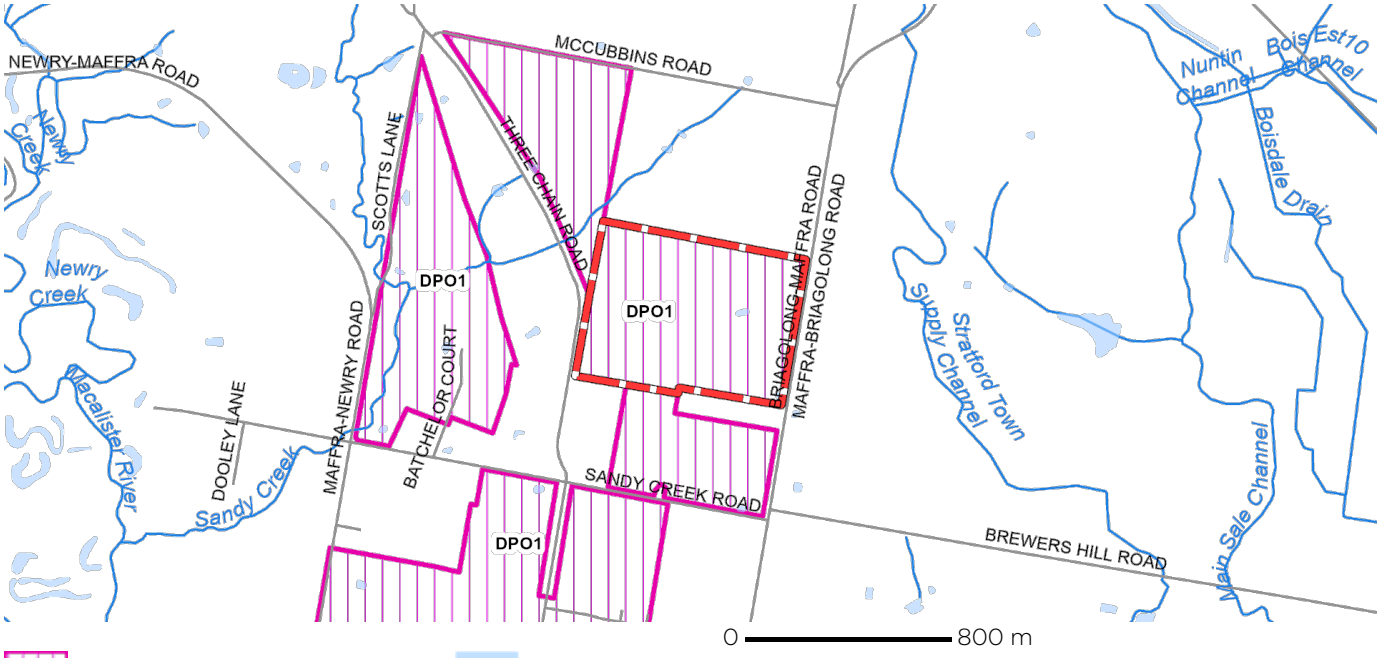


BMO - Bushfire Management Overlay | Water area | Water course

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

DEVELOPMENT PLAN OVERLAY (DPO)

DEVELOPMENT PLAN OVERLAY - SCHEDULE 1 (DPO1)



DPO - Development Plan Overlay | Water area | Water course

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

PLANNING PROPERTY REPORT

Planning Overlays

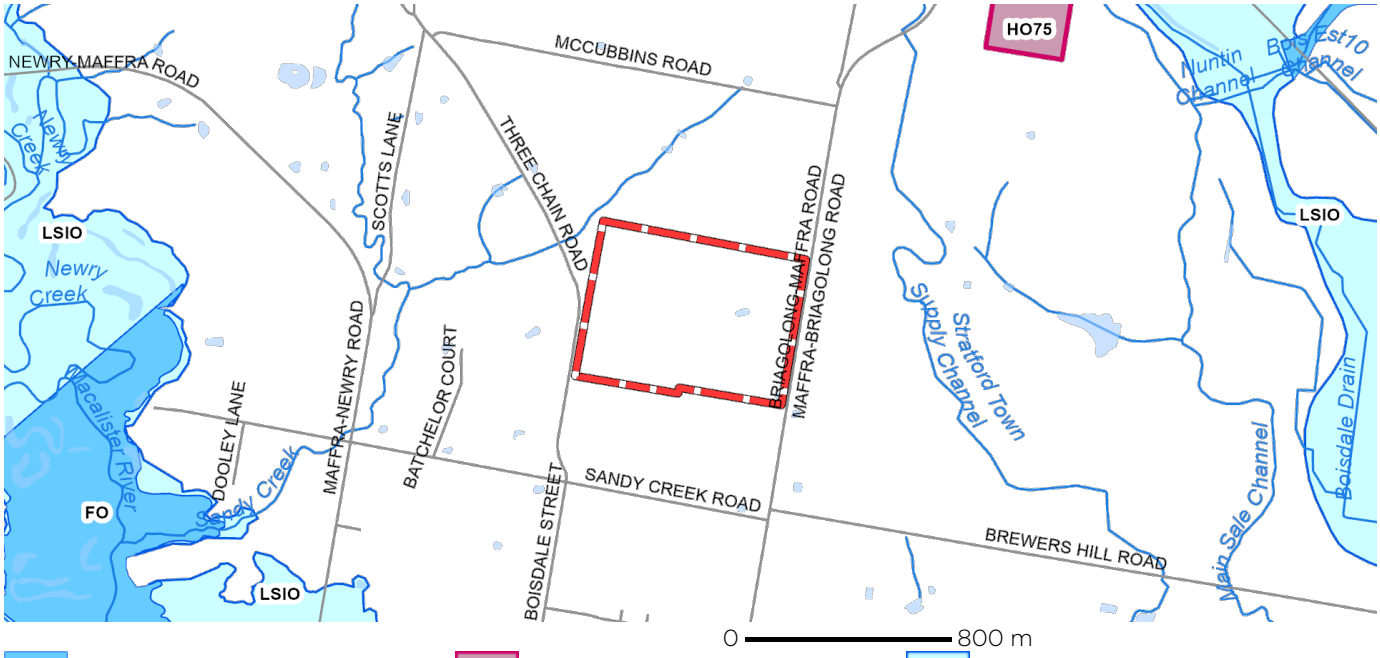
OTHER OVERLAYS

Other overlays in the vicinity not directly affecting this land

FLOODWAY OVERLAY (FO)

HERITAGE OVERLAY (HO)

LAND SUBJECT TO INUNDATION OVERLAY (LSIO)



FO - Floodway Overlay | **HO - Heritage Overlay** | **LSIO - Land Subject to Inundation Overlay**

Water area | **Water course**

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

Further Planning Information

Planning scheme data last updated on 8 November 2022.

A **planning scheme** sets out policies and requirements for the use, development and protection of land.
This report provides information about the zone and overlay provisions that apply to the selected land.
Information about the State and local policy, particular, general and operational provisions of the local planning scheme that may affect the use of this land can be obtained by contacting the local council or by visiting https://www.planning.vic.gov.au

This report is NOT a **Planning Certificate** issued pursuant to Section 199 of the ***Planning and Environment Act 1987.***
It does not include information about exhibited planning scheme amendments, or zonings that may abut the land.
To obtain a Planning Certificate go to Titles and Property Certificates at Landata - https://www.landata.vic.gov.au

For details of surrounding properties, use this service to get the Reports for properties of interest.

To view planning zones, overlay and heritage information in an interactive format visit https://mapshare.maps.vic.gov.au/vicplan

For other information about planning in Victoria visit https://www.planning.vic.gov.au

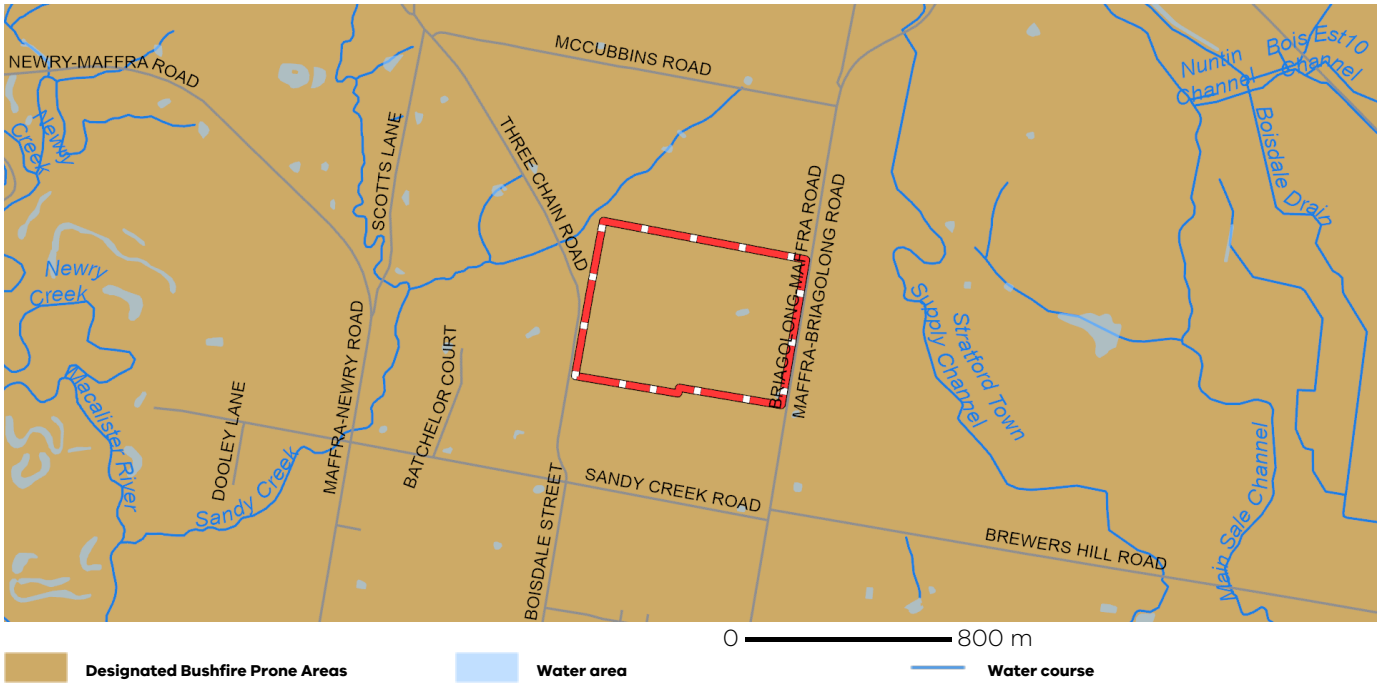
PLANNING PROPERTY REPORT

Designated Bushfire Prone Areas

This property is in a designated bushfire prone area. Special bushfire construction requirements apply to the part of the property mapped as a designated bushfire prone area (BPA). Planning provisions may apply.

Where part of the property is mapped as BPA, if no part of the building envelope or footprint falls within the BPA area, the BPA construction requirements do not apply.

Note: the relevant building surveyor determines the need for compliance with the bushfire construction requirements.



Designated BPA are determined by the Minister for Planning following a detailed review process. The Building Regulations 2018, through adoption of the Building Code of Australia, apply bushfire protection standards for building works in designated BPA.

Designated BPA maps can be viewed on VicPlan at https://mapshare.vic.gov.au/vicplan/ or at the relevant local council.

Create a BPA definition plan in VicPlan to measure the BPA.

Information for lot owners building in the BPA is available at https://www.planning.vic.gov.au.

Further information about the building control system and building in bushfire prone areas can be found on the Victorian Building Authority website https://www.vba.vic.gov.au. Copies of the Building Act and Building Regulations are available from http://www.legislation.vic.gov.au. For Planning Scheme Provisions in bushfire areas visit https://www.planning.vic.gov.au.

Native Vegetation

Native plants that are indigenous to the region and important for biodiversity might be present on this property. This could include trees, shrubs, herbs, grasses or aquatic plants. There are a range of regulations that may apply including need to obtain a planning permit under Clause 52.17 of the local planning scheme. For more information see Native Vegetation (Clause 52.17) with local variations in Native Vegetation (Clause 52.17) Schedule

To help identify native vegetation on this property and the application of Clause 52.17 please visit the Native Vegetation Information Management system https://nvim.delwp.vic.gov.au/ and Native vegetation (environment.vic.gov.au) or please contact your relevant council.

You can find out more about the natural values on your property through NatureKit NatureKit (environment.vic.gov.au)

Approximate Site Location

SS01 Approximate Surface Sample Location

Project Name: Limited Soil Contamination Assessment

Drawing Title: Sample Location Plan

Rev Description Date By App.

Drawn Date 11.11.2022

Approved Date 11.11.2022

Image Source NEARMAP

Beveridge Williams
development & environment consultants
1 Glenferrie Road
Malvern VIC 3144
Ph : 03 9524 8888
Fax: 03 9524 8899
www.beveridgewilliams.com.au

40 20 0 50 100 150 m

Scale 1:5,000 @ A4

Project Ref. 2102640 Figure No. 01 Rev. 0

Drawing Ref. K:\JOBS DATA\2102640 - MAFFRA-BRIAGOLONG ROAD, MAFFRA\ENV_ENV\00\PLANS\2102640 - PLAN.DWG

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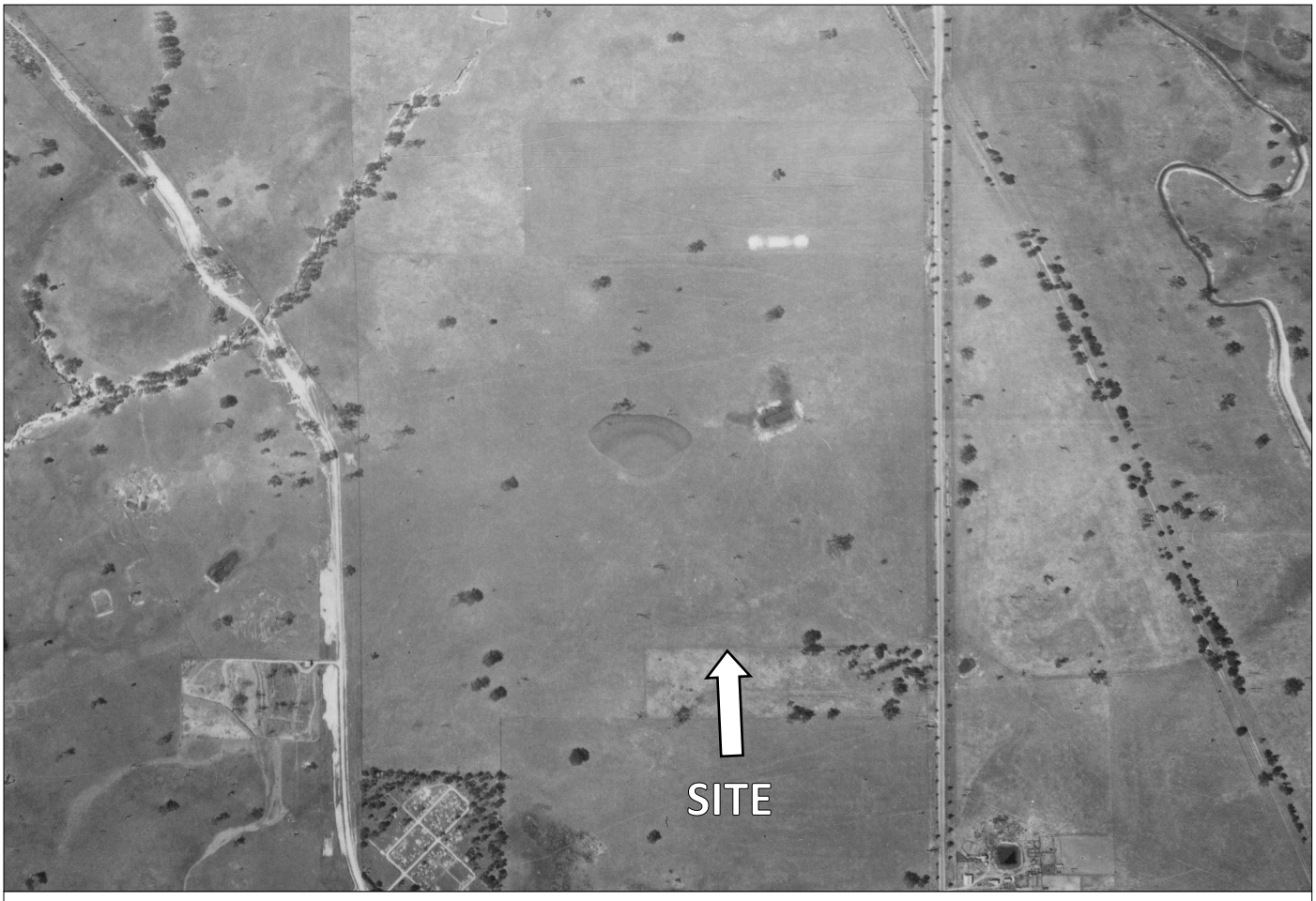
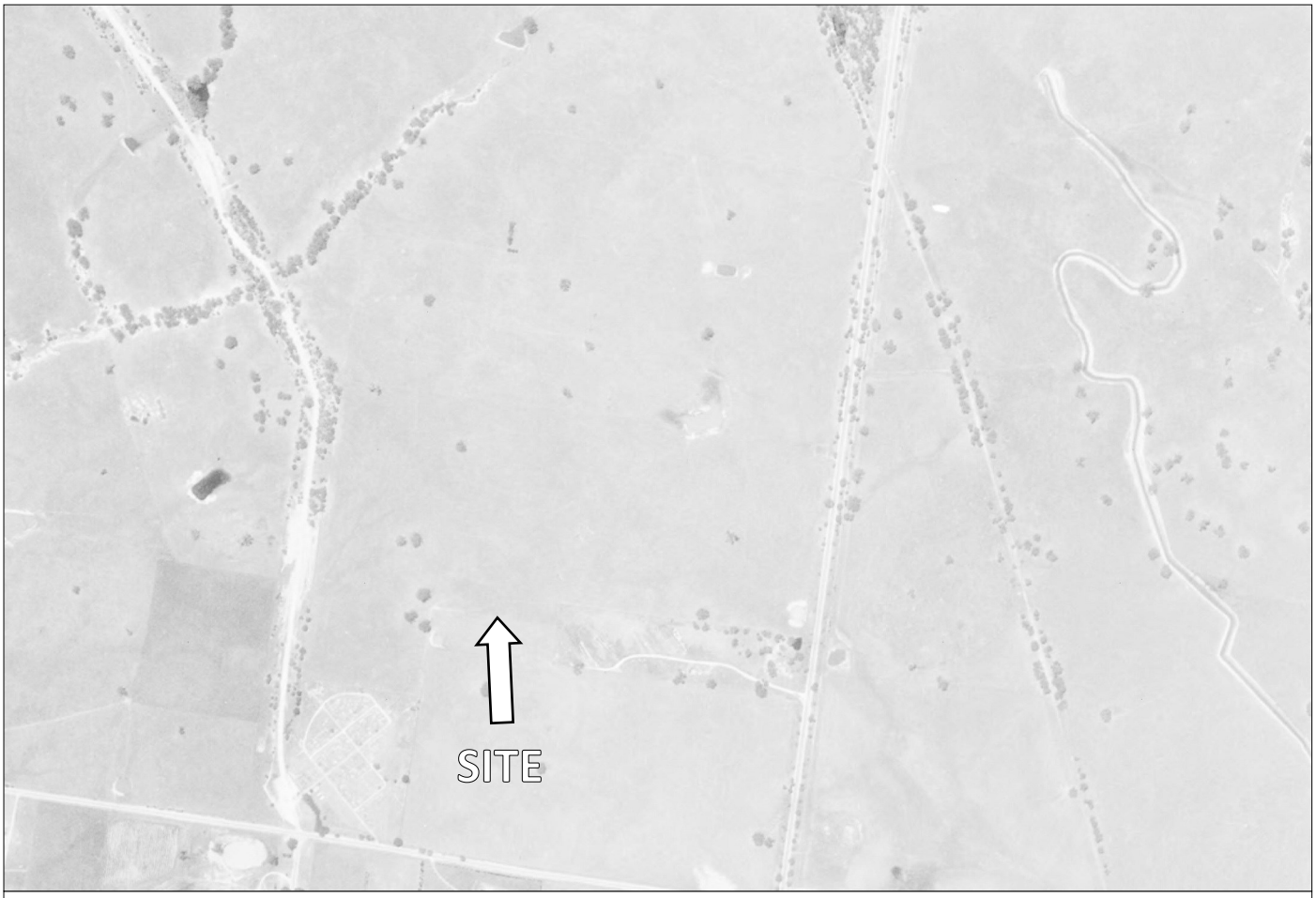


1956

1972



1982

2022

Photograph 1: View facing north from the south western corner of site. The site is mostly grassed and flat, a short crushed rock driveway and some vehicles and trailers are parked along the western boundary. And two stockpiles of crushed rock are visible at the end of the driveway.

Photograph 2: View of the stockyards along the eastern portion of site.

Photograph 3: View of the council lot adjacent to the southern boundary of site. The adjacent land is slightly raised with varying grass coverage, and two stockpiles of wood and dirt can be seen in the background.

Photograph 4: View of the council lot adjacent to the south of site. Several stockpiles and a council street sweeper can be seen.

Chain of Custody Form

Beveridge Williams
development & environment consultants

		Job number	2102640
		Laboratory	Eurofins Scientific 6 Monterey Rd, Dandenong South VIC 3175
Client		Quote number	180618BEV-3
Project	LIMITED SOIL SAMPLING	Project Manager	
Location	MAFFRA	Sampled by	

Turnaround time	24hr ☐	48hr ☐	72hr ☐	Standard ☒	Comments:

Chain of Custody

From	Company	Date	Received by	Company	Date	Time
AM	Beveridge Williams	27.10.22		Eurofins	27/10/22	2:53pm

Quality control		Initial
Sample preservation	Appropriate sample containers used, refrigerated or chilled samples supplied to laboratory	AM
Sample holding times	Tests conducted within specified holding times	AM
Final certificates	Re-testing of results as requested. Tests conducted and reported as per CoC form.	AM

Notes

Matrix: S = Soil GW = Groundwater W = Water R = Rinsate Soluble Heavy Metals: Ag, As, B, Ba, Be, Cd, Co, Cr, Cu, Hg, Mn, Mo, Ni, Pb, Sb, Se, Sn, V, Zn

Soil: Suite BW Soil 1 : Metals, OCP Suite BW Soil 2- Metals, PAH Suite BW Soil 3: Metals, PAH, OCP Suite BW Soil 4 : Metals, PAH, TRH

Suite BW Soil 5 : Metals, CrVI, Total CN, Total F, Speciated Phenols, BTEXN, Styrene, TRH, PAH, PCB, OCP, Volatile CHC, Semivolatile CHC, pH, Moisture

Water: Suite BW GW 1 : Metals (As, Cd, Cu, Pb, Hg, Mo, Ni, Sn, Se, Ag, Zn), CrVI, Total CN, Speciated Phenols, BTEXN, Styrene, TRH, PAH (trace 0.00001), PCB, OCP (trace 0.00001mg/L), Volatile CHC, Semivolatile CHC, pH, TDS, Alkalinity, Sulphate, Chloride, Fluoride, Ca, Mg, K, Ca

All groundwater heavy metals testing must be for soluble metals unless otherwise indicated.

Beveridge Williams				Job Number										0
				Testing required										
Sample ID	Date sampled	Matrix	No. of containers	[redacted] Metals (As, B, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Mn, Mo, Ni, Sb, Sn, Se, Ag, V, Zn),	Suite BW Soil 2: Metals (As, B, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Mn, Mo, Ni, Sb, Sn, Se, Ag, V, Zn), PAH	Suite BW Soil 3: Metals (As, B, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Mn, Mo, Ni, Sb, Sn, Se, Ag, V, Zn), PAH, OCP	Suite BW Soil 4 : Metals (As, B, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Mn, Mo, Ni, Sb, Sn, Se, Ag, V, Zn), PAH, TRH	Suite BW Soil 5 : Metals (As, B, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Mn, Mo, Ni, Sb, Sn, Se, Ag, V, Zn), CrVI, Total CN, Total F, Speciated Phenols, BTEXN, Styrene, TRH, PAH, PCB, OCP, Volatile CHC, Semivolatile CHC, pH, Moisture	Suite B1: TRH, BTEXN	Suite B4: TRH, BTEXN, PAH	Suite B7: TRH, BTEXN, PAH, Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	[redacted] Phenols/ OCP/ PCB/ VOC/ Vinyl Chloride/ Metals (As, Cd, Cr, Cu, Ni, Pb, Hg, Ag, Sn, Mo, Se, Zn) Cr6+/ CN/ Total Phenols/ pH	# TRH
2710 - S01	27.10.22	S	1	X										X
2710 - S02	↓	↓	↓	X										X
2710 - S03													X	
2710 - S04				X										X
2710 - S05				X										X
2710 - S06				X										X
2710 - S07				X										X
2710 - S08				X										X
2710 - S09													X	
2710 - S10				X										X
2710 - S11				X										X
2710 - S12				X										X

DATE:
TIME:
COURIER: DO
TEMPERATURE 4.9 0.1 3.9
ATTEMP TO CHILL : YES NO

935719
27/10/22

eurofins | Environment Testing

Certificate of Analysis

Beveridge William & Co Pty Ltd
PO Box 61
Malvern
VIC 3144

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates.

Attention:

Report	**935719-S**
Project name	LIMITED SOIL SAMPLING
Project ID	2102640
Received Date	Oct 27, 2022

Client Sample ID			**2710_S01**	**2710_S02**	**2710_S03**	**2710_S04**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**M22-Oc0059303**	**M22-Oc0059304**	**M22-Oc0059305**	**M22-Oc0059306**
Date Sampled			**Oct 27, 2022**	**Oct 27, 2022**	**Oct 27, 2022**	**Oct 27, 2022**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
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	78	91	< 50	81
TRH C10-C36 (Total)	50	mg/kg	78	91	< 50	81
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	120	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	120	< 100	< 100
Heavy Metals						
Antimony	10	mg/kg	< 10	< 10	-	< 10
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Barium	10	mg/kg	15	21	-	21
Beryllium	2	mg/kg	< 2	< 2	-	< 2
Boron	10	mg/kg	< 20	< 20	-	31
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	< 5	< 5	< 5
Cobalt	5	mg/kg	< 5	< 5	-	< 5
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	< 5	< 5	< 5	< 5
Manganese	5	mg/kg	100	110	-	210
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Molybdenum	5	mg/kg	< 5	< 5	< 5	< 5
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Selenium	2	mg/kg	< 2	< 2	< 2	< 2
Silver	2	mg/kg	< 2	< 2	< 2	< 2
Tin	10	mg/kg	< 10	< 10	< 10	< 10
Vanadium	10	mg/kg	< 10	< 10	-	< 10
Zinc	5	mg/kg	< 5	8.1	7.9	24

Client Sample ID			2710_S01	2710_S02	2710_S03	2710_S04
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-Oc0059303	M22-Oc0059304	M22-Oc0059305	M22-Oc0059306
Date Sampled			Oct 27, 2022	Oct 27, 2022	Oct 27, 2022	Oct 27, 2022
Test/Reference	LOR	Unit				
% Moisture	1	%	10.0	17	18	19
Chromium (hexavalent)	1	mg/kg	-	-	< 1	-
Cyanide (total)	5	mg/kg	-	-	< 5	-
Fluoride	100	mg/kg	-	-	170	-
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units	-	-	5.4	-
Volatile Organics						
Hexachlorobutadiene	0.5	mg/kg	-	-	< 0.5	-
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	-	-	< 0.5	-
1.2.4-Trichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
1.1-Dichloroethene	0.5	mg/kg	-	-	< 0.5	-
1.1.1-Trichloroethane	0.5	mg/kg	-	-	< 0.5	-
1.1.1.2-Tetrachloroethane	0.5	mg/kg	-	-	< 0.5	-
1.1.2-Trichloroethane	0.5	mg/kg	-	-	< 0.5	-
1.1.2.2-Tetrachloroethane	0.5	mg/kg	-	-	< 0.5	-
1.2-Dibromoethane	0.5	mg/kg	-	-	< 0.5	-
1.2-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
1.2-Dichloroethane	0.5	mg/kg	-	-	< 0.5	-
1.2-Dichloropropane	0.5	mg/kg	-	-	< 0.5	-
1.2.3-Trichloropropane	0.5	mg/kg	-	-	< 0.5	-
1.2.4-Trimethylbenzene	0.5	mg/kg	-	-	< 0.5	-
1.3-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
1.3-Dichloropropane	0.5	mg/kg	-	-	< 0.5	-
1.3.5-Trimethylbenzene	0.5	mg/kg	-	-	< 0.5	-
1.4-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
2-Butanone (MEK)	0.5	mg/kg	-	-	< 0.5	-
2-Propanone (Acetone)	0.5	mg/kg	-	-	< 0.5	-
4-Chlorotoluene	0.5	mg/kg	-	-	< 0.5	-
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	-	-	< 0.5	-
Allyl chloride	0.5	mg/kg	-	-	< 0.5	-
Benzene	0.1	mg/kg	-	-	< 0.1	-
Bromobenzene	0.5	mg/kg	-	-	< 0.5	-
Bromochloromethane	0.5	mg/kg	-	-	< 0.5	-
Bromodichloromethane	0.5	mg/kg	-	-	< 0.5	-
Bromoform	0.5	mg/kg	-	-	< 0.5	-
Bromomethane	0.5	mg/kg	-	-	< 0.5	-
Carbon disulfide	0.5	mg/kg	-	-	< 0.5	-
Carbon Tetrachloride	0.5	mg/kg	-	-	< 0.5	-
Chlorobenzene	0.5	mg/kg	-	-	< 0.5	-
Chloroethane	0.5	mg/kg	-	-	< 0.5	-
Chloroform	0.5	mg/kg	-	-	< 0.5	-
Chloromethane	0.5	mg/kg	-	-	< 0.5	-
cis-1.2-Dichloroethene	0.5	mg/kg	-	-	< 0.5	-
cis-1.3-Dichloropropene	0.5	mg/kg	-	-	< 0.5	-
Dibromochloromethane	0.5	mg/kg	-	-	< 0.5	-
Dibromomethane	0.5	mg/kg	-	-	< 0.5	-
Dichlorodifluoromethane	0.5	mg/kg	-	-	< 0.5	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
Iodomethane	0.5	mg/kg	-	-	< 0.5	-

Client Sample ID			2710_S01	2710_S02	2710_S03	2710_S04
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-Oc0059303	M22-Oc0059304	M22-Oc0059305	M22-Oc0059306
Date Sampled			Oct 27, 2022	Oct 27, 2022	Oct 27, 2022	Oct 27, 2022
Test/Reference	LOR	Unit				
Volatile Organics						
Isopropyl benzene (Cumene)	0.5	mg/kg	-	-	< 0.5	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
Methylene Chloride	0.5	mg/kg	-	-	< 0.5	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Styrene	0.5	mg/kg	-	-	< 0.5	-
Tetrachloroethene	0.5	mg/kg	-	-	< 0.5	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
trans-1.2-Dichloroethene	0.5	mg/kg	-	-	< 0.5	-
trans-1.3-Dichloropropene	0.5	mg/kg	-	-	< 0.5	-
Trichloroethene	0.5	mg/kg	-	-	< 0.5	-
Trichlorofluoromethane	0.5	mg/kg	-	-	< 0.5	-
Vinyl chloride	0.5	mg/kg	-	-	< 0.5	-
Xylenes - Total*	0.3	mg/kg	-	-	< 0.3	-
Total MAH*	0.5	mg/kg	-	-	< 0.5	-
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	-	-	< 0.5	-
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	-	-	< 0.5	-
4-Bromofluorobenzene (surr.)	1	%	-	-	97	-
Toluene-d8 (surr.)	1	%	-	-	81	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	1.2	-
Acenaphthene	0.5	mg/kg	-	-	< 0.5	-
Acenaphthylene	0.5	mg/kg	-	-	< 0.5	-
Anthracene	0.5	mg/kg	-	-	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	-	-	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	-	-	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	-	-	< 0.5	-
Chrysene	0.5	mg/kg	-	-	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	< 0.5	-
Fluoranthene	0.5	mg/kg	-	-	< 0.5	-
Fluorene	0.5	mg/kg	-	-	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	< 0.5	-
Naphthalene	0.5	mg/kg	-	-	< 0.5	-
Phenanthrene	0.5	mg/kg	-	-	< 0.5	-
Pyrene	0.5	mg/kg	-	-	< 0.5	-
Total PAH*	0.5	mg/kg	-	-	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	-	-	97	-
p-Terphenyl-d14 (surr.)	1	%	-	-	66	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	-	-	< 0.05	-
a-HCH	0.05	mg/kg	-	-	< 0.05	-
Aldrin	0.05	mg/kg	-	-	< 0.05	-
b-HCH	0.05	mg/kg	-	-	< 0.05	-

Client Sample ID			2710_S01	2710_S02	2710_S03	2710_S04
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-Oc0059303	M22-Oc0059304	M22-Oc0059305	M22-Oc0059306
Date Sampled			Oct 27, 2022	Oct 27, 2022	Oct 27, 2022	Oct 27, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
d-HCH	0.05	mg/kg	-	-	< 0.05	-
Dieldrin	0.05	mg/kg	-	-	< 0.05	-
Endosulfan I	0.05	mg/kg	-	-	< 0.05	-
Endosulfan II	0.05	mg/kg	-	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	-	< 0.05	-
Endrin	0.05	mg/kg	-	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	-	< 0.05	-
Endrin ketone	0.05	mg/kg	-	-	< 0.05	-
g-HCH (Lindane)	0.05	mg/kg	-	-	< 0.05	-
Heptachlor	0.05	mg/kg	-	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	-	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.05	-
Methoxychlor	0.05	mg/kg	-	-	< 0.05	-
Toxaphene	0.5	mg/kg	-	-	< 0.5	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	-	67	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	75	-
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	%	-	-	67	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	75	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	-	< 0.5	-
2.4-Dichlorophenol	0.5	mg/kg	-	-	< 0.5	-
2.4.5-Trichlorophenol	1	mg/kg	-	-	< 1	-
2.4.6-Trichlorophenol	1	mg/kg	-	-	< 1	-
2.6-Dichlorophenol	0.5	mg/kg	-	-	< 0.5	-
4-Chloro-3-methylphenol	1	mg/kg	-	-	< 1	-
Pentachlorophenol	1	mg/kg	-	-	< 1	-
Tetrachlorophenols - Total	10	mg/kg	-	-	< 10	-
Total Halogenated Phenol*	1	mg/kg	-	-	< 1	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	-	< 20	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	< 5	-
2-Nitrophenol	1.0	mg/kg	-	-	< 1	-
2.4-Dimethylphenol	0.5	mg/kg	-	-	< 0.5	-
2.4-Dinitrophenol	5	mg/kg	-	-	< 5	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	< 0.2	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	< 0.4	-

Client Sample ID			2710_S01	2710_S02	2710_S03	2710_S04
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-Oc0059303	M22-Oc0059304	M22-Oc0059305	M22-Oc0059306
Date Sampled			Oct 27, 2022	Oct 27, 2022	Oct 27, 2022	Oct 27, 2022
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
Total cresols*	0.5	mg/kg	-	-	< 0.5	-
4-Nitrophenol	5	mg/kg	-	-	< 5	-
Dinoseb	20	mg/kg	-	-	< 20	-
Phenol	0.5	mg/kg	-	-	< 0.5	-
Phenol-d6 (surr.)	1	%	-	-	134	-
Total Non-Halogenated Phenol*	20	mg/kg	-	-	< 20	-

Client Sample ID			2710_S05	2710_S06	2710_S07	2710_S08
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-Oc0059307	M22-Oc0059308	M22-Oc0059309	M22-Oc0059310
Date Sampled			Oct 27, 2022	Oct 27, 2022	Oct 27, 2022	Oct 27, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	90
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	330
TRH C29-C36	50	mg/kg	92	< 50	< 50	340
TRH C10-C36 (Total)	50	mg/kg	92	< 50	< 50	760
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	120
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	120
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	570
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	690
Heavy Metals						
Antimony	10	mg/kg	< 10	< 10	< 10	< 10
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Barium	10	mg/kg	26	21	20	30
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	26	< 20	26	42
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	< 5	< 5	< 5
Cobalt	5	mg/kg	< 5	< 5	< 5	< 5
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	< 5	< 5	< 5	< 5
Manganese	5	mg/kg	200	120	73	340
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Molybdenum	5	mg/kg	< 5	< 5	< 5	< 5
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Selenium	2	mg/kg	< 2	< 2	< 2	< 2
Silver	2	mg/kg	< 2	< 2	< 2	< 2
Tin	10	mg/kg	< 10	< 10	< 10	< 10
Vanadium	10	mg/kg	< 10	11	< 10	< 10
Zinc	5	mg/kg	19	13	12	40
% Moisture	1	%	21	16	24	35

Client Sample ID			2710_S09	2710_S10	2710_S11	2710_S12
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-Oc0059311	M22-Oc0059312	M22-Oc0059313	M22-Oc0059314
Date Sampled			Oct 27, 2022	Oct 27, 2022	Oct 27, 2022	Oct 27, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	22	51	30	21
TRH C15-C28	50	mg/kg	< 50	180	110	72
TRH C29-C36	50	mg/kg	65	170	120	58
TRH C10-C36 (Total)	50	mg/kg	87	401	260	151
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	110	320	210	130
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	110	320	210	130
Heavy Metals						
Antimony	10	mg/kg	-	< 10	< 10	< 10
Arsenic	2	mg/kg	2.0	< 2	< 2	< 2
Barium	10	mg/kg	-	23	26	24
Beryllium	2	mg/kg	-	< 2	< 2	< 2
Boron	10	mg/kg	-	< 20	< 20	< 20
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	6.6	5.9	< 5	8.5
Cobalt	5	mg/kg	-	< 5	< 5	< 5
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	< 5	< 5	< 5	9.1
Manganese	5	mg/kg	-	110	110	43
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Molybdenum	5	mg/kg	< 5	< 5	< 5	< 5
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Selenium	2	mg/kg	< 2	< 2	< 2	< 2
Silver	2	mg/kg	< 2	< 2	< 2	< 2
Tin	10	mg/kg	< 10	< 10	< 10	< 10
Vanadium	10	mg/kg	-	16	< 10	14
Zinc	5	mg/kg	12	19	15	12
% Moisture	1	%	4.4	18	18	20
Chromium (hexavalent)	1	mg/kg	< 1	-	-	-
Cyanide (total)	5	mg/kg	< 5	-	-	-
Fluoride	100	mg/kg	< 100	-	-	-
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units	7.2	-	-	-
Volatile Organics						
Hexachlorobutadiene	0.5	mg/kg	< 0.5	-	-	-
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	< 0.5	-	-	-
1.2.4-Trichlorobenzene	0.5	mg/kg	< 0.5	-	-	-
1.1-Dichloroethene	0.5	mg/kg	< 0.5	-	-	-
1.1.1-Trichloroethane	0.5	mg/kg	< 0.5	-	-	-
1.1.1.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	-	-
1.1.2-Trichloroethane	0.5	mg/kg	< 0.5	-	-	-

Client Sample ID			2710_S09	2710_S10	2710_S11	2710_S12
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-Oc0059311	M22-Oc0059312	M22-Oc0059313	M22-Oc0059314
Date Sampled			Oct 27, 2022	Oct 27, 2022	Oct 27, 2022	Oct 27, 2022
Test/Reference	LOR	Unit				
Volatile Organics						
1.1.2.2-Tetrachloroethane	0.5	mg/kg	< 0.5	-	-	-
1.2-Dibromoethane	0.5	mg/kg	< 0.5	-	-	-
1.2-Dichlorobenzene	0.5	mg/kg	< 0.5	-	-	-
1.2-Dichloroethane	0.5	mg/kg	< 0.5	-	-	-
1.2-Dichloropropane	0.5	mg/kg	< 0.5	-	-	-
1.2.3-Trichloropropane	0.5	mg/kg	< 0.5	-	-	-
1.2.4-Trimethylbenzene	0.5	mg/kg	< 0.5	-	-	-
1.3-Dichlorobenzene	0.5	mg/kg	< 0.5	-	-	-
1.3-Dichloropropane	0.5	mg/kg	< 0.5	-	-	-
1.3.5-Trimethylbenzene	0.5	mg/kg	< 0.5	-	-	-
1.4-Dichlorobenzene	0.5	mg/kg	< 0.5	-	-	-
2-Butanone (MEK)	0.5	mg/kg	< 0.5	-	-	-
2-Propanone (Acetone)	0.5	mg/kg	< 0.5	-	-	-
4-Chlorotoluene	0.5	mg/kg	< 0.5	-	-	-
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	< 0.5	-	-	-
Allyl chloride	0.5	mg/kg	< 0.5	-	-	-
Benzene	0.1	mg/kg	< 0.1	-	-	-
Bromobenzene	0.5	mg/kg	< 0.5	-	-	-
Bromochloromethane	0.5	mg/kg	< 0.5	-	-	-
Bromodichloromethane	0.5	mg/kg	< 0.5	-	-	-
Bromoform	0.5	mg/kg	< 0.5	-	-	-
Bromomethane	0.5	mg/kg	< 0.5	-	-	-
Carbon disulfide	0.5	mg/kg	< 0.5	-	-	-
Carbon Tetrachloride	0.5	mg/kg	< 0.5	-	-	-
Chlorobenzene	0.5	mg/kg	< 0.5	-	-	-
Chloroethane	0.5	mg/kg	< 0.5	-	-	-
Chloroform	0.5	mg/kg	< 0.5	-	-	-
Chloromethane	0.5	mg/kg	< 0.5	-	-	-
cis-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	-	-
cis-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	-	-
Dibromochloromethane	0.5	mg/kg	< 0.5	-	-	-
Dibromomethane	0.5	mg/kg	< 0.5	-	-	-
Dichlorodifluoromethane	0.5	mg/kg	< 0.5	-	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	-
Iodomethane	0.5	mg/kg	< 0.5	-	-	-
Isopropyl benzene (Cumene)	0.5	mg/kg	< 0.5	-	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	-
Methylene Chloride	0.5	mg/kg	< 0.5	-	-	-
o-Xylene	0.1	mg/kg	< 0.1	-	-	-
Styrene	0.5	mg/kg	< 0.5	-	-	-
Tetrachloroethene	0.5	mg/kg	< 0.5	-	-	-
Toluene	0.1	mg/kg	< 0.1	-	-	-
trans-1.2-Dichloroethene	0.5	mg/kg	< 0.5	-	-	-
trans-1.3-Dichloropropene	0.5	mg/kg	< 0.5	-	-	-
Trichloroethene	0.5	mg/kg	< 0.5	-	-	-
Trichlorofluoromethane	0.5	mg/kg	< 0.5	-	-	-
Vinyl chloride	0.5	mg/kg	< 0.5	-	-	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	-
Total MAH*	0.5	mg/kg	< 0.5	-	-	-

Client Sample ID			2710_S09	2710_S10	2710_S11	2710_S12
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-Oc0059311	M22-Oc0059312	M22-Oc0059313	M22-Oc0059314
Date Sampled			Oct 27, 2022	Oct 27, 2022	Oct 27, 2022	Oct 27, 2022
Test/Reference	LOR	Unit				
Volatile Organics						
Vic EPA IWRG 621 CHC (Total)*	0.5	mg/kg	< 0.5	-	-	-
Vic EPA IWRG 621 Other CHC (Total)*	0.5	mg/kg	< 0.5	-	-	-
4-Bromofluorobenzene (surr.)	1	%	100	-	-	-
Toluene-d8 (surr.)	1	%	98	-	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	-	-
Acenaphthene	0.5	mg/kg	< 0.5	-	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	-	-	-
Anthracene	0.5	mg/kg	< 0.5	-	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	-	-
Chrysene	0.5	mg/kg	< 0.5	-	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	-	-
Fluoranthene	0.5	mg/kg	< 0.5	-	-	-
Fluorene	0.5	mg/kg	< 0.5	-	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	-	-
Naphthalene	0.5	mg/kg	< 0.5	-	-	-
Phenanthrene	0.5	mg/kg	< 0.5	-	-	-
Pyrene	0.5	mg/kg	< 0.5	-	-	-
Total PAH*	0.5	mg/kg	< 0.5	-	-	-
2-Fluorobiphenyl (surr.)	1	%	68	-	-	-
p-Terphenyl-d14 (surr.)	1	%	64	-	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	-	-
a-HCH	0.05	mg/kg	< 0.05	-	-	-
Aldrin	0.05	mg/kg	< 0.05	-	-	-
b-HCH	0.05	mg/kg	< 0.05	-	-	-
d-HCH	0.05	mg/kg	< 0.05	-	-	-
Dieldrin	0.05	mg/kg	< 0.05	-	-	-
Endosulfan I	0.05	mg/kg	< 0.05	-	-	-
Endosulfan II	0.05	mg/kg	< 0.05	-	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	-
Endrin	0.05	mg/kg	< 0.05	-	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	-
Endrin ketone	0.05	mg/kg	< 0.05	-	-	-
g-HCH (Lindane)	0.05	mg/kg	< 0.05	-	-	-
Heptachlor	0.05	mg/kg	< 0.05	-	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	-
Methoxychlor	0.05	mg/kg	< 0.05	-	-	-
Toxaphene	0.5	mg/kg	< 0.5	-	-	-

Client Sample ID			2710_S09	2710_S10	2710_S11	2710_S12
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M22-Oc0059311	M22-Oc0059312	M22-Oc0059313	M22-Oc0059314
Date Sampled			Oct 27, 2022	Oct 27, 2022	Oct 27, 2022	Oct 27, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	-	-
Dibutylchlorendate (surr.)	1	%	124	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	64	-	-	-
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	%	124	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	64	-	-	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	-	-	-
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	-	-	-
2.4.5-Trichlorophenol	1	mg/kg	< 1	-	-	-
2.4.6-Trichlorophenol	1	mg/kg	< 1	-	-	-
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	-	-	-
4-Chloro-3-methylphenol	1	mg/kg	< 1	-	-	-
Pentachlorophenol	1	mg/kg	< 1	-	-	-
Tetrachlorophenols - Total	10	mg/kg	< 10	-	-	-
Total Halogenated Phenol*	1	mg/kg	< 1	-	-	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	-	-	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	-	-	-
2-Nitrophenol	1.0	mg/kg	< 1	-	-	-
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	-	-	-
2.4-Dinitrophenol	5	mg/kg	< 5	-	-	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	-	-	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	-	-	-
Total cresols*	0.5	mg/kg	< 0.5	-	-	-
4-Nitrophenol	5	mg/kg	< 5	-	-	-
Dinoseb	20	mg/kg	< 20	-	-	-
Phenol	0.5	mg/kg	< 0.5	-	-	-
Phenol-d6 (surr.)	1	%	83	-	-	-
Total Non-Halogenated Phenol*	20	mg/kg	< 20	-	-	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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
Vic EPA 1828.2 Table 3 (Solids)			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Oct 28, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Oct 28, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Oct 28, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Metals IWRG 621 : Metals M12	Melbourne	Oct 28, 2022	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Chromium (hexavalent)	Melbourne	Oct 28, 2022	28 Days
- Method: LTM-INO-4100 Hexavalent Chromium by Spectrometric detection			
Cyanide (total)	Melbourne	Oct 28, 2022	14 Days
- Method: LTM-INO-4020 Total Free WAD Cyanide by CFA			
Fluoride	Melbourne	Oct 29, 2022	28 Days
- Method: LTM-INO-4150 Determination of Total Fluoride PART B – ISE			
pH (1:5 Aqueous extract at 25 °C as rec.)	Melbourne	Oct 28, 2022	7 Days
- Method: LTM-GEN-7090 pH in soil by ISE			
Volatile Organics	Melbourne	Oct 28, 2022	7 Days
- Method: USEPA 8260 - MGT 350A Volatile Organics by GCMS			
Volatile Organics	Melbourne	Oct 28, 2022	7 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices (USEPA 8260)			
Polycyclic Aromatic Hydrocarbons	Melbourne	Oct 28, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Organochlorine Pesticides	Melbourne	Oct 28, 2022	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)			
Polychlorinated Biphenyls	Melbourne	Oct 28, 2022	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8082)			
Phenols (Halogenated)	Melbourne	Oct 28, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Oct 28, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Heavy Metals	Melbourne	Oct 28, 2022	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Melbourne	Oct 27, 2022	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins

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Company Name: Beveridge Williams & Co Pty Ltd
Address: PO Box 61
Malvern
VIC 3144

Order No.:
Report #: 935719
Phone: 9524 8888
Fax: 9524 8899

Received: Oct 27, 2022 2:53 PM
Due: Nov 4, 2022
Priority: 5 Day
Contact Name:

Project Name: LIMITED SOIL SAMPLING
Project ID: 2102640

Eurofins Analytical Services Manager :

Sample Detail						Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Tin	Vanadium	Zinc	Moisture Set	Total Recoverable Hydrocarbons	Vic EPA 1828.2 Table 3 (Solids)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
External Laboratory																											
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**																						
1	2710_S01	Oct 27, 2022		Soil	M22-Oc0059303	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2	2710_S02	Oct 27, 2022		Soil	M22-Oc0059304	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3	2710_S03	Oct 27, 2022		Soil	M22-Oc0059305																				X		X
4	2710_S04	Oct 27, 2022		Soil	M22-Oc0059306	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5	2710_S05	Oct 27, 2022		Soil	M22-Oc0059307	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
6	2710_S06	Oct 27, 2022		Soil	M22-Oc0059308	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
7	2710_S07	Oct 27, 2022		Soil	M22-Oc0059309	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8	2710_S08	Oct 27, 2022		Soil	M22-Oc0059310	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
9	2710_S09	Oct 27, 2022		Soil	M22-Oc0059311																				X		X
10	2710_S10	Oct 27, 2022		Soil	M22-Oc0059312	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
11	2710_S11	Oct 27, 2022		Soil	M22-Oc0059313	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12	2710_S12	Oct 27, 2022		Soil	M22-Oc0059314	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Test Counts						10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	12	10	2

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 1999, as amended May 2013 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. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - 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.
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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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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. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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							
Heavy Metals							
Antimony	mg/kg	< 10			10	Pass	
Arsenic	mg/kg	< 2			2	Pass	
Barium	mg/kg	< 10			10	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	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Molybdenum	mg/kg	< 5			5	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	
Silver	mg/kg	< 2			2	Pass	
Tin	mg/kg	< 10			10	Pass	
Vanadium	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	101			70-130	Pass	
Naphthalene	%	108			70-130	Pass	
TRH C6-C10	%	88			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Antimony	%	110			80-120	Pass	
Arsenic	%	101			80-120	Pass	
Barium	%	110			80-120	Pass	
Beryllium	%	109			80-120	Pass	
Boron	%	114			80-120	Pass	
Cadmium	%	107			80-120	Pass	
Chromium	%	107			80-120	Pass	
Cobalt	%	109			80-120	Pass	
Copper	%	98			80-120	Pass	
Lead	%	109			80-120	Pass	
Manganese	%	107			80-120	Pass	
Mercury	%	100			80-120	Pass	
Molybdenum	%	107			80-120	Pass	
Nickel	%	96			80-120	Pass	
Selenium	%	101			80-120	Pass	
Silver	%	106			80-120	Pass	
Tin	%	108			80-120	Pass	
Vanadium	%	107			80-120	Pass	
Zinc	%	98			80-120	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	98			70-130	Pass	
LCS - % Recovery							

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Volatile Organics									
1.1-Dichloroethene			%	72			70-130	Pass	
1.2-Dichlorobenzene			%	109			70-130	Pass	
1.2-Dichloroethane			%	93			70-130	Pass	
Benzene			%	72			70-130	Pass	
Ethylbenzene			%	80			70-130	Pass	
m&p-Xylenes			%	77			70-130	Pass	
Toluene			%	70			70-130	Pass	
Trichloroethene			%	73			70-130	Pass	
Xylenes - Total*			%	77			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	M22-Oc0061509	NCP	%	106			70-130	Pass	
TRH C10-C14	M22-Oc0059946	NCP	%	127			70-130	Pass	
Naphthalene	M22-Oc0061509	NCP	%	81			70-130	Pass	
TRH C6-C10	M22-Oc0061509	NCP	%	101			70-130	Pass	
TRH >C10-C16	M22-Oc0059946	NCP	%	123			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	L22-Oc0057737	NCP	%	115			70-130	Pass	
Cyanide (total)	M22-Oc0061388	NCP	%	86			70-130	Pass	
Fluoride	M22-Oc0059783	NCP	%	81			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethene	M22-Oc0063951	NCP	%	71			70-130	Pass	
1.1.1-Trichloroethane	M22-Oc0063951	NCP	%	73			70-130	Pass	
1.2-Dichlorobenzene	M22-Oc0063951	NCP	%	93			70-130	Pass	
1.2-Dichloroethane	M22-Oc0063951	NCP	%	113			70-130	Pass	
Benzene	M22-Oc0063951	NCP	%	90			70-130	Pass	
Ethylbenzene	M22-Oc0063951	NCP	%	94			70-130	Pass	
m&p-Xylenes	M22-Oc0063951	NCP	%	89			70-130	Pass	
o-Xylene	M22-Oc0063951	NCP	%	101			70-130	Pass	
Toluene	M22-Oc0063951	NCP	%	105			70-130	Pass	
Trichloroethene	M22-Oc0063951	NCP	%	80			70-130	Pass	
Xylenes - Total*	M22-Oc0063951	NCP	%	93			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	L22-Oc0055658	NCP	%	111			70-130	Pass	
Acenaphthylene	L22-Oc0055658	NCP	%	76			70-130	Pass	
Anthracene	L22-Oc0055658	NCP	%	84			70-130	Pass	
Benz(a)anthracene	L22-Oc0055658	NCP	%	117			70-130	Pass	
Benzo(a)pyrene	L22-Oc0055658	NCP	%	87			70-130	Pass	
Benzo(b&j)fluoranthene	L22-Oc0055658	NCP	%	129			70-130	Pass	
Benzo(g.h.i)perylene	L22-Oc0055658	NCP	%	119			70-130	Pass	
Benzo(k)fluoranthene	L22-Oc0055658	NCP	%	104			70-130	Pass	
Chrysene	L22-Oc0055658	NCP	%	112			70-130	Pass	
Dibenz(a.h)anthracene	L22-Oc0055658	NCP	%	92			70-130	Pass	
Fluoranthene	L22-Oc0055658	NCP	%	114			70-130	Pass	
Fluorene	L22-Oc0055658	NCP	%	88			70-130	Pass	
Indeno(1.2.3-cd)pyrene	L22-Oc0055658	NCP	%	90			70-130	Pass	
Naphthalene	L22-Oc0055658	NCP	%	100			70-130	Pass	
Phenanthrene	L22-Oc0055658	NCP	%	72			70-130	Pass	
Pyrene	L22-Oc0055658	NCP	%	108			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	M22-Oc0052954	NCP	%	106			70-130	Pass	
4.4'-DDD	M22-Oc0052954	NCP	%	98			70-130	Pass	
4.4'-DDE	M22-Oc0052954	NCP	%	101			70-130	Pass	
4.4'-DDT	M22-Oc0052954	NCP	%	111			70-130	Pass	
a-HCH	M22-Oc0052954	NCP	%	104			70-130	Pass	
Aldrin	M22-Oc0052954	NCP	%	82			70-130	Pass	
b-HCH	M22-Oc0052954	NCP	%	110			70-130	Pass	
d-HCH	M22-Oc0052954	NCP	%	104			70-130	Pass	
Endosulfan I	M22-Oc0052954	NCP	%	104			70-130	Pass	
Endosulfan II	M22-Oc0052954	NCP	%	113			70-130	Pass	
Endosulfan sulphate	M22-Oc0052954	NCP	%	119			70-130	Pass	
Endrin	M22-Oc0052954	NCP	%	130			70-130	Pass	
Endrin ketone	M22-Oc0052954	NCP	%	124			70-130	Pass	
g-HCH (Lindane)	M22-Oc0052954	NCP	%	99			70-130	Pass	
Heptachlor	M22-Oc0052954	NCP	%	100			70-130	Pass	
Heptachlor epoxide	M22-Oc0052954	NCP	%	110			70-130	Pass	
Hexachlorobenzene	M22-Oc0052954	NCP	%	108			70-130	Pass	
Methoxychlor	M22-Oc0052954	NCP	%	117			70-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	L22-Oc0055658	NCP	%	117			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M22-Oc0048549	NCP	%	53			30-130	Pass	
Dinoseb	L22-Oc0055658	NCP	%	72			30-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Antimony	M22-Oc0059308	CP	%	95			75-125	Pass	
Arsenic	M22-Oc0059308	CP	%	94			75-125	Pass	
Barium	M22-Oc0059308	CP	%	99			75-125	Pass	
Beryllium	M22-Oc0059308	CP	%	108			75-125	Pass	
Boron	M22-Oc0059308	CP	%	97			75-125	Pass	
Cadmium	M22-Oc0059308	CP	%	100			75-125	Pass	
Chromium	M22-Oc0059308	CP	%	99			75-125	Pass	
Cobalt	M22-Oc0059308	CP	%	103			75-125	Pass	
Copper	M22-Oc0059308	CP	%	94			75-125	Pass	
Lead	M22-Oc0059308	CP	%	103			75-125	Pass	
Manganese	M22-Oc0059308	CP	%	83			75-125	Pass	
Mercury	M22-Oc0059308	CP	%	96			75-125	Pass	
Molybdenum	M22-Oc0059308	CP	%	98			75-125	Pass	
Nickel	M22-Oc0059308	CP	%	91			75-125	Pass	
Selenium	M22-Oc0059308	CP	%	94			75-125	Pass	
Silver	M22-Oc0059308	CP	%	99			75-125	Pass	
Tin	M22-Oc0059308	CP	%	100			75-125	Pass	
Vanadium	M22-Oc0059308	CP	%	100			75-125	Pass	
Zinc	M22-Oc0059308	CP	%	92			75-125	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
4-Nitrophenol	M22-Oc0057607	NCP	%	60			30-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M22-Oc0059304	CP	%	17	15	11	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	M22-Oc0059305	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M22-Oc0059305	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M22-Oc0059305	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C10-C16	M22-Oc0059305	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M22-Oc0059305	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M22-Oc0059305	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	M22-Oc0059305	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Cyanide (total)	M22-Oc0059901	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Fluoride	M22-Oc0056241	NCP	mg/kg	160	130	20	30%	Pass	
pH (1:5 Aqueous extract at 25 °C as rec.)	M22-Oc0059168	NCP	pH Units	7.6	7.4	pass	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Hexachlorobutadiene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trichlorobenzene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dibromoethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trimethylbenzene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trimethylbenzene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Butanone (MEK)	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Propanone (Acetone)	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chlorotoluene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Allyl chloride	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromobenzene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromochloromethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromoform	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon disulfide	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Dibromomethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dichlorodifluoromethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Iodomethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Isopropyl benzene (Cumene)	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methylene Chloride	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Styrene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Tetrachloroethene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.2-Dichloroethene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.3-Dichloropropene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloroethene	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichlorofluoromethane	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Vinyl chloride	M22-Oc0066572	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M22-Oc0059305	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M22-Oc0059305	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	M22-Oc0059305	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	M22-Oc0059305	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	M22-Oc0059305	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	M22-Oc0059305	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	M22-Oc0059305	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	M22-Oc0059305	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	M22-Oc0059305	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	M22-Oc0059305	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	M22-Oc0059305	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	M22-Oc0059305	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	M22-Oc0059305	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	M22-Oc0059305	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	M22-Oc0059305	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	M22-Oc0059305	CP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	M22-Oc0059305	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Nitrophenol	M22-Oc0059305	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	M22-Oc0059305	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	M22-Oc0059305	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	M22-Oc0059305	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	M22-Oc0059305	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	M22-Oc0059305	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	M22-Oc0059305	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Antimony	M22-Oc0059307	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Arsenic	M22-Oc0059307	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Barium	M22-Oc0059307	CP	mg/kg	26	20	23	30%	Pass	
Beryllium	M22-Oc0059307	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	M22-Oc0059307	CP	mg/kg	26	22	16	30%	Pass	
Cadmium	M22-Oc0059307	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M22-Oc0059307	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Cobalt	M22-Oc0059307	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	M22-Oc0059307	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	M22-Oc0059307	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Manganese	M22-Oc0059307	CP	mg/kg	200	150	27	30%	Pass	
Mercury	M22-Oc0059307	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Molybdenum	M22-Oc0059307	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Nickel	M22-Oc0059307	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Selenium	M22-Oc0059307	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Silver	M22-Oc0059307	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Tin	M22-Oc0059307	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Vanadium	M22-Oc0059307	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Zinc	M22-Oc0059307	CP	mg/kg	19	16	21	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	M22-Oc0059308	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Naphthalene	M22-Oc0059308	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M22-Oc0059308	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Antimony	M22-Oc0059308	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Arsenic	M22-Oc0059308	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Barium	M22-Oc0059308	CP	mg/kg	21	22	1.3	30%	Pass	
Beryllium	M22-Oc0059308	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	M22-Oc0059308	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Cadmium	M22-Oc0059308	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M22-Oc0059308	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Cobalt	M22-Oc0059308	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	M22-Oc0059308	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	M22-Oc0059308	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Manganese	M22-Oc0059308	CP	mg/kg	120	120	1.1	30%	Pass	
Mercury	M22-Oc0059308	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Molybdenum	M22-Oc0059308	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Nickel	M22-Oc0059308	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Selenium	M22-Oc0059308	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Silver	M22-Oc0059308	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Tin	M22-Oc0059308	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Vanadium	M22-Oc0059308	CP	mg/kg	11	11	1.3	30%	Pass	
Zinc	M22-Oc0059308	CP	mg/kg	13	14	13	30%	Pass	
Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
Benzene	M22-Oc0059308	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M22-Oc0059308	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M22-Oc0059308	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M22-Oc0059308	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M22-Oc0059308	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	M22-Oc0059308	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	M22-Oc0059311	CP	mg/kg	< 1	< 1	<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.
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

Authorised by:

Analytical Services Manager
Senior Analyst-Organic
Senior Analyst-Organic
Senior Analyst-Volatile
Senior Analyst-Inorganic
Senior Analyst-Metal
Senior Analyst-Sample Properties
Senior Analyst-Inorganic
Senior Analyst-Volatile

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.